



February 25, 2019

Dear Ms Skelton,

This is a resubmission of our proposal #95 “Gulf Specimen Marine Laboratory Expansion, Ecotourism and Aquaculture Project” to Triumph Gulf Coast Inc. We have a new title: “Gulf Specimen Marine Laboratory’s Gulf Education and Marketing of Marine-Life, Ecotourism, Education and Aquaculture Project”. Our original preproposal stated,

“The requested funds will provide for the expansion of GSML infrastructure and operations in ecotourism and aquaculture. We plan to expand our established successful, award winning education and internship programs adding courses that will lead to technical certificates in 1) aquaculture, 2) aquarist certification and 3) aquarium design and management. GSML will offer courses and apprenticeships in non-oyster commercial marine biology, providing knowledge and skills for growing and harvesting marine life for the burgeoning salt water hobbyist aquarium trade. We also will teach students to develop and market new products from local marine resources.”

“We will offer three courses conducted twice a year, which we will produce up to 72 graduates per year earning certificates qualifying them for higher paying jobs in the growing aquarium and aquaculture industries. The project involves research by aquarium staff to improve aquaculture methods and develop curriculum. Interns from FSU, FAMU and other educational institutions will learn to test water quality and operate and maintain life support systems. Our interns and volunteers have consistently been able to get jobs with public aquariums, state government, educational institutions and laboratories due to the extensive training and hands on experience that GSML provides.”

We have been informed by both a board member and by staff that a non-profit standalone organization that has no affiliation with a government entity will never receive funding no matter what the quality of the proposal is. This is contrary to the stated published qualifications for applying. We are giving you another opportunity to reconsider your unpublished rules by resubmitting our proposal.

The changes we have made to this resubmission are based on the rejection letter of January 9th, 2019 as well as based on communication with staff from Triumph and feedback suggested by them. This should clarify the section of the proposal that staff apparently found confusing.

Specifically, to state our proposal means the cost per direct job is \$2,475,000 is incorrect. Our proposal was reviewed by both the FSU Centre for Economic Forecasting and Analysis. Our proposal was also reviewed by retired senior economist Dr. Leonard Elzie former Bureau Chief of both Economic Analysis and Small and Minority Business Assistance in the Division of Economic Development of the Florida Department of Commerce. We would like to quote Dr. Julie Harrington, The Center for Economic Forecasting and Analysis at Florida State University.

“Also, it’s rather confusing and incorrect to simply divide the total amount requested (\$4.95M by just two jobs the first year = \$2.47 M per job). It didn’t correspond to the 19 direct new jobs over time (i.e., which equals \$260K/job) which is within reason since it also leverages other indirect jobs that will be created.” Tue, Jan 15, 2019 at 3:20 PM

Triumph staff also appear to have interpreted the physical improvement to the facility and the intern training program as mutually exclusive when they are in fact the same integrated program. While we do plan to hire two new people in the first year to implement the program, our proposal clearly states that we also expect to create at least 19 direct new jobs over the course of the three years of the proposal at minimum (\$260,526/job) and 165 certificates in the first three years (i.e., which equals \$15,000/certificate over three years) and the Triumph evaluation ignores 57 additional certifications in each additional year for the next seven years. (564 over ten years = \$8770/certificate) (See page 60 of our proposal)

We also wish to address two more misunderstandings of staff that were identified in their conversations with us. First staff expressed concern about our “university based” intern program. Specifically, one comment stands out. *“There are dozens of marine biology degrees out there already.”*

Our program is designed to be accessible to non university individuals as a trade with widespread opportunity for future employment. Although many of our interns come from universities we would like to explicitly state that this certification is **not** a university based or university style program. This certification is designed to function as a standalone trade training. Our certification is centered in practical hands on experience. As such, this program can complement a university degree in fields like marine biology because it provides an opportunity for university students to acquire practical skills university training simply does not offer.

Secondly, we have also been told by Triumph staff that any certification we implement must already be recognised nationally as an industry standard and Triumph will never consider a novel new program of certification created by us. We have done a great deal of research on the certification process and this comment from Triumph begs the question, who certifies the first certifiers? All certifications must begin somewhere. Some expert organisation with a long term track record of success, with an excellent reputation in the field, must start the first certification and become the first certifier. In the field of aquarium technician/marine life specimen collection/aquariologist **there simply is no such nationally recognised certification** we can turn to. We have chosen the best there is yet in the AALSO but we already meet and exceed that standard. Our field, and the workforce we train, operates on reputation and track record and word of mouth recommendations. GSML already holds the highest possible standard by reputation and longevity and that places us in a perfect position to create the first formal certification process for

what we already do. Such a bold new innovative program is what the panhandle needs to create new jobs and new industries specific to the Florida panhandle region and that can enhance the reputation of our region internationally. We are providing an explicit list of potential employment in Florida for individuals who meet our certification requirements to illustrate the demand for our proposed novel and innovative certification program and the jobs already waiting to be filled by our trainees.

The design, formalization and licensing of such a program is time consuming and we have continued to develop it since our original Triumph application. We can now provide explicit details which are in this proposal. Licensing is expensive (\$3700 just to start the licensing process with no guarantee of success) and we are counting on the Triumph funding to help pay for these start up expenses. See the attached Gulf Education and Marketing for Marine Life Specialist Certification (GEMMs) for specific details.

We are also supplying a list of the matching funds Gulf Specimen Marine Laboratory and Aquarium will be providing to our proposal. We did not state this explicitly in our original proposal however examining other successfully funded proposals, we would like to ensure you are aware of our matching funds.

We have heard that some funds from Triumph may be diverted to assist in rebuilding infrastructure and assisting businesses to recover post Hurricane Michael. We would like to remind you that our facility was among those damaged by Hurricane Michael with storm surge causing an excess of \$800,000 in damages (based on FEMA preliminary assessments), only a portion of which will be covered by insurance and FEMA.

Finally, we would like to close by reminding Triumph we are a nonprofit educational facility open to the public and not a just another private business. FEMA classifies us as the same as a museum. We are asking for funds for a non-profit educational facility open to the public that already complements and enhances Florida educational facilities from nursery to university levels not to fund expanding a private business.

We hope this additional information allows our new proposal to better align the project with the stated goals of Triumph

Thank you for your kind consideration.

Sincerely

Jack Rudloe

Abstract Gulf Specimen Marine Laboratory Expansion, Ecotourism and Aquaculture Project

Gulf Specimen is a 56-year-old tax exempt IRS 501(c)(3) environmental education center located in Panacea, Florida (Wakulla County) that markets marine life to schools, research laboratories and aquariums. GSML seeks **\$4,595,000** from the Triumph Fund. This will provide GSML with capital to invest in an expansion of our present facility and programs that will enhance the already positive impact we have on Wakulla County and the surrounding region. **GSML will contribute \$5,540,000.** This proposal addresses three branches of the GSML; Training/Education, Biological Supply and Tourism. The **Training/Education** will create a new aquaculture/aquarium technician trade for which there is no formal certification at present. The **Biological Supply Component** includes provision to expand the current market into Canada, Europe and Asia. The **Tourism Component:** GSML will also expand its ecotourism program and add a visiting scientist and visiting artist component. The GSML Ecotourism and Aquaculture Project will initially create temporary construction and construction-related jobs. Output initially spikes to \$7.25 million for the three years of operation primarily due to the effect construction activity eventually stabilizes to about \$8.04 million in Year 10. Output averages \$7.07 on an annual basis. The cumulative output total is \$70.74 million. Personal Income increases by \$7.45 million for the three years of operation also primarily due to the effect of construction activity, and by Year 10, has settled at \$2.91 million on an average annual basis. The cumulative personal income total is \$29.13 million over the ten year time period. GSML being self-propelled by year 4 and 19 FTEs permanent jobs will be created by the end of Year 10. Employment increases by 55 jobs for the initial three years of operation, before settling at an annual 57 total employment impacts in Year 10. There are 19 direct net new jobs projected over 10 years (i.e., an average of 2 additional direct net new jobs on an annual basis). Gulf Specimen Marine Laboratory is requesting funding for a three prong approach to generate maximum estimated economic benefits, based on tools and models on which our successful 52 year institution has survived and thrived. Our project will increase household income, enhance the region key assets and benefit the environment. We will be partnered with local education and tourist institutes. GSML has a proven track record in transformational success for the Northwest Florida region through our unique combination of activities. Our program will create net-new jobs in targeted industries of aquaculture, environmental education and aquarium technology. With support from Triumph GSML can become a premiere center of excellence for Wakulla County and the Panhandle region.

Executive Summary for Gulf Specimen Marine Laboratory Expansion, Ecotourism and Aquaculture Project

Gulf Specimen is a 56-year-old non profit environmental education center located in Panacea, Florida (Wakulla County) that markets marine life to schools, research laboratories and aquariums. GSML host over 500 school field trips per averaging 10,000 kids from around the state and Georgia, operates a public touch tank aquarium, a certified sea turtle rehabilitation facility and manages a work experience based training program.

Since 1962, GSML has provided live marine animals to thousands of the foremost research laboratories and universities in the United States, Canada, Europe and Japan. Over 700 scientific publications cite us as their source of research specimens. GSML presently collects and markets over 300 marine invertebrates, fish and algae to over 1300 scientific and educational institutions.

In 1980, Gulf Specimen Company became Gulf Specimen Marine Laboratories, Inc. (GSML), a not-for-profit corporation with a tax exempt IRS 501(c)(3) status. GSML is a licensed sea turtle rescue and rehabilitation center with a specially equipped hospital and turtle ambulance. All required permits and licenses from the FWC, Florida Department of Agriculture, and NOAA fisheries are maintained, and we have a 2 acre off shore lease for culturing live rock for aquariums.

GSML seeks **\$4,595,000** from the Triumph Fund. This will provide GSML with capital to invest in an expansion of our present facility and programs that will enhance the already positive impact we have on Wakulla Country and the surrounding region.

GSML will contribute \$5,540,000 during the same 3-year period with income derived from specimen sales, aquarium membership, SeaMobile, school field trips, and donations, etc. After Year 3, GSML will be self-sustaining and fund ongoing operations from Year 4 to Year 10 at an average cost of \$2,572,571 per year in 2018 USD.

Funding from Triumph are \$3,950,000 year 1, \$650,000 year 2 and \$350,000 in year 3

Matching GSML funds are \$1,087,000 year 1, \$1,455,000 year 2, \$1,789,000 year 3

This proposal addresses three branches of the GSML; Training/Education, Biological Supply and Tourism. All components are interconnected and work together. The three components are: Training/Education, Biological Supply and Tourism. No component should be considered as being separate for evaluating the financial support requested. All components are interconnected and work together. The first source of funds (in 2018 Nominal Dollars) is a 3-year period investment from Triumph Gulf Coast, Inc.

The **Training/Education Component** are detailed and the proposed improvement of our existing intern/practical work experience training program are outlined and include formalizing the program to comply with three national and one state level recognized certification programs. This will create a new aquaculture/aquarium technician/aquariologist trade for which there is no formal certification at present but for which there is widespread demand and which will become even more important as Florida aquaculture grows.

The **Biological Supply Component** includes provision to expand the current market. The United States is our primary market. However, to meet our goals stated in the financial plan. We plan to expand our markets into Canada, Europe and Asia. Marketing to foreign entities with live marine animals requires extensive permitting and associated costs, which we have not been able to exploit previously due to lack of manpower and funds for the investment. Further, we have not been able to

expand our marine life harvest to include items like algae based products or sea weed. Investment will increase and enhance our current market requiring more staff be hired to meet the demand.

The **Tourism Component:** GSML will also expand its ecotourism program. Ecotourism includes a wide range of outdoor recreation activities with far reaching economic benefits. It also includes a visiting scientist and visiting artist component. This expansion requires additional employees and funds for investment into enhanced facilities and equipment.

The following are the economic impact results of the Triumph-GSML project:

The GSML Ecotourism and Aquaculture Project will initially create temporary construction and construction-related jobs. And it will fully open in Year 3.

10.5 FTEs (ongoing effort, including the construction/facilities manager and administrative) will be created at the end of Year 3. With the GSML being self-propelled by year 4 and 19 FTEs permanent jobs will be created by the end of Year 10.

Employment increases by 55 jobs for the initial three years of operation, before settling at an annual 57 total employment impacts in Year 10. There are 19 direct net new jobs projected over 10 years (i.e., an average of 2 direct net new jobs on an annual basis).

Output initially spikes to \$7.25 million for the three years of operation primarily due to the effect construction activity eventually stabilizes to about \$8.04 million in Year 10. Output averages \$7.07 on an annual basis. The cumulative output total is \$70.74 million.

Personal Income increases by \$7.45 million for the three years of operation also primarily due to the effect of construction activity, and by Year 10, has settled at \$2.91 million on an average annual basis. The cumulative personal income total is \$29.13 million over the ten year time period.

Conclusion

Gulf Specimen Marine Laboratory is requesting funding for a three prong approach to generate maximum estimated economic benefits, based on tools and models on which our successful 52 year institution has survived and thrived. Our project will increase household income, enhance the region key assets and benefit the environment. We will be partnered with local education and tourist institutes. GSML has a proven track record in transformational success for the Northwest Florida region through our unique combination of activities. Our program will create net-new jobs in targeted industries of aquaculture, environmental education and aquarium technology. With support from Triumph GSML can become a premiere center of excellence for Wakulla County and the Panhandle region.

Triumph Gulf Coast, Inc. Trust Fund Application for Funds

Proposal Instructions: The Triumph Gulf Coast, Inc. Trust Fund Grant Application (this document) must be completed by the entity applying for the grant and signed, as applicable, by either the individual applying for funds, an individual authorized to bind the entity applying for funds, a chief elected official, the administrator for the governmental entity or their designee. Please read the Application carefully as some questions may require a separate narrative to be completed. In addition, please complete all Addendums that may be applicable to the proposed project or program.

Triumph Gulf Coast, Inc. will make awards from available funds to projects or programs that meet the priorities for economic recovery, diversification, and enhancement of the disproportionately affected counties. Triumph Gulf Coast, Inc. may make awards for:

- Ad valorem tax rate reduction within disproportionately affected counties;
- Local match requirements of s. 288.0655 for projects in the disproportionately affected counties;
- Public infrastructure projects for construction, expansion, or maintenance which are shown to enhance economic recovery, diversification, and enhancement of the disproportionately affected counties;
- Grants to local governments in the disproportionately affected counties to establish and maintain equipment and trained personnel for local action plans of response to respond to disasters, such as plans created for the Coastal Impacts Assistance Program;
- Grants to support programs that prepare students for future occupations and careers at K-20 institutions that have campuses in the disproportionately affected counties. Eligible programs include those that increase students' technology skills and knowledge; encourage industry certifications; provide rigorous, alternative pathways for students to meet high school graduation requirements; strengthen career readiness initiatives; fund high-demand programs of emphasis at the bachelor's and master's level designated by the Board of Governors; and, similar to or the same as talent retention programs created by the Chancellor of the State University System and the Commission of Education; encourage students with interest or aptitude for science, technology, engineering, mathematics, and medical disciplines to pursue postsecondary education at a state university or a Florida College System institution within the disproportionately affected counties;
- Grants to support programs that provide participants in the disproportionately affected counties with transferable, sustainable workforce skills that are not confined to a single employer; and
- Grants to the tourism entity created under s. 288.1226 for the purpose of advertising and promoting tourism and Fresh From Florida, and grants to promote workforce and infrastructure, on behalf of all of the disproportionately affected counties.

Pursuant to Florida Law, Triumph Gulf Coast, Inc. will provide priority consideration to Applications for projects or programs that:

- Generate maximum estimated economic benefits, based on tools and models not generally employed by economic input-output analyses, including cost-benefit, return-on-investment, or dynamic scoring techniques to determine how the long-term economic growth potential of the disproportionately affected counties may be enhanced by the investment.
- Increase household income in the disproportionately affected counties above national average household income.
- Leverage or further enhance key regional assets, including educational institutions, research facilities, and military bases.
- Partner with local governments to provide funds, infrastructure, land, or other assistance for the project.
- Benefit the environment, in addition to the economy.
- Provide outcome measures.
- Partner with K-20 educational institutions or school districts located within the disproportionately affected counties as of January 1, 2017.
- Are recommended by the board of county commissioners of the county in which the project or program will be located.
- Partner with convention and visitor bureaus, tourist development councils, or chambers of commerce located within the disproportionately affected counties.

Additionally, the Board of Triumph Gulf Coast, Inc. may provide discretionary priority to consideration of Applications for projects and programs that:

- Are considered transformational for the future of the Northwest Florida region.
- May be consummated quickly and efficiently.
- Promote net-new jobs in the private sector with an income above regional average household income.
- Align with Northwest Florida FORWARD, the regional strategic initiative for Northwest Florida economic transformation.
- Create net-new jobs in targeted industries to include: aerospace and defense, financial services/shared services, water transportation, artificial intelligence, cybersecurity, information technology, manufacturing, and robotics.
- Promote industry cluster impact for unique targeted industries.
- Create net-new jobs with wages above national average wage (*e.g.*, similar to EFI QTI program, measured on graduated scale).
- Are located in Rural Area of Opportunity as defined by the State of Florida (DEO).
- Provide a wider regional impact versus solely local impact.
- Align with other similar programs across the regions for greater regional impact, and not be duplicative of other existing projects or programs.
- Enhance research and innovative technologies in the region.
- Enhance a targeted industry cluster or create a Center of Excellence unique to Northwest Florida.

- Create a unique asset in the region that can be leveraged for regional growth of targeted industries.
- Demonstrate long-term financial sustainability following Triumph Gulf Coast, Inc. funding.
- Leverage funding from other government and private entity sources.
- Provide local investment and spending.
- Are supported by more than one governmental entity and/or private sector companies, in particular proposed projects or programs supported by more than one county in the region.
- Provide clear performance metrics over duration of project or program.
- Include deliverables-based payment system dependent upon achievement of interim performance metrics.
- Provide capacity building support for regional economic growth.
- Are environmentally conscious and business focused.
- Include Applicant and selected partners/vendors located in Northwest Florida.

Applications will be evaluated and scored based on compliance with the statutory requirements of the Triumph Gulf Coast legislation, including but not limited to the priorities identified therein and the geographic region served by the proposed project or program.

Applicant Information

Name of Individual (if applying in individual capacity): _____

Name of Entity/Organization: Gulf Specimen Marine Laboratory

Background of Applicant Individual/Entity/Organization: _

Gulf Specimen is a 56-year-old non profit environmental education center located in Panacea, Florida (Wakulla County) that markets marine life to schools, research laboratories and aquariums.

See Attachment A

-

(If additional space is needed, please attach a Word document with your entire answer.)

Federal Employer Identification Number: _

59-2021454

Contact Information:

Primary Contact Information: Cypress Rudloe

Title: Executive Director

Mailing Address: PO Box 237
Panacea, FL 32346

Phone: 850-445-8618

Email: rudloe.cypress@gmail.com

Website: http://www.gulfspecimen.org

Identify any co-applicants, partners, or other entities or organizations that will have a role in the proposed project or program and such partners proposed roles.

There are no other formal partners bringing in funds but we have informal partnerships with several university and technical colleges. See Attachment C and letters of support.

(If additional space is needed, please attach a Word document with your entire answer.)

Total amount of funding requested from Triumph Gulf Coast: 4,595,000.

-

Has the applicant in the past requested or applied for funds for all or part of the proposed project/program?

☐ Yes ☒ No

If yes, please provide detailed information concerning the prior request for funding, including:

- the date the request/application for funding was made;
- the source to which the request/application for funding was made,
- the results of the request/application for funding, and
- projected or realized results and/or outcomes from prior funding.

This is a resubmission of an earlier Triumph Proposal with modifications. There are no other requests for funding all or part of this proposal.

(If additional space is needed, please attach a Word document with your entire answer.)

Describe the financial status of the applicant and any co-applicants or partners:

GSML is a 501(c) (3)

-

(If additional space is needed, please attach a Word document with your entire answer.)

In a separate attachment, please provide financial statements or information that details the financial status of the applicant and any co-applicants or partners.

See attachment B

Has the applicant or any co-applicants, partners or any associated or affiliated entities or individuals filed for bankruptcy in the last ten (10) years?

☐ Yes ☒ No

If yes, please identify the entity or individual that filed for bankruptcy and the date of filing.

N/A

-

(If additional space is needed, please attach a Word document with your entire answer.)

Eligibility

Pursuant to Section 288.8017, Triumph Gulf Coast, Inc. was created to make awards from available funds to projects or programs that meet the priorities for economic recovery, diversification, and enhancement of the disproportionately affected counties. The disproportionately affected counties are: Bay County, Escambia County, Franklin County, Gulf County, Okaloosa County, Santa Rosa County, Walton County, or Wakulla County. *See*, Section 288.08012.

1. From the choices below, please check the box that describes the purpose of the proposed project or program (check all that apply):
 - ☐ Ad valorem tax rate reduction within disproportionately affected counties;
 - ☐ Local match requirements of s. 288.0655 for projects in the disproportionately affected counties;
 - ☒ Public infrastructure projects for construction, expansion, or maintenance which are shown to enhance economic recovery, diversification, and enhancement of the disproportionately affected counties;
 - ☐ Grants to local governments in the disproportionately affected counties to establish and maintain equipment and trained personnel for local action plans of response to respond to disasters, such as plans created for the Coastal Impacts Assistance Program;
 - ☒ Grants to support programs that prepare students for future occupations and careers at K-20 institutions that have campuses in the disproportionately affected counties. Eligible programs include those that increase students' technology skills and knowledge; encourage industry certifications; provide rigorous, alternative pathways for students to meet high school graduation requirements; strengthen career readiness initiatives; fund high-demand programs of emphasis at the bachelor's and master's level designated by the Board of Governors; and, similar to or the same as talent retention programs created by the Chancellor of the State University System and the Commission of Education, encourage students with interest or aptitude for science, technology, engineering, mathematics, and medical disciplines to pursue postsecondary education at a state university or a Florida College System institution within the disproportionately affected counties;
 - ☒ Grants to support programs that provide participants in the disproportionately affected counties with transferable, sustainable workforce skills that are not confined to a single employer; and
 - ☒ Grants to the tourism entity created under s. 288.1226 for the purpose of advertising and promoting tourism and Fresh From Florida, and grants to promote workforce and infrastructure, on behalf of all of the disproportionately affected counties.

2. Provide the title and a detailed description of the proposed project or program, including the location of the proposed project or program, a detailed description of, and quantitative evidence demonstrating how the proposed project or program will promote economic recovery, diversification, and enhancement of the disproportionately affected counties, a proposed timeline for the proposed project or program, and the disproportionately affected counties that will be impacted by the proposed project or program.

Title is: Gulf Specimen Marine Laboratory's Gulf Education and Marketing of Marine-Life Ecotourism, Education and Aquaculture Project (Details in Attachment C)

This proposal addresses three branches of the GSML; Training/Education, Biological Supply and Tourism. All components are interconnected and work together. The three components are: Training/Education, Biological Supply and Tourism and no component should be considered as being separate for evaluating the financial support requested. The first source of funds (in 2018 Nominal Dollars) is a 3-year period investment from Triumph Gulf Coast, Inc.

The **Training and Education Component** are detailed and the proposed improvement of our existing intern/practical work experience training program are outlined and include formalizing the program to comply with three national and one state level recognized certification programs.

The **Biological Supply Component** includes provision to expand the current market. The United States is our primary market. However, to meet our goals stated in the financial plan (see FSU attachment) we plan to expand our markets into Canada, Europe and Asia. Marketing to foreign entities with live marine animals requires extensive permitting and associated costs, which we have not been able to exploit previously due to lack of manpower and funds for the investment.

The **Tourism Component**: GSML will also expand its ecotourism program. Ecotourism includes a wide range of outdoor recreation activities with far reaching economic benefits. This expansion also requires additional employees and funds for investment into enhanced facilities.

(If additional space is needed, please attach a Word document with your entire answer.)

3. Explain how the proposed project or program is considered transformational and how it will effect the disproportionately affected counties in the next ten (10) years.

See Attachment D and F

The number of new net jobs created over the 10 years is expected to be 57 (or ~6 annually) jobs as a result of the GSML Education, Ecotourism and Aquaculture project. Over the 10 years of analysis, the GSML Education Ecotourism and Aquaculture project operations would create a cumulative economic output of \$70.74 million to the state of Florida, and \$29.13 million in personal income.

(If additional space is needed, please attach a Word document with your entire answer.)

4. Describe data or information available to demonstrate the viability of the proposed project or program.

See Attachment D and F

GSML has been in business for over fifty years with a proven long term record of success. GSML will contribute over \$5,540,000 during the same 3-year period with income derived from specimen sales, aquarium membership, SeaMobile, school field trips, and donations, etc. After Year 3, GSML will be self-sustaining and fund ongoing operations from Year 4 to Year 10 at an average cost of \$2,572,571 per year in 2018 USD.

(If additional space is needed, please attach a Word document with your entire answer.)

5. Describe how the impacts to the disproportionately affected counties will be measured long term.

See Attachment D also GSML keeps records of attendance and sales which are reviewed semi-annually and annually and which are also made available to interested parties on demand. As a nonprofit our records are available publicly. Our impact will be assessed during these reviews.

(If additional space is needed, please attach a Word document with your entire answer.)

6. Describe how the proposed project or program is sustainable. (Note: Sustainable means how the proposed project or program will remain financially viable and continue to perform in the long-term after Triumph Gulf Coast, Inc. funding.)

See Attachment D Also GSML has been in business for 52 years surviving economic downturns and hurricanes. Our track record is proven.

(If additional space is needed, please attach a Word document with your entire answer.)

7. Describe how the deliverables for the proposed project or program will be measured.

See Attachment D GSML keeps records of attendance and sales which are reviewed semi-annually and annually and which are also made available to interested parties on demand. As a nonprofit our records are available publicly. Our deliverables will be assessed during these reviews.

(If additional space is needed, please attach a Word document with your entire answer.)

Priorities

1. Please check the box if the proposed project or program will meet any of the following priorities (check all that apply):
 - ☒ Generate maximum estimated economic benefits, based on tools and models not generally employed by economic input-output analyses, including cost-benefit, return-on-investment, or dynamic scoring techniques to determine how the long-term economic growth potential of the disproportionately affected counties may be enhanced by the investment.
 - ☒ Increase household income in the disproportionately affected counties above national average household income.
 - ☒ Leverage or further enhance key regional assets, including educational institutions, research facilities, and military bases.

- Partner with local governments to provide funds, infrastructure, land, or other assistance for the project.
- ☒ Benefit the environment, in addition to the economy.
- ☒ Provide outcome measures.
- ☒ Partner with K-20 educational institutions or school districts located within the disproportionately affected counties as of January 1, 2017.
- ☒ Are recommended by the board of county commissioners of the county in which the project or program will be located.
- ☒ Partner with convention and visitor bureaus, tourist development councils, or chambers of commerce located within the disproportionately affected counties.

2. Please explain how the proposed project meets the priorities identified above.

See attachment E

Gulf Specimen's existing international market, education programs and ecotourism comes from word of mouth, and our excellent reputation which we have achieved over the past fifty years. However, with funding we will be able to expand our biological supply service, our educational component and our tourism component.
(If additional space is needed, please attach a Word document with your entire answer.)

3. Please explain how the proposed project or program meets the discretionary priorities identified by the Board.

See Attachment F GSML is already a major community employer and contributor with an excellent reputation built over five decades. Everything GSML is about is in alignment with the of discretionary priorities identified by the Board and we have the track record to prove it.

(If additional space is needed, please attach a Word document with your entire answer.)

4. In which of the eight disproportionately affected county/counties is the proposed project or program located? (Circle all that apply)

Escambia Santa Rosa Okaloosa Walton Bay Gulf Franklin Wakulla

5. Was this proposed project or program on a list of proposed projects and programs submitted to Triumph Gulf Coast, Inc., by one (or more) of the eight disproportionately affected Counties as a project and program located within its county?
Yes ☒X No ☐

If yes, list all Counties that apply: Wakulla County

6. Does the Board of County Commissioners for each County listed in response to question 5, above, recommend this project or program to Triumph?

Yes ☒X No ☐

****Please attach proof of recommendation(s) from each County identified.**

See Letter of Support Wakulla BOCC

Approvals and Authority

1. If the Applicant is awarded grant funds based on this proposal, what approvals must be obtained before Applicant can execute an agreement with Triumph Gulf Coast, Inc.?
NONE
(If additional space is needed, please attach a Word document with your entire answer.)
2. If approval of a board, commission, council or other group is needed prior to execution of an agreement between the entity and Triumph Gulf Coast:
 - A. Provide the schedule of upcoming meetings for the group for a period of at least six months.
 - B. State whether that group can hold special meetings, and if so, upon how many days' notice.N/A
(If additional space is needed, please attach a Word document with your entire answer.)
3. Describe the timeline for the proposed project or program if an award of funding is approved, including milestones that will be achieved following an award through completion of the proposed project or program.
Year 1 Construction and Facilities Upgrade, Program Development
Year 2 Implementation of Programs including hiring of additional staff and start of GEMMS certification.
Year 3 Establishment of new expanded facility and programs
Year 4-10 Program is self sustaining.

See Attachment D and H for details.
(If additional space is needed, please attach a Word document with your entire answer.)
4. Attach evidence that the undersigned has all necessary authority to execute this proposal on behalf of the entity applying for funding. This evidence may take a variety of forms,

including but not limited to: a delegation of authority, citation to relevant laws or codes, policy documents, etc. In addition, please attach any support letters from partners.

See Attachment I

Funding and Budget:

Pursuant to Section 288.8017, awards may not be used to finance 100 percent of any project or program. An awardee may not receive all of the funds available in any given year.

1. Identify the amount of funding sought from Triumph Gulf Coast, Inc. and the time period over which funding is requested.

4,595,000 3 years_with an initial request of \$3,595,000

(If additional space is needed, please attach a Word document with your entire answer.)

2. What percentage of total program or project costs does the requested award from Triumph Gulf Coast, Inc. represent? (Please note that an award of funding will be for a defined monetary amount and will not be based on percentage of projected project costs.)

47.19% (GSML will contribute matching funds of over \$5,540,000 during the same 3-year period)

(If additional space is needed, please attach a Word document with your entire answer.)

3. Please describe the types and number of jobs expected from the proposed project or program and the expected average wage.

See attachment D and G

Employment increases by 55 jobs for the initial three years of operation, before settling at an annual 57 total employment impacts in Year 10.

(If additional space is needed, please attach a Word document with your entire answer.)

4. Does the potential award supplement but not supplant existing funding sources? If yes, describe how the potential award supplements existing funding sources.

☒ Yes ☐ No

See attachment G GSML will contribute matching funds of over \$5,540,000 during the same 3-year period.

(If additional space is needed, please attach a Word document with your entire answer.)

5. Please provide a Project/Program Budget. Include all applicable costs and other funding sources available to support the proposal.

On October 10, 2018 Hurricane Michael devastated the Florida Panhandle region including Wakulla County. Gulf Specimen Marine Laboratory, is a 501C3 institute as a private nonprofit open to the public and has the FEMA status of museum, zoo and aquarium and therefore qualified for FEMA funding. Gulf Specimen Marine Laboratory suffered an estimated \$801,664.31 (Based on FEMA damage inventories as of Feb 18, 2019 subject to further additions and review.) Our mitigation needs will likely double that amount \$1,600,000.00. This amount

covered only damaged inventory that would have been part of the GSML matching portion and does not reduce the need for funding for the expansion nor does it address economic recovery. GSML has suffered significantly due to loss of specimen sales, damage to our collecting already impacted by the oil spill, reduced tourism, and field trips. In spite of the impact of the hurricane, Gulf Specimen reopened to the public one week after the hurricane and is shipping specimens and leading field trips.

Our building proposal is generally outlined on Attachment H GSML Masterplan. Due to the expensive damage caused by Hurricane Michael our previous engineering plans will require updating to reflect the integration of the proposed repairs and mitigation plans. The updated plan with quotes will be submitted as soon as it is finalized.

Please see Attachment H CashFlow and Budget Summary

A. Project/Program Costs:

Example Costs (Note: Not exhaustive list of possible Cost categories.)

Construction	
Reconstruction	
Design & Engineering	
Construction Contingencies	
Land Acquisition	
Equipment	-
Supplies	-
Salaries	<hr/>

Other (specify) \$ _____

Total Project Costs: \$ _____

B. Other Project Funding Sources:

Example Funding Sources (Note: Not an exhaustive list of possible Funding Sources.)

City/County \$ _____

Private Sources \$ _____

Other (e.g., grants, etc.) \$ ____ Total Other

Please see Attachment H CashFlow and Budget Summary

-

Funding \$5,540,000

Total Amount \$10,135,000

Requested: \$4,595,000

Note: The total amount requested must equal the difference between the costs in 3A. and the other project funding sources in 3.B.

C. Provide a detailed budget narrative, including the timing and steps necessary to obtain the funding and any other pertinent budget-related information.

See Attachment G- Cash Flow Table

Funding from Triumph are \$3,950,000 year 1, \$650,000 year 2 and \$350,000 in year 3

Matching GSML funds are \$1,087,000 year 1, \$1,455,000 year 2, \$1,789,000 year 3

-

-

-

-

(If additional space is needed, please attach a Word document with your entire answer.)

Applicant understands that the Triumph Gulf Coast, Inc. statute requires that the award contract must include provisions requiring a performance report on the contracted activities, must account for the proper use of funds provided under the contract, and must include provisions for recovery of awards in the event the award was based upon fraudulent information or the awardee is not meeting the performance requirements of the award.

☒ Yes ☐ No

Applicant understands that awardees must regularly report to Triumph Gulf Coast, Inc. the expenditure of funds and the status of the project or program on a schedule determined by Triumph Gulf Coast, Inc.

☒ Yes ☐ No

Applicant acknowledges that Applicant and any co-Applicants will make books and records and other financial data available to Triumph Gulf Coast, Inc. as necessary to measure and confirm performance metrics and deliverables.

☒ Yes ☐ No

Applicant acknowledges that Triumph Gulf Coast, Inc. reserves the right to request additional information from Applicant concerning the proposed project or program.

☒ Yes ☐ No

ADDENDUM FOR INFRASTRUCTURE PROPOSALS:

1. Program Requirements

- A. Is the infrastructure owned by the public?
☐ Yes ☐ No
- B. Is the infrastructure for public use or does it predominately benefit the public?
☐ Yes ☐ No
- C. Will the public infrastructure improvements be for the exclusive benefit of any single company, corporation or business entity?
☐ Yes ☐ No
- D. Provide a detailed explanation of how the public infrastructure improvements will connect to a broader economic development vision for the community and benefit additional current and future businesses.
_N/A

-

(If additional space is needed, please attach a Word document with your entire answer.)

- E. Provide a detailed description of, and quantitative evidence demonstrating how the proposed public infrastructure project will promote:
- Economic recovery,
 - Economic Diversification,
 - Enhancement of the disproportionately affected counties,
 - Enhancement of a Targeted Industry.

-

(If additional space is needed, please attach a Word document with your entire answer.)

2. Additional Information

- A. Is this project an expansion of existing infrastructure project?
☐ Yes ☐ No
- B. Provide the proposed beginning commencement date and number of days required to complete construction of the infrastructure project.

-

(If additional space is needed, please attach a Word document with your entire answer.)

- C. What is the location of the public infrastructure? (Provide the road number, if applicable.)

-

(If additional space is needed, please attach a Word document with your entire answer.)

- D. Who is responsible for maintenance and upkeep? (Indicate if more than one are applicable.)

-

(If additional space is needed, please attach a Word document with your entire answer.)

- E. What permits are necessary for the infrastructure project?

-

(If additional space is needed, please attach a Word document with your entire answer.)

Detail whether required permits have been secured, and if not, detail the timeline for securing these permits. Additionally, if any required permits are local permits, will these permits be prioritized?

-

(If additional space is needed, please attach a Word document with your entire answer.)

- F. What is the future land use and zoning designation on the proposed site of the Infrastructure improvement, and will the improvements conform to those uses?

-

(If additional space is needed, please attach a Word document with your entire answer.)

- G. Will an amendment to the local comprehensive plan or a development order be required on the site of the proposed project or on adjacent property to accommodate the infrastructure and potential current or future job creation opportunities? If yes, please detail the timeline
- ☐ Yes ☐ No

-

(If additional space is needed, please attach a Word document with your entire answer.)

- H. Does this project have a local match amount? If yes, please describe the entity providing the match and the amount.
- ☐ Yes ☐ No

-

(If additional space is needed, please attach a Word document with your entire answer.)

- I. Provide any additional information or attachments to be considered for this proposal.

-

-

(If additional space is needed, please attach a Word document with your entire answer.)

ADDENDUM FOR WORKFORCE TRAINING PROPOSALS

1. Program Requirements

- A. Will this proposal supports programs that prepare students for future occupations and careers at K-20 institutions that have campuses in the disproportionately affected counties? If yes, please identify where the campuses are located and provide details on how the proposed programs will prepare students for future occupations and at which K-20 institutions that programs will be provided.

☒ Yes ☐ No

See Attachment J and O GSML already has a working intern program that is run cooperatively with local educational institutions. We will be introducing a formal certification program that will meet or exceed

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Will the proposed program (check all that apply):

- ☒ Increase students' technology skills and knowledge
- ☐ Encourage industry certifications
- ☐ Provide rigorous, alternative pathways for students to meet high school graduation requirements
- ☒ Strengthen career readiness initiatives
- ☐ Fund high-demand programs of emphasis at the bachelor's and master's level designated by the Board of Governors
- ☒ Encourage students with interest or aptitude for science, technology, engineering, mathematics, and medical disciplines to pursue postsecondary education at a state university or a Florida College System institution within the disproportionately affected counties (similar to or the same as talent retention programs created by the Chancellor of the State University System and the Commission on Education)

For each item checked above, describe how the proposed program will achieve these goals

See Attachment C D E J and O

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Will this proposal provide participants in the disproportionately affected counties with transferable, sustainable workforce skills but not confined to a single employer? If yes, please provide details.

☒ Yes ☐ No

See Attachment E and O

There is no CURRENT formal training program for the skill set in the proposed GEMMS program. We examined several employment opportunity databases seeking employees with skill sets matching those we have designed in our GEMML program and that do not require a university degree. On Feb 3, 2019 there were sixteen different positions requiring the work skills provided by GEMML in Florida Alone. Furthermore, we see a major impact of our training program on aquaculture as one of the major factors blocking expansion of aquaculture in Florida is lack of a trained workforce.

(If additional space is needed, please attach a Word document with your entire answer.)

- D. Identify the disproportionately affected counties where the proposed programs will operate or provide participants with workforce skills.

Wakulla and region

(If additional space is needed, please attach a Word document with your entire answer.)

- E. Provide a detailed description of, and quantitative evidence demonstrating how the proposed project or program will promote:
- Economic recovery,
 - Economic Diversification,
 - Enhancement of the disproportionately affected counties,
 - Enhancement of a Targeted Industry.

See Attachment D FSU- Pages 16-26

(If additional space is needed, please attach a Word document with your entire answer.)

2. Additional Information

- A. Is this an expansion of an existing training program? Is yes, describe how the proposed program will enhance or improve the existing program and how the proposal program will supplements but not supplant existing funding sources.

☒ Yes ☐ No

Program is currently funded internally but will expand be formalized and provide a certification with Triumph support. (See Attachment C and O)

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Indicate how the training will be delivered (*e.g.*, classroom-based, computer based, other).
If in-person, identify the location(s) (*e.g.*, city, campus, etc.) where the training will be available.

Training will be direct hands on practical work experience with some home study and written assignment work. (See **Attachment C and O**)

If computer-based, identify the targeted location(s) (e.g., city, county) where the training will be available.

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Identify the number of anticipated enrolled students and completers.

Intern Program 32 per year

Certificate Program(TBD)- 73 per year

(If additional space is needed, please attach a Word document with your entire answer.)

- D. Indicate the length of the program (e.g, quarters, semesters, weeks, months, etc.) including anticipated beginning and ending dates.

12 weeks

(If additional space is needed, please attach a Word document with your entire answer.)

- E. Describe the plan to support the sustainability of the proposed program.

See Attachment D

(If additional space is needed, please attach a Word document with your entire answer.)

- F. Identify any certifications, degrees, etc. that will result from the completion of the program.

Gulf Specimen Marine Laboratory and Aquarium will be implementing a *Gulf Education and Marketing of Marine-Life Specialist (GEMMS)* Certification program designed to provide independent third-party certification of individuals who complete our unique intern/trade program. Although our certification is novel, components of our certification will meet or exceed three nationally and internationally recognized standards. The Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process, AALSO (Aquatic Animal Life Support System Operators) and the National Project for Excellence in Environmental Education (NAAEE). Meeting and exceeding these three standards will ensure that our certification is immediately recognizable and verifiable by industry and employers. We will also apply to the Florida Department of Education for licensing as an independent certification

program in order to comply with the states robust education accountability system. Students in an existing university/college program will be eligible for credit in their respective programs. (See ATTACHMENTS C, D and O)

(If additional space is needed, please attach a Word document with your entire answer.)

- G. Does this project have a local match amount? If yes, please describe the entity providing the match and the amount.

Yes ☒

GSML will contribute over \$5,540,000 during the same 3-year period with income derived from specimen sales, aquarium membership, SeaMobile, school field trips, and donations, etc.

(If additional space is needed, please attach a Word document with your entire answer.)

- H. Provide any additional information or attachments to be considered for this proposal.

-

(If additional space is needed, please attach a Word document with your entire answer.)

ADDENDUM FOR AD VALOREM TAX RATE REDUCTION:

1. Program Requirements

- A. Describe the property or transaction that will be supported by the ad valorem tax rate reduction.

N/A

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Provide a detailed explanation of how the ad valorem tax rate reduction will connect to a broader economic recovery, diversification, enhancement of the disproportionately affected counties and/or enhancement of a targeted industry.

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Provide a detailed description of the quantitative evidence demonstrating how the proposed ad valorem tax reduction will promote:

- Economic recovery,
- Economic Diversification,
- Enhancement of the disproportionately affected counties,
- Enhancement of a Targeted Industry.

-

(If additional space is needed, please attach a Word document with your entire answer.)

2. Additional Information

- A. What is the location of the property or transaction that will be supported by the ad valorem tax rate reduction?

-

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Detail the current status of the property or transaction that will be supported by the ad valorem tax rate reduction and provide a detailed description of when and how the ad valorem tax rate reduction will be implemented.

-

-
(If additional space is needed, please attach a Word document with your entire answer.)

- C. Does this proposed project have a local match amount? If yes, please describe the entity providing the match and the amount.
- ☐ Yes ☐ No

(If additional space is needed, please attach a Word document with your entire answer.)

- D. Provide any additional information or attachments to be considered for this proposal.

-

-

(If additional space is needed, please attach a Word document with your entire answer.)

**ADDENDUM FOR LOCAL MATCH REQUIREMENTS OF SECTION 288.0655,
FLORIDA STATUTES**

1. Program Requirements

- A. Describe the local match requirements of Section 288.0655 and the underlying project, program or transaction that will be funded by the proposed award.

N/A

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Provide a detailed explanation of how the local match requirements and the underlying project or program will connect to a broader economic recovery, diversification, enhancement of the disproportionately affected counties and/or enhancement of a targeted industry.

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Provide a detailed description of, and quantitative evidence demonstrating how the proposed local match requirements will promote:
- Economic recovery,
 - Economic Diversification,
 - Enhancement of the disproportionately affected counties,
 - Enhancement of a Targeted Industry.

-

(If additional space is needed, please attach a Word document with your entire answer.)

2. Additional Information

- A. What is the location of the property or transaction that will be supported by the local match requirements?

-

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Detail the current status of the property or transaction that will be supported by the local match requirement and provide a detailed description of when and how the local match requirement will be implemented.

-

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Provide any additional information or attachments to be considered for this proposal.

-

-

(If additional space is needed, please attach a Word document with your entire answer.)

ADDENDUM FOR LOCAL ACTION PLAN

1. Program Requirements

- A. Describe how the proposed award will establish and maintain equipment and trained personnel for local action plans of response to respond to disasters.
- B. Describe the type and amount of equipment and trained personnel that will be established or maintained by the proposed award.
- C. Identify the specific local action plans (*e.g.*, Coastal Impacts Assistance Program) that will benefit from the proposed award.
- D. Provide a detailed explanation of how the proposed award will connect to a broader economic recovery, diversification, enhancement of the disproportionately affected counties and/or enhancement of a targeted industry.

(If additional space is needed, please attach a Word document with your entire answer.)

- E. Provide a detailed description of the quantitative evidence demonstrating how the proposed will promote:
 - Economic recovery,
 - Economic Diversification,
 - Enhancement of the disproportionately affected counties,
 - Enhancement of a Targeted Industry.

-

(If additional space is needed, please attach a Word document with your entire answer.)

2. Additional Information

- A. What is the location of the local action program that will be supported by the proposed award?

-

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Detail the current status of the local action plans (*e.g.*, new plans, existing plans, etc.) that will be supported by the proposed award and provide a detailed description of when and how the proposed award will be implemented.

-

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Provide any additional information or attachments to be considered for this proposal.

-

-

(If additional space is needed, please attach a Word document with your entire answer.)

ADDENDUM FOR ADVERTISING/PROMOTION

1. Program Requirements

- A. Is the applicant a tourism entity created under s. 288.1226, Florida Statutes?
☒ Yes ☐ No

- B. Does the applicant advertise and promote tourism and Fresh From Florida? If yes, provide details on how it advertises and promotes tourism and Fresh From Florida.
☒ Yes ☐ No

GSML has been a member of Visit Florida for over 20 years.

GSML is a member of "Fresh from Florida" and displays their logo on our

aquarium premises and in its advertising program. **See Attachment K**

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Does the proposed award promote workforce and infrastructure on behalf of the disproportionately affected counties? If yes, describe how workforce and infrastructure is promoted on behalf of the disproportionately affected counties.
☒ Yes ☐ No

GSML has become an anchor in Wakulla's tourist industry, and has given local businesses and restaurants a substantial boost by marketing our aquarium, gift shop and ecotourism programs. We rely on the local community for our workforce and use local contractors and tradesmen in construction.

See Attachment K

(If additional space is needed, please attach a Word document with your entire answer.)

- D. Provide a detailed explanation of how the proposed award will connect to a broader economic recovery, diversification, enhancement of the disproportionately affected counties and/or enhancement of a targeted industry.

Relatively speaking 19 new jobs in the tiny town of Panacea is huge and will make a major impact on an impoverished community that desperately needs economic stimulation. Improving our exhibits will increase the number of people who visit the aquarium and the average time per visitor spent in the aquarium. Longer visits will result in tourists having longer stays at local hotels, eating at local restaurants and patronizing shops in Panacea.

See Attachment K for additional details

(If additional space is needed, please attach a Word document with your entire answer.)

- E. Provide a detailed description of the quantitative evidence demonstrating how the proposed will promote:
- Economic recovery,
 - Economic Diversification,
 - Enhancement of the disproportionately affected counties,
 - Enhancement of a Targeted Industry.

-

See Attachment K

(If additional space is needed, please attach a Word document with your entire answer.)

2. Additional Information

- A. Describe the advertising and promotion mediums and locations where the advertising and promotion will occur.

See Attachment K

(If additional space is needed, please attach a Word document with your entire answer.)

- B. Detail the current status of the advertising and promotion (*e.g.*, new plans, existing plans, etc.) that will be supported by the proposed award and provide a detailed description of when and how the proposed award will be implemented.

-

(If additional space is needed, please attach a Word document with your entire answer.)

- C. Provide any additional information or attachments to be considered for this proposal.

See attachements

-

-

(If additional space is needed, please attach a Word document with your entire answer.)

I, the undersigned, do hereby certify that I have express authority to sign this proposal on my behalf or on behalf of the above-described entity, organization, or governmental entity:

Name of Applicant: Gulf Specimen Marine Laboratory

Name and Title of Authorized Representative: Jack Rudloe, President

Representative Signature: _____

Signature Date: _____

Attachment A: Applicant Information

Gulf Specimen is a 56-year-old non profit environmental education center located in Panacea, Florida (Wakulla County) that markets marine life to schools, research laboratories and aquariums. In addition the GSML host over 500 school field trips per averaging 10,000 kids from around the state and Georgia, operates a public touch tank aquarium, a certified sea turtle rehabilitation facility and manages a work experience based Intern program with over 50 students per year from FSU, FAMU, TCC and Thomas University. Additionally, members of the public, individuals on court order community services and individuals working for other companies who need specific experience also come to gain work experience at GSML.

Since 1962, GSML has provided live marine animals to thousands of the foremost research laboratories and universities in the United States, Canada, Europe and Japan. Over 700 scientific publications cite us as their source of research specimens. GSML presently collects and markets over 300 marine invertebrates, fish and algae to over 1300 scientific and educational institutions.

In 1980, Gulf Specimen Company became Gulf Specimen Marine Laboratories, Inc. (GSML), a not-for-profit corporation with a tax exempt IRS 501(c)(3) status. GSML is a licensed sea turtle rescue and rehabilitation center with a specially equipped hospital and turtle ambulance. All required permits and licenses from the FWC, Florida Department of Agriculture, and NOAA fisheries are maintained, and we have a 2 acre off shore lease for culturing live rock for aquariums.

See Additional Supporting Documents

GSML ASSOCIATIONS

GSML YELP REVIEWS

Mission or Crusade

Steinbeck papers

Wetland Acquisitions

You Tube in Action



2018 Florida Annual Resale Certificate for Sales Tax

DR-13
R. 10/17

THIS CERTIFICATE EXPIRES ON DECEMBER 31, 2018

Business Name and Location Address

Certificate Number

GULF SPECIMEN MARINE LABORATORIES INC
GULF SPECIMEN GIFT SHOP
222 CLARK DR
PANACEA, FL 32346-2340

75-8012089966-3

By extending this certificate or the certificate number to a selling dealer to make eligible purchases of taxable property or services exempt from sales tax and discretionary sales surtax, the person or business named above certifies that the taxable property or services purchased or rented will be resold or re-rented for one or more of the following purposes:

- Resale as tangible personal property.
- Re-rental as tangible personal property.
- Resale of services.
- Re-rental as commercial real property.
- Incorporation into tangible personal property being repaired.
- Re-rental as transient rental property.
- Incorporation as a material, ingredient, or component part of tangible personal property that is being produced for sale by manufacturing, compounding, or processing.

0000074 11/16/16



Consumer's Certificate of Exemption

Issued Pursuant to Chapter 212, Florida Statutes

DR-14
R. 10/15

85-8012586480C-1	01/31/2017	01/31/2022	501(C)(3) ORGANIZATION
Certificate Number	Effective Date	Expiration Date	Exemption Category

This certifies that

GULF SPECIMEN MARINE LABORATORIES INC
222 CLARK DR # C
PANACEA FL 32346-2340

is exempt from the payment of Florida sales and use tax on real property rented, transient rental property rented, tangible personal property purchased or rented, or services purchased.

Gulf Specimen Marine Laboratory

Balance Sheet

As of December 31, 2017

	Dec 31, 17
ASSETS	
Current Assets	
Checking/Savings	
Cap City Bank Operating Acc	7,807.84
Cash in Drawer	3,909.80
Centennial Bank Spec Proj.	5,696.37
Money Market Account	73,159.52
Seamobile Acct. - Capital City	13,400.69
Total Checking/Savings	103,974.22
Accounts Receivable	
Accounts receivable	15,435.10
Total Accounts Receivable	15,435.10
Other Current Assets	
Employee & trustee receivables	4,560.28
Inventory Asset	10,930.45
POS Inventory Adjustments	6,632.58
Undeposited Funds	75.00
Total Other Current Assets	22,198.31
Total Current Assets	141,607.63
Fixed Assets	
Accum Depr - Building	-35,955.00
Accum Depr - Furn and Equip	-77,416.00
Accum Depr - Leasehold Imps	-45,629.00
Accum Depr - Vehicles	-7,646.00
Accumulated Depreciation	-833,932.00
Aquarium Facility	
Algae Feeding System	2,558.78
C5 Shark Tank	37,653.06
Dormatory/Jellyfish	10,714.38
Generator	13,670.48
Improvements	89,170.96
Kitchen Improvements	586.55
Octopus Behavior Tank	6,242.10
Ozonator	
Ozonator Shed	1,553.00
Ozonator - Other	63,536.70
Total Ozonator	65,089.70
Pipe Shed	10,083.26
Plankton Exhibit	27,768.00
Protein Skimmer	4,820.23
Quarantine	17,914.34
Seawater System	178,408.91
Turtle Rehab Hospital	15,597.55
Turtle Tank	60,232.73
Aquarium Facility - Other	3,940.00
Total Aquarium Facility	544,451.03
Buildings & Grounds***	
Building Renovations	94,246.22
Dock Rebuild	67,579.65
Gift Shop Renovation	35,139.31
Landscape Project	153,308.00
Total Buildings & Grounds***	350,273.18
Collecting Equipment	3,898.00

Gulf Specimen Marine Laboratory

Balance Sheet

As of December 31, 2017

	Dec 31, 17
Collecting Vessel	
Boat Motors	42,992.00
Collecting Vessel - Other	52,484.38
Total Collecting Vessel	95,476.38
Equipment	
Cameras	1,025.13
Computer Equipment	
Computer - Phenon II Core 4	569.98
HP Computer-POS	566.62
HP Pavillion 23	668.94
HP Touchsmart Computer	1,074.99
Toshiba Satellite C70-B Laptop	555.76
Computer Equipment - Other	3,408.89
Total Computer Equipment	6,845.18
Underwater Camera	721.95
Equipment - Other	287,588.21
Total Equipment	296,180.47
Furniture & Fixtures	4,977.95
Furniture and Equipment	5,636.34
Graphic Display & Signage	19,423.36
Mississippi St. Property	6,499.20
New Baywater System	31,951.82
Quarentine Building	23,291.70
Sea-Mobile	101,745.39
Signage	18,122.75
Software	684.85
Sound System	15,492.79
Trucks & Vehicles	
2006 Chevy 2500 Silverado	5,000.00
2006 Dodge Ram	14,475.75
2006 Dodge Sprinter Van	7,700.00
2006 Ford F250	11,500.00
Trailer Hitch	673.43
Total Trucks & Vehicles	39,349.18
Turtle Exhibit	47,354.00
Turtle grant 2004	17,072.91
Turtle grant 2008	11,704.94
Turtle Kiosk/Guest Book	20,499.00
Total Fixed Assets	653,507.24
TOTAL ASSETS	795,114.87
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
Accounts payable	20,361.67
Total Accounts Payable	20,361.67
Credit Cards	
Capital City Bank Credit Card	30,766.73
Total Credit Cards	30,766.73

Gulf Specimen Marine Laboratory

Balance Sheet

As of December 31, 2017

	Dec 31, 17
Other Current Liabilities	
Direct Deposit Liabilities	-3,442.52
Gift Cards Outstanding	19.95
N/P-CCB for Boat Motors	12,833.41
Payroll Liabilities	-66.93
Sales Taxes Payable	373.87
Unbilled Purchases	138.00
Total Other Current Liabilities	9,855.78
Total Current Liabilities	60,984.18
Total Liabilities	60,984.18
Equity	
Unrestrict (retained earnings)	665,360.30
Unrestricted net assets	12,541.20
Net Income	56,229.19
Total Equity	734,130.69
TOTAL LIABILITIES & EQUITY	795,114.87

Gulf Specimen Marine Laboratory

Profit & Loss

January through December 2017

	Jan - Dec 17
Ordinary Income/Expense	
Income	
Aquarium Revenue*****	
Aquarium Admission*****	
Weekday visitor	93,594.83
Weekend visitor	59,520.60
Total Aquarium Admission*****	153,115.43
Gift Shop Merchandise	100,666.62
Membership	32,177.78
Total Aquarium Revenue*****	285,959.83
Contributed support	
Restricted*****	
FEMA Reimbursement	132,758.31
Grants-Restricted	32,074.25
Large Donations \$1000 or more	9,936.86
Small Donations Less than \$1000	305.00
Total Restricted*****	175,074.42
Unrestricted*****	
Gifts in Kind - Goods	332.05
Gifts in Kind - Services	3,302.94
Large Donations \$1000 or more	8,000.00
Small donations Less than \$1000	7,987.15
Total Unrestricted*****	19,622.14
Total Contributed support	194,696.56
Earned revenues*****	
Marine Research Support*****	
Specimen Sales	
Credit Card Charge Income	3,963.00
Freight charges-income	102,942.00
Handling Charge	23,506.75
Shipping Containers-Income	13,722.55
Specimen Sales - Other	160,184.17
Total Specimen Sales	304,318.47
Total Marine Research Support*****	304,318.47
Merchandise Sales	0.00
Total Earned revenues*****	304,318.47
Educational Outreach*****	
Field Trips & Group tours	65,694.00
Sea-Mobile	18,615.00
Summer Camp	5,643.02
Total Educational Outreach*****	89,952.02
Other Income*****	
Interest earned	19.37
Pepsi Machine	162.23
Refunds/Discounts received	187.71
Total Other Income*****	369.31

Gulf Specimen Marine Laboratory

Profit & Loss

January through December 2017

	Jan - Dec 17
Special Events Income	
Special Events Contributions	2,683.00
Special Events Sales (Nongift)	5,521.57
Sponsorship	4,500.00
Tickets	3,157.04
Total Special Events Income	15,861.61
Total Income	891,157.80
Cost of Goods Sold	
Cost of Aquarium*****	
Aquarium Design & Consulting	9,337.20
Aquarium Facility Repair/Maint	30,547.80
Aquarium supplies & equipment	25,229.99
Medications	71.70
Other Program Expense	1,857.91
Sea Turtle Rescue-Rehab Expense	2,052.07
Tank Repair & Maintenance	19,459.75
Total Cost of Aquarium*****	88,556.42
Cost of Educational Outreach***	
Summer Camp Expense	5.00
Tour expense	30.00
Total Cost of Educational Outreach***	35.00
Cost of Goods Sold*****	
Costs of Collecting*****	
Boat expense-beagle	3,399.12
Boat expense-carolina skiff	333.30
Boat expense-Proline	2,396.87
Boat expenses	2,037.78
Boat Gas	7,150.63
Collecting equipment	1,275.83
Collecting expense	3,786.09
Travel Meals	460.15
Total Costs of Collecting*****	20,839.77
Costs of Gift Shop*****	
Credit Card Fees	613.17
Freight and Shipping Costs	3,070.16
Purchases - Resale Items	44,837.26
Total Costs of Gift Shop*****	48,520.59
Costs of Specimen Sales*****	
Contract Labor-Packing	50.00
Dry ice-expense	624.83
Freight Charges Expense	68,256.97
Merchant Service Charges	14,376.51
Shipping Containers	7,153.95
Specimen food expense	4,729.91
Specimen purchase	5,207.29
Total Costs of Specimen Sales*****	100,399.46
Cost of Goods Sold***** - Other	0.00
Total Cost of Goods Sold*****	169,759.82

Gulf Specimen Marine Laboratory

Profit & Loss

08/09/18

Accrual Basis

January through December 2017

	Jan - Dec 17
Cost of Sea-Mobile*****	
Sea-Mobile Expenses	854.32
Sea-Mobile Gas	628.48
Seamobile Maintenance	151.16
SeaMobile Travel	126.79
Total Cost of Sea-Mobile*****	1,760.75
Total COGS	260,111.99
Gross Profit	631,045.81
Expense	
Fundraising*****	
Fundraiser Expense	8,187.17
Total Fundraising*****	8,187.17
Management & General*****	
Advertising*****	
Billboards	100.00
Flyers, Brochures, & Maps	6,687.95
Other Promotional Costs	2,245.00
Print Ads	5,541.39
Radio	1,500.00
Road Signs	275.00
Social Media	7,626.88
Television Advertising	2,200.00
Videography	1,764.00
Website	666.94
Total Advertising*****	28,607.16
Auto & Truck*****	
Auto & Truck Repairs & Maint	7,378.67
Fuel	10,479.73
Tags & Registration	672.55
Vehicle Insurance	6,020.51
Total Auto & Truck*****	24,551.46
Bank Service Charges	136.78
Charitable Contributions	345.00
Contract labor(Non Capital Prj)	19,162.57
Depreciation	89,378.00
Dues and Subscriptions	1,420.40
Entertainment	2,304.94
Insurance*****	
Accident Policy	1,500.00
Flood Insurance	2,322.00
Liability Insurance	3,725.27
Wind Insurance	1,919.00
Total Insurance*****	9,466.27
Interest Expense	1,434.66
Legal & Accounting	13,178.02
Licenses & Permits	2,305.71
Miscellaneous	0.00
Office Expenses*****	
Books, Subscriptions, Reference	113.53
Office Equipment Rental	2,260.92
Office expense - General	10,043.83
Postage	3,375.28
Printing and Copying	1,173.32
Total Office Expenses*****	16,966.88

Gulf Specimen Marine Laboratory

Profit & Loss

January through December 2017

	Jan - Dec 17
Property Costs*****	
Janitorial service & yard work	2,589.49
Land Taxes	621.74
Maintenance & Repair	5,495.94
Property Insurance	1,996.00
Rent	19,000.00
Utilities*****	
Electricity	30,242.40
Garbage	430.47
Heating Gas	887.00
Security	5,499.42
Telephone/Internet	4,638.22
Water	2,146.68
Total Utilities*****	43,844.19
Total Property Costs*****	73,547.36
Salaries & related expenses****	
Direct Deposit Fee	537.25
Earnings & Taxes*****	
Membership Commissions	855.00
Officers & directors salaries	82,923.61
Overtime	2,868.39
Pay Additive	5,019.90
Payroll Taxes	19,089.04
Salaries & Wages	158,437.17
Total Earnings & Taxes*****	269,193.11
Employee Morale	82.37
Health Insurance - Employee	5,735.25
Other Employment Benefits	393.95
Payroll Fees	83.71
Recruiting Expense	285.09
Total Salaries & related expenses****	276,310.73
Small tools and supplies	1,893.58
Travel	2,834.47
Uniforms	905.85
Total Management & General*****	564,749.84
Travel and Meetings	
Conference, Convention, Meeting	1,276.36
Travel	603.25
Total Travel and Meetings	1,879.61
Void	0.00
Total Expense	574,816.62
Net Ordinary Income	56,229.19
Other Income/Expense	
Other Expense	
Balancing Adjustments	0.00
Total Other Expense	0.00
Net Other Income	0.00
Net Income	56,229.19

Gulf Specimen Marine Laboratory

Balance Sheet

As of August 9, 2018

	Aug 9, 18
ASSETS	
Current Assets	
Checking/Savings	
Cap City Bank Operating Acc	12,687.79
Cash in Drawer	3,045.09
Centennial Bank Spec Proj.	5,751.66
Money Market Account	74,187.53
Petty cash	334.30
Seamobile Acct. - Capital City	18,107.82
Total Checking/Savings	114,114.19
Accounts Receivable	
Accounts receivable	8,648.35
Total Accounts Receivable	8,648.35
Other Current Assets	
Employee & trustee receivables	5,390.05
Inventory Asset	14,183.25
POS Inventory Adjustments	7,212.24
Total Other Current Assets	26,785.54
Total Current Assets	149,548.08
Fixed Assets	
Accum Depr - Building	-35,955.00
Accum Depr - Furn and Equip	-77,416.00
Accum Depr - Leasehold Imps	-45,629.00
Accum Depr - Vehicles	-7,646.00
Accumulated Depreciation	-833,932.00
Aquarium Facility	
Algae Feeding System	2,558.78
C5 Shark Tank	37,653.06
Dormatory/Jellyfish	10,714.38
Generator	13,670.48
Improvements	89,039.06
Kitchen Improvements	586.55
Octopus Behavior Tank	6,242.10
Ozonator	
Ozonator Shed	1,553.00
Ozonator - Other	63,536.70
Total Ozonator	65,089.70
Pipe Shed	10,083.26
Plankton Exhibit	27,768.00
Protein Skimmer	4,820.23
Quarantine	17,914.34
Seawater System	183,336.69
Turtle Rehab Hospital	15,597.55
Turtle Tank	60,232.73
Aquarium Facility - Other	4,221.42
Total Aquarium Facility	549,528.33
Buildings & Grounds***	
Building Renovations	94,246.22
Dock Rebuild	67,579.65
Gift Shop Renovation	35,139.31
Landscape Project	153,308.00
Total Buildings & Grounds***	350,273.18
Collecting Equipment	4,028.14

Gulf Specimen Marine Laboratory

Balance Sheet

As of August 9, 2018

	Aug 9, 18
Collecting Vessel	
Boat Motors	42,992.00
Collecting Vessel - Other	74,156.73
Total Collecting Vessel	117,148.73
Equipment	
Cameras	1,025.13
Computer Equipment	
Computer - Phenon II Core 4	569.98
HP Computer-POS	566.62
HP Pavillion 23	668.94
HP Pavillion TS All-in-One	934.72
HP Touchsmart Computer	1,074.99
Toshiba Satellite C70-B Laptop	555.76
Computer Equipment - Other	3,860.12
Total Computer Equipment	8,231.13
Underwater Camera	721.95
Equipment - Other	294,283.32
Total Equipment	304,261.53
Furniture & Fixtures	4,977.95
Furniture and Equipment	5,636.34
Graphic Display & Signage	19,663.36
Jellyfish Tank	179.37
Leatherback Turtle Exhibit	2,223.59
Lionfish Display	1,464.99
Mississippi St. Property	6,499.20
New Baywater System	31,951.82
Quarentine Building	23,291.70
Sea-Mobile	104,665.39
Signage	23,410.58
Software	1,574.80
Sound System	16,742.56
Trucks & Vehicles	
2006 Chevy 2500 Silverado	5,000.00
2006 Dodge Ram	14,475.75
2006 Dodge Sprinter Van	7,700.00
2006 Ford F250	11,500.00
Summercamp Van	3,250.00
Trailer Hitch	673.43
Total Trucks & Vehicles	42,599.18
Turtle Exhibit	48,901.44
Turtle grant 2004	17,072.91
Turtle grant 2008	11,704.94
Turtle Kiosk/Guest Book	21,954.35
Total Fixed Assets	709,176.38
TOTAL ASSETS	858,724.46
LIABILITIES & EQUITY	
Liabilities	
Current Liabilities	
Accounts Payable	
Accounts payable	11,048.45
Total Accounts Payable	11,048.45
Credit Cards	
Capital City Bank Credit Card	5,487.59
Total Credit Cards	5,487.59

Gulf Specimen Marine Laboratory

Balance Sheet

As of August 9, 2018

	Aug 9, 18
Other Current Liabilities	
Gift Cards Outstanding	19.95
N/P-CCB for Boat Motors	8,701.63
Payroll Liabilities	804.38
Sales Taxes Payable	1,335.40
Unbilled Purchases	138.00
Total Other Current Liabilities	10,999.36
Total Current Liabilities	27,535.40
Total Liabilities	27,535.40
Equity	
Unrestrict (retained earnings)	721,589.49
Unrestricted net assets	12,541.20
Net Income	97,058.37
Total Equity	831,189.06
TOTAL LIABILITIES & EQUITY	858,724.46

Gulf Specimen Marine Laboratory

Profit & Loss

January 1 through August 9, 2018

	Jan 1 - Aug 9, 18
Ordinary Income/Expense	
Income	
Aquarium Revenue*****	
Aquarium Admission*****	
Weekday visitor	76,180.13
Weekend visitor	38,575.41
Aquarium Admission***** - Other	1,285.05
Total Aquarium Admission*****	116,040.59
Gift Shop Merchandise	71,311.91
Membership	17,497.65
Total Aquarium Revenue*****	204,850.15
Contributed support	
Restricted*****	
Donations-restricted purpose	2,032.00
Grants-Restricted	7,863.65
Large Donations \$1000 or more	44,784.00
Small Donations Less than \$1000	725.00
Total Restricted*****	55,404.65
Unrestricted*****	
Gifts in Kind - Services	350.00
Small donations Less than \$1000	15,373.40
Total Unrestricted*****	15,723.40
Total Contributed support	71,128.05
Earned revenues*****	
Marine Research Support*****	
Specimen Sales	
Credit Card Charge Income	2,028.58
Freight charges-income	57,396.00
Handling Charge	13,566.25
Shipping Containers-Income	7,540.00
Specimen Sales - Other	97,868.92
Total Specimen Sales	178,399.75
Total Marine Research Support*****	178,399.75
Merchandise Sales	235.70
Earned revenues***** - Other	155.80
Total Earned revenues*****	178,791.25
Educational Outreach*****	
Field Trips & Group tours	56,078.01
Sea-Mobile	3,000.00
Summer Camp	12,100.00
Total Educational Outreach*****	71,178.01
Other Income*****	
Interest earned	6.13
Pepsi Machine	67.05
Refunds/Discounts received	81.74
Total Other Income*****	154.92

Gulf Specimen Marine Laboratory

Profit & Loss

January 1 through August 9, 2018

	Jan 1 - Aug 9, 18
Special Events Income	
Special Events Contributions	1,681.03
Special Events Sales (Nongift)	2,788.00
Sponsorship	3,500.00
Tickets	2,725.15
Total Special Events Income	10,694.18
Total Income	536,796.56
Cost of Goods Sold	
Cost of Aquarium*****	
Aquarium Design & Consulting	102.31
Aquarium Facility Repair/Maint	13,691.52
Aquarium supplies & equipment	7,271.67
Medications	1,093.04
Other Program Expense	43.00
Sea Turtle Rescue-Rehab Expense	1,442.73
Tank Repair & Maintenance	8,486.19
Cost of Aquarium***** - Other	749.86
Total Cost of Aquarium*****	32,880.32
Cost of Educational Outreach***	
Summer Camp Expense	1,204.55
Tour expense	9.50
Total Cost of Educational Outreach***	1,214.05
Cost of Goods Sold*****	
Costs of Collecting*****	
Boat expense-beagle	2,030.31
Boat expense-C-Hawk	2,787.81
Boat expense-Proline	2,865.31
Boat expenses	3,329.43
Boat Gas	4,024.60
Collecting equipment	780.28
Collecting expense	613.03
Travel Meals	214.41
Total Costs of Collecting*****	16,645.18
Costs of Gift Shop*****	
Credit Card Fees	4,792.99
Freight and Shipping Costs	1,872.25
Purchases - Resale Items	23,868.59
Costs of Gift Shop***** - Other	-569.11
Total Costs of Gift Shop*****	29,964.72
Costs of Specimen Sales*****	
Dry ice-expense	29.66
Freight Charges Expense	38,648.76
Merchant Service Charges	5,567.02
Shipping Containers	3,718.01
Specimen food expense	4,569.50
Specimen purchase	3,443.65
Costs of Specimen Sales***** - Other	137.07
Total Costs of Specimen Sales*****	56,113.67
Cost of Goods Sold***** - Other	6,248.87
Total Cost of Goods Sold*****	108,972.44

Gulf Specimen Marine Laboratory

Profit & Loss

08/09/18

Accrual Basis

January 1 through August 9, 2018

	Jan 1 - Aug 9, 18
Cost of Sea-Mobile*****	
Sea-Mobile Expenses	539.38
Seamobile Maintenance	-2,562.18
Total Cost of Sea-Mobile*****	-2,022.80
Costs of Grants*****	
Grant Expense	75.00
Total Costs of Grants*****	75.00
Total COGS	141,119.01
Gross Profit	395,677.55
Expense	
Fundraising*****	
Fundraiser Expense	7,264.83
Total Fundraising*****	7,264.83
general operating expenses	314.47
Management & General*****	
Advertising*****	
Flyers, Brochures, & Maps	2,650.56
Other Promotionals Costs	1,936.15
Print Ads	3,705.64
Radio	1,250.00
Road Signs	100.00
Social Media	5,292.89
Specimen Sales Marketing	2,654.62
Videography	108.00
Website	350.00
Advertising***** - Other	94.43
Total Advertising*****	18,142.29
Auto & Truck*****	
Auto & Truck Repairs & Maint	1,969.45
Fuel	7,046.74
Tags & Registration	545.10
Vehicle Insurance	2,301.49
Total Auto & Truck*****	11,862.78
Bank Service Charges	27.01
Continuing Education	53.19
Contract labor(Non Capital Prj)	15,315.43
Dues and Subscriptions	948.51
Entertainment	1,449.09
Insurance*****	
Accident Policy	1,500.00
Flood Insurance	3,043.00
Liability Insurance	2,324.26
Wind Insurance	2,145.00
Insurance***** - Other	199.00
Total Insurance*****	9,211.26
Interest Expense	2,212.89
Legal & Accounting	9,846.87
Licenses & Permits	2,753.50
Miscellaneous	554.49

Gulf Specimen Marine Laboratory

Profit & Loss

January 1 through August 9, 2018

	Jan 1 - Aug 9, 18
Office Expenses*****	
Office Equipment Rental	768.74
Office expense - General	6,850.46
Postage	1,571.58
Printing and Copying	336.14
Total Office Expenses*****	9,526.92
Property Costs*****	
Janitorial service & yard work	1,786.87
Maintenance & Repair	1,947.93
Property Insurance	996.00
Rent	8,000.00
Utilities*****	
Electricity	23,629.79
Garbage	143.64
Heating Gas	51.36
Pest Control	205.00
Security	1,653.18
Telephone/Internet	2,345.64
Water	2,121.52
Total Utilities*****	30,150.13
Property Costs***** - Other	1,250.00
Total Property Costs*****	44,130.93
Salaries & related expenses****	
Direct Deposit Fee	196.00
Earnings & Taxes*****	
Membership Commissions	420.00
Officers & directors salaries	50,751.95
Pay Additive	1,820.62
Payroll Taxes	10,409.87
Salaries & Wages	84,729.30
Total Earnings & Taxes*****	148,131.74
Employee Morale	112.84
Health Insurance - Employee	8,998.87
Recruiting Expense	934.32
Total Salaries & related expenses****	158,373.77
Small tools and supplies	1,105.37
Travel	1,055.86
Uniforms	912.59
Total Management & General*****	287,482.75
Reimbursement	19.61
Travel and Meetings	
Conference, Convention, Meeting	2,748.50
Travel	388.70
Total Travel and Meetings	3,137.20
Void	0.00
Total Expense	298,218.86
Net Ordinary Income	97,458.69

Gulf Specimen Marine Laboratory
Profit & Loss
January 1 through August 9, 2018

	Jan 1 - Aug 9, 18
Other Income/Expense	
Other Expense	
Ask my Accountant	400.32
Balancing Adjustments	0.00
Total Other Expense	400.32
Net Other Income	-400.32
Net Income	97,058.37

Attachment C: Eligibility- Question 2

Provide the title and a detailed description of the proposed project or program, including the location of the proposed project or program, a detailed description of, and quantitative evidence demonstrating how the proposed project or program will promote economic recovery, diversification, and enhancement of the disproportionately affected counties, a proposed timeline for the proposed project or program, and the disproportionately affected counties that will be impacted by the proposed project or program.

Gulf Specimen Marine Laboratory's Gulf Education and Marketing of Marine-Life Ecotourism, Education and Aquaculture Project

Gulf Specimen Marine Laboratory, Inc. is best described in the February March 2015 issue of *850 Business Magazine*:

“The Gulf Specimen Marine Laboratories (GSML) in Panacea has traveled far from its origins, when it was a struggling startup business in a ramshackle shack and its staff consisted entirely of founder Jack Rudloe, later joined in the enterprise by his wife Anne. Today, it is an internationally recognized biological supply house and environmental education center/aquarium boasting ample interior and pavilion space for exhibitions and programs, and showcasing hundreds of live Gulf specimens, most notably invertebrates and other small marine creatures. Managed by the Rudloe's' younger son, Cypress, and operated by a six-member staff plus volunteers and interns, the facility continues its original function of collecting and selling marine specimens to universities, aquariums and museums across the country and abroad for educational and research purposes.”

Since 1990, moreover, part of the GSML's mission has been advancing marine biology knowledge and promoting protection of marine species and the environment. Which explains the facility's evolution into a popular tourist/roadside attraction and self-sustaining private nonprofit public aquarium. Its educational outreach has expanded in recent years with the addition of a sea-mobile, an aquarium-on-wheels that travels to area schools and events to teach about marine life and conservation, while its sea turtle research/rehabilitation program is counted among the oldest in the country.

GSML's revenue comes from ecotourism, education, specimen sales, aquarium memberships, donations, Sea Mobile, school field trips, gift shop sales, research contracts, grants, and crowd funding drives and events. We highlight marine life from Wakulla, Franklin and Gulf Counties using displays, artwork, graphics, interactive kiosks and educational videos throughout our campus. **Last year alone the GSML hosted over 300 school field trips bringing 10,000 K-12 students to our facilities.** For our environmental outreach program we take our 20-foot Sea Mobile traveling touch tank system to schools and festivals throughout North Florida, South Georgia and Southern Alabama. Existing facilities include over three acres of land with aquarium buildings, gardens, and tanks that hold 80,000 gallons of sea water supported by state-of-the-art sea water systems, displaying a wide variety of marine life from the Florida panhandle. (See Attachment V) Additionally GSML has been authorized the use the **“Fresh from Florida”** logo in advertising, and displays the logo on our aquarium premises and in its advertising program.

The following are the economic impact results of the Triumph-GSML project; ¹

- The GSML Ecotourism and Aquaculture Project will initially create temporary construction and construction-related jobs. And it will fully open in Year 3.
- 10.5 FTEs (ongoing effort, including the construction/facilities manager and administrative) will be created at the end of Year 3. With the GSML being self-propelled by year 4 and 19 FTEs permanent jobs will be created by the end of Year 10.
- Employment increases by 55 jobs for the initial three years of operation, before settling at an annual 57 total employment impacts in Year 10. There are 19 direct net new jobs projected over 10 years (i.e., an average of 2 direct net new jobs on an annual basis).
- Output initially spikes to \$7.25 million for the three years of operation primarily due to the effect construction activity eventually stabilizes to about \$8.04 million in Year 10. Output averages \$7.07 on an annual basis. The cumulative output total is \$70.74 million.
- Personal Income increases by \$7.45 million for the three years of operation also primarily due to the effect of construction activity, and by Year 10, has settled at \$2.91 million on an average annual basis. The cumulative personal income total is \$29.13 million over the ten year time period.

This proposal addresses three branches of the GSML; **Training/Education, Biological Supply** and **Tourism**. All components work together. Funding for the expansion will allow full expansion and utilization of the proposed GEMML certification program (outlined below). All staff already work with intern/trainees and any new staff hired will also be training. Those we train and educate not only receive hands on experience in aquaculture and marine life support but also tourism, public speaking and engagement. In addition to the interns learning from us they in turn are also teaching others valuable lessons about the environment we live in. This will continue under the proposed GEMMS certification program.

¹ the Florida State University Center for Economic Forecasting and Analysis (FSU CEFA) Economic Impact Analysis study of a proposed GSML Ecotourism and Aquaculture project 2018

1. Training/Education Component

Gulf Specimen Marine Laboratory and Aquarium will be implementing a Gulf Education and Marketing of Marine-Life Specialist (GEMMS) Certification program designed to provide independent third-party certification of individuals who complete our unique intern/trade program.

This program is entirely new, bold and highly innovative. No such program currently exists anywhere in the world. Nonetheless, there is a strong market demand for the skill set this certification will provide throughout the aquarium and aquaculture community. We are providing a bridging and entirely practical program that incorporates real skills that can, at present, only be acquired by work experience.

This certification is not a university based or university style program. This certification is designed to work as a stand-alone trade. It is based in practical hands on experience. As such, this program can complement a university degree in fields like marine biology but it provides an opportunity for university students to acquire practical skills university simply does not offer. This program is also designed to be accessible to non-university individuals as a trade with widespread opportunity for future employment.

Although our certification is novel, components of our certification will meet or exceed three nationally and internationally recognized standards. The Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process, AALSO (Aquatic Animal Life Support System Operators) and the National Project for Excellence in Environmental Education (NAAEE). Meeting and exceeding these three standards will ensure that our certification is immediately recognizable and verifiable by industry and employers. We will also apply to the Florida Department of Education for licensing as an independent certification program in order to comply with the state's robust education accountability system.

The GSML in collaboration with Lively Technical College will offer three courses conducted twice a year, which will produce up to 72 graduates per year earning certificates qualifying them for higher paying jobs in the growing aquarium and aquaculture industries. The project involves research by aquarium staff to improve aquaculture methods and working with Lively Technical College to develop curriculum. This is a 3-year proposal. It will take approximately 1 year to build the new facilities, during which time we will develop the curricula with LTC, and recruit the necessary staff. At the beginning of the second year we will open our first courses.

The funds provided by this grant will allow us to expand our public facilities, educational programs, K-12 and adult tourist based activities and programs. As a result of this expansion our intern program will also expand. GSML currently runs an intern program since 2012 with four to 8 interns per semester. We provide interns with real world work experience in marine education and aquarium technician skills. Interns are juniors and seniors from FSU, University of Florida, Valdosta State, University of South Florida, Florida Gulf Coast University, Thomas University TCC and FAMU.

The GSML internship provides real life job skills. Normal job expectations are required. Interns

learn accountability, being on time, calling in, making up work, doing what is required even when conditions are not optimal, (wet, cold, eaten up by gnats and mosquitos), They learn appropriate interaction with co-workers and supervisors, and learn to work with the public. Primary duties involve live specimen collection, tank maintenance, aquatic life support, marine animal husbandry and water system management. (see GEMMLS Gulf Education and Marketing for Marine Life Specialist Certification for examples of our current program.)

At the completion of their semester long internship students usually receive up to three semester hours of credit through their college or university. The internship prepares them for jobs with fish and wildlife services, aquariums and science centers as well as entry level employment with state or federal parks and environmental regulatory agencies such as DEP and EPA.

Several of our interns have gone on to graduate work at some of our best marine science schools; Rosentiel School of Marine and Atmospheric Science, University of Washington, Duke University, FSU and FAMU. Several of our alumni are now working for Coastal Science Centers around the country, fish and wildlife agencies in Florida and other states and some have gone on to work for politicians, helping to establish policy. GSML interns with very few exceptions, have proven to be outstanding employees. Indeed, we have filled several paid positions with former interns.

Improving Our Intern Program

A GEMMS certification will ensure that an individual can handle all practical aspects of identifying, gathering, handling, maintaining, and shipping of marine life for both aquaculture and wild caught specimens as well as being equipped to interact successfully with the public in promoting tourism and environmental education as part of the proper care and use of Gulf of Mexico coastal marine life.

We are qualified to do this certification because Gulf Specimen Marine Laboratory and Aquarium is a world renowned combination of marine life environmental education center, aquarium and successful specimen marketing business. With over fifty years of experience we have proven our expertise and success in this market. We have accomplished this with little in the way of formal government or academic support. Over the years, we have also trained many individuals in our unique model. Our volunteers, interns and employees find employment in other environmental education centers, tourism, aquariums, aquaculture and in government. We already produce well trained and versatile individuals who are ready to enter the job market as specialists in marine life marketing, tourism and education, especially where specific to the Gulf Coast. (See Figure 1)

Why a New Certification Program is Required in Florida

There is no formal technical college, university or association that provides this unique combination of practical technical skills combined with marketing tourism and educational skills that allows for fullest possible utilization of marine life. Unlike trades such as plumbing, or electrician for which there is already an established standard, no such standard currently exists. Lack of such a standard is a major impediment to the expansion of the aquaculture industry in North America and in Florida in particular.

We examined several employment opportunity databases seeking employees with skill sets matching those we have designed in our GEMMS program and that do not require a university degree. All of these positions require the kind of experience and training offered by our proposed new GEMMS certification program. These alternate job titles include but are not limited to the following table.

This table was prepared using a Florida only search and so these are jobs available at the time we did this search. (<https://www.indeed.com/jobs?q=Aquarium&l=florida> search February 3, 2019)

Job Title with descriptions matching GEMML certification	University Requirement	Practical Experience or Training Requirement
Exhibits Technician	No	Yes
Aquarium Technician	No	Yes
Aquarium Maintenance Technician	No	Yes
Aquarium Service Technician	No	Yes
Biological Science Technician	No	Yes
Water Quality Technician	No	Yes
Fish and Wildlife Technician	No	Yes
Packing Technician	No	Yes
Aquarium and Pond Service Technician	No	Yes
Pond Maintenance Foreman	No	Yes
Water Treatment Mechanical Technician	No	Yes
Water Quality and Life Support Manager	No	Yes
Animal Collections Safety Technician	No	Yes
HVAC Technician	No	Yes
Fish Tank Maintenance Technician	No	Yes
Grounds Irrigation Technician	No	Yes
SeasSummerEdSpecialist MDA	University preferred but not required	Yes

Potential Impact of GEMMS on Florida Aquaculture:

The aquaculture industry in Florida is in its earliest stages. It is currently focused on oysters.(1) One of the biggest barriers to the establishment of a booming aquaculture industry worldwide is a lack of trained labor that is so acute the industry is forced to import workers from other countries. (66,000 in the USA) Meanwhile, the panhandle of Florida has widespread unemployment and poverty. The creation of small and family owned operations is not going

fill this growing labor shortage. Aquaculture needs trained labor and there is no industry recognized training program in the USA that specifically aims to meet that need.⁽²⁾ As an example of this, Newfoundland Canada has a booming aquaculture industry yet there is currently an eleven percent shortage of labor for aquaculture technicians in Newfoundland Canada.⁽³⁾ Canada is setting up a new four month aquaculture technician training program to meet the need for a trained labor force in British Columbia. New certifications are being developed driven by the new industry.⁽⁴⁾ Furthermore, expansion beyond oyster aquaculture is going to require trained labor already exposed to multiple other potential sources of aquaculture beyond oysters.⁽⁵⁾ Gulf Specimen Marine Laboratory is already a proven specialist in the use and marketing of diverse species beyond oysters. There is simply no equivalent in Florida, or the USA to our proposed Gulf Education and Marketing for Marine Life Specialist Certification (GEMMS). We foresee multiple job opportunities for graduates of the GEMMS certification as aquaculture expands and grows in the panhandle. GEMMS certification is practical hands training on with graduates coming out of the program already knowing real practical knowledge such as how prepare a specimen for shipping, how to start a boat motor, or how fix a broken pipe. Labor shortage is one of the factors holding the aquaculture industry in Florida back. Our bold and innovative certification is aimed directly at fixing the shortage of a practical hands on labor force, trained right here in Florida. Our graduates will not just fill a need, they will create opportunities for the industry to grow.

Jobs in the Florida Aquarium Industry

There are currently one hundred and fifty four aquariums that Gulf Specimen Marine Laboratory supplies specimens to. Of those seventeen (11%) are located in Florida. There are twenty four aquariums in the state who are members of Visit Florida (6), three of which are located in the pan handle. All of these aquaria require employees and there is currently no formal aquarist technician training program for working in these aquariums. This is why participation in our present informal intern program and a letter of recommendation from Gulf Specimen Marine Laboratory is so popular. Practical experience is a virtual guarantee of employment in the aquarium industry.

References

- 1) <https://www.aquaculturenorthamerica.com/shellfish/oyster-farmers-find-strength-in-numbers-2002>
- 2) <https://www.aquaculturenorthamerica.com/news/guest-workers-fill-key-role-in-seafood-industry-1490>
- 3) <https://www.aquaculturenorthamerica.com/news/funding-to-boost-nls-aquaculture-labor-market-2060>
- 4) <https://www.aquaculturenorthamerica.com/showcase/demand-for-aquaculture-technicians-prompts-new-certificate-program-2064>
- 5) <https://www.aquaculturenorthamerica.com/profiles/rebranding-integrated-multi-trophic-aquaculture-into-3d-ocean-farming-inspires-attracts-followers-beyond-industry-borders-2038>
- 6) <https://www.visitflorida.com/en-us/things-to-do/attractions/25-aquariums-around-florida-for-families.html>

The value of our model is already well established. Our current business model provides us with a steady supply of volunteer labor in the form of interns from academic institutes, public schools, the general public and individuals doing community service as part of their rehabilitation in the criminal justice system. These individuals form the backbone of our business. A letter of recommendation from GSML is a virtual guarantee of employment because of our reputation for training with a combination of practical hands on skills, a strong emphasis on sustainable and environmentally sound principals, and quality interactions with the public.

However, our current model does not generate income for us, nor has it been standardized to provide uniform qualifications to our trainees. Certification will change that.

Figure 1: Our current model:

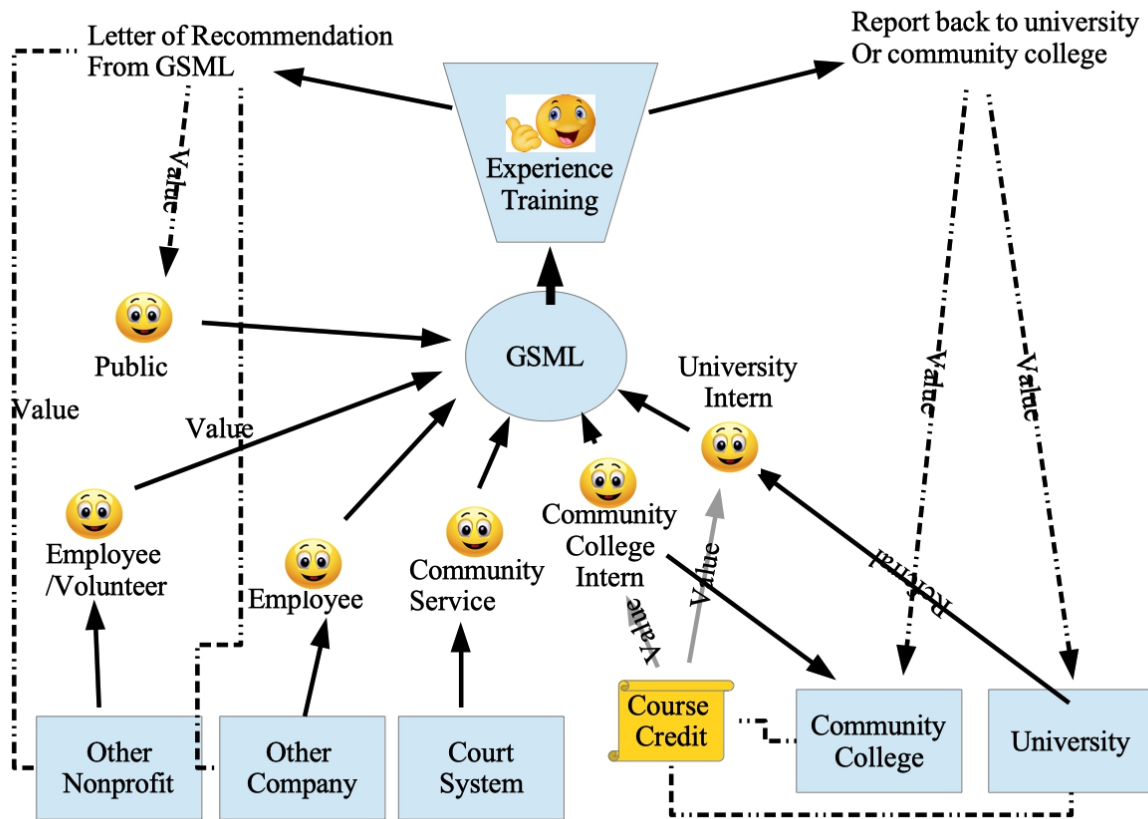
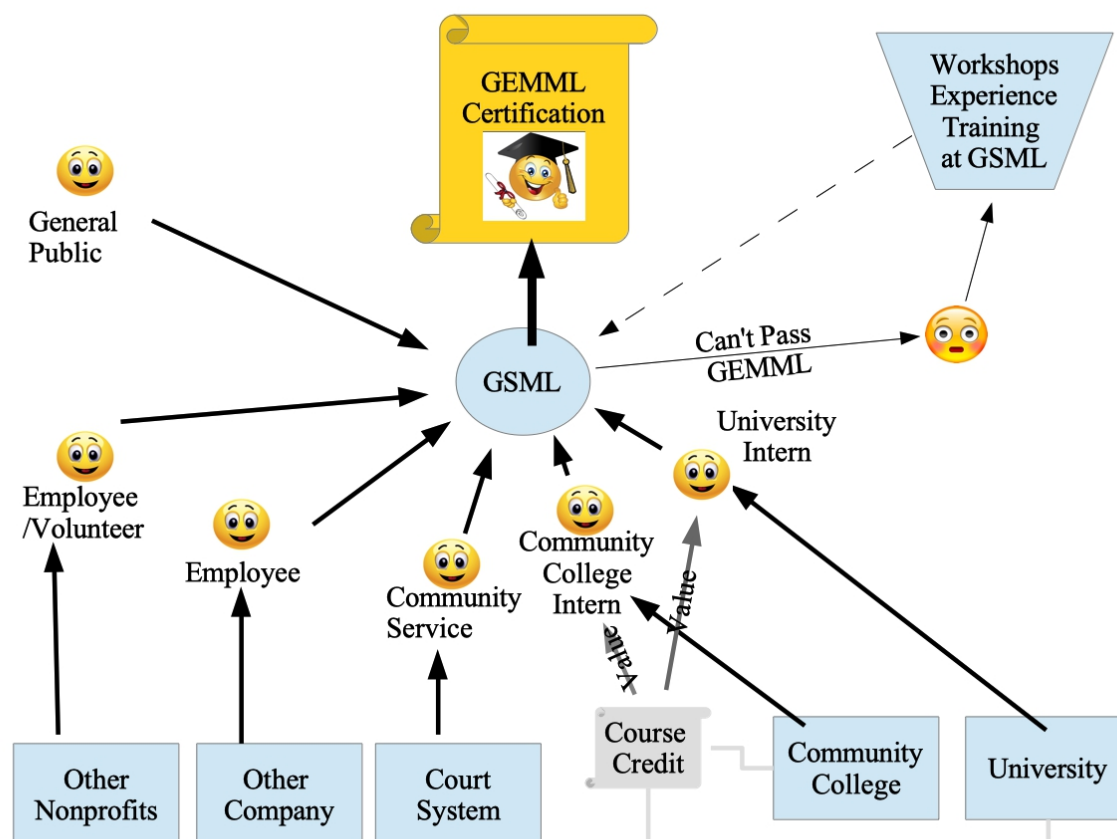


Figure 2: Our model with Gulf Education and Marketing for Marine Life Specialist Certification = GEMMS Certification



We are improving our current proven model with one that ends with a certification process. Candidates in our current program are already tested for their general knowledge in all our component areas. We simply intend to formalize this process with certification. Such formal certification will ensure every individual who completes our program will have the same set of skills. Those who do not master our skill set or who are missing components in training will be immediately identified for remedial training. Furthermore, our new certification program can also be readily combined with outside academic and business training to enhance an individual's skills and employability in another program because the skills we certify will also be independently verifiable. (See Figure 2)

GSML currently provides this training service to the community without charge. This new formal certification model will improve our business by generating income for this service in addition to standardization and independent verification. We can then use this new income stream to expand our business model and enlarge our certification program as demand grows.

Addition of Nationally Recognized Standards to our Current Program

The candidate will have acquired skills and knowledge of aquarium water system maintenance that meets the *Aquatic Animal Life Support System Operators* certification standard. Students

will also be competent and knowledgeable in environmental education to the standards of the *National Project for Excellence in Environmental Education (NAAEE)* core competencies with a knowledge base specific to the Gulf of Mexico, and the Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process.

For further details of our Gulf Education and Marketing for Marine Life Specialist Certification including detailed curriculum see Attachment O GEMMS Certification.docx
Determining who to certify:

The first critical step in developing a certification examination is deciding what knowledge, skills and abilities should be assessed to determine whether a candidate has the qualifications necessary to become certified. From our fifty plus years of experience we know the kind of person who will benefit from our training. Such a person should enjoy a work environment that is often outdoors and where conditions can change rapidly requiring a high degree of adaptability. No two work days are ever the same. Interest in and love of animals as well as willingness to interact with the public is also essential. No formal educational standard such as a post-secondary degree will be required as we have not found any direct correlation between a specific degree that predicts success. Some previous formal training in biology and mathematics at the high school level is beneficial but not essential.

The certification examination candidate

The certificate examination candidate will have 250 hours of onsite supervised work experience, have completed twelve academic style assignments that are designed to increase knowledge of local habitats, invertebrate organisms, and fish health. The candidate will have worked in an onsite lab learning sponge reaggregation, basic sea urchin embryology, and bioluminescence. The candidate will have acquired skills and knowledge of aquarium water system maintenance that meets the *Aquatic Animal Life Support System Operators* certification standard. Students will also be competent and knowledgeable in environmental education to the standards of the *National Project for Excellence in Environmental Education (NAAEE)* core competencies with a knowledge base specific to the Gulf of Mexico, and the Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process.

Job task analysis and objective domain

Candidates who meet our certification standards will have the following skills set. They will be able to handle all aspects of water quality maintenance such as pH, salinity, and nitrogen waste products, maintenance and repair of aquatic life support system components such pumps and filters, knowledge of the basic safe boating operation, collection, preparation, and delivery of marine organisms especially invertebrates, marine life display design, the ability to interact with the public and school groups, have a broad knowledge of Gulf species and environmental and sustainability issues related to the sea food and aqua culture industry and an ability to lead off site field trips and conduct group activities appropriate for both education and tourism.

Examination Process

Prior to examination students will have the opportunity to take two mock exams with content similar to, but not the same as, the actual test. The examination process itself will be conducted in a separate off-site location and it will be supervised by at least two external examiners who hold professional degrees (teacher, lawyer, engineer, university professor) who have no personal connection to the student and who can attest that the exam was administered in a fair

and independent manner. These same individuals will mark the exams and report back to GSML on the results. Only those candidates who can complete the independent examination process will be certified. We will require that candidates who do not pass the exam take remedial steps to fill in the gaps in their knowledge and then be re-examined at a later date not less than ten days later.

Recertification:

Certification will be considered good for five years at which time certificate holders can opt for recertification by retaking the exam. We will also offer recertification workshops to review material and update requirements prior to re-examination.

Additional Benefits of a Formal Certification Program

The most important result of this program will be that with aquaculture rapidly expanding in Florida, we will be preparing the local workforce to be ready to immediately take advantage of the new local employment opportunities the expanding aquaculture industry will provide.

Benefits to Graduates or our Program

Our staff are already members and have been certified by and will intend to comply with Aquatic Animal Life Support System Operators (AALSO). This organization is a partnership between industry and manufacturers of aquarium supplies and aquarium operators of all sizes that provides a two level internationally recognized certification standard, Level One Life Support Operator and Level Two Water Quality Technician. AALSO provides, study material and exams. Exams are completed at yearly their conferences and workshops. AALSO certification is the standard recognized by aquariums worldwide and requests for employment in the field often require AALSO certification either before hiring or as part of on the job training. The certification is also utilized by vendors and manufacturers internationally. Our certification will indicate our graduates meet this specific and measurable standard. Any individual who passes our certification will also be able to easily pass the AALSO examination if they choose to attend the yearly conference.

Benefits of Partnership Opportunities with Vocational, Secondary and Post-Secondary Institutions:

We are proposing a program with a heavy emphasis on practical technical work skills, our primary goal is to produce work ready technicians with direct, hands on experience and skills. Nonetheless, in our current model, we have interns who earn academic credit while working as volunteers with us. We therefore foresee continuing our partnerships with vocational, secondary and post-secondary schools where our practical certification will be an excellent complement to their formal academic training programs.

Benefits of certification for business in Wakulla and area.

There are many small businesses in our region that already benefit from our facility. We frequently offer informal advice and training and we benefit immensely from the support of local businesses. A formal certification program would allow local businesses to more readily access our experience and knowledge by having their employees take all or part of our certification training program. For example, a restaurant owner could benefit from increased understanding of the ecology and life cycle of marine life and education and outreach to tourists. Oyster aquaculture can benefit from our Marine Animal Husbandry and Water System Management and safe boating components as a complement to their own specialized knowledge. Businesses can hire graduates of our program knowing they have successfully

completed a program of practical work experience and have a well-defined skill set.

Benefits to Volunteers

We see our certification as a direct entry mechanism to allow members of the general public to be certified in a meaningful and direct way that enhances their usefulness as volunteers and potential employees. Aquariums all over the Gulf, especially those involved in marine life rescue and rehabilitation, have many individuals who want to work in the aquarium not their primary career choice but as volunteers and/or hobbyists. Training these eager volunteers takes time and resources because volunteers lack practical skills. Thus, volunteers are often an underutilized potential resource. Our certification will give volunteers the training and experience they need to be useful to other aquariums and rescues and free up resources currently used training them. Volunteers and hobbyists will also be able to choose to do only those components directly relevant to them. We foresee a future where potential volunteers to outside aquariums and rescue organisations will be referred to us for certification that provides general preparation for work as volunteers in their facility.

Benefits to Individuals Doing Court Mandated Community Service

GSML has long provided opportunities for individuals who have come in conflict with the criminal justice system to complete community service orders within our facility. For many of them, their experience in GSML has been life changing. They have acquired life skills and successfully reintegrated into society and ceased to offend. By having a formal certification program, we will be able to better monitor their community service contribution and distinguish those who are ready to rebuild their lives with gainful employment. We will also have provided a formal certification that such individuals can use to easily prove they are indeed ready for employment.

Benefits to the Community

We see individuals from all over the state and beyond traveling to Wakulla to visit GSML as tourists. We foresee expanding this tourist industry with those who wish to take our workshops and training courses. We are including specific components directly relevant to our community, such as “Gain knowledge of local fisheries and history of seafood industry including local restaurants & menus as well as demonstrating knowledge of the habitats and species commonly utilized in the seafood industry.” We will be improving the overall standard of education and training for all members of our community and beyond even if they do not intend to become specialists or volunteers working directly in the field.

Future Directions for our Certification Program

Once we have implemented our certification program we foresee opportunities to create addition specific certifications for the community that include subsets of our full program. These additional certifications would grow out of our GEMMS certification program.

Examples include certification in;

Sustainable Seafood for Restaurants.

Gulf Coast Specific Environmental Continuing Education for Teachers.

Maintaining Water Quality for Aquariums and Aquaculture.

Cleaning and Repairing Water Pumps and Water Systems Plumbing.

Identifying and Managing Marine Fouling Organisms.

2. Biological Supply

The financial mainstay of GSML remains its specimen collecting business, which continues to collect and ship throughout the world, including 47 states, Canada, Germany, and United Kingdom. The marine biological supply operation that supports the laboratory provides a constant flow of animals coming through the lab. A wide variety of invertebrates, fishes and algae are routinely collected and shipped to schools and research laboratories, hence no aquarium or standard marine laboratory with static exhibits can compete with it. ²Based on FedEx shipment data GSML ships specimens to 47 states. (See map below) Biological supply is a crucial part of the University and college curriculums. Marine life is collected from the eastern Gulf of Mexico, in the 8 affected counties, and shipped live to schools and universities in containers, marked "Fresh from Florida".

Currently GSML is one of the largest suppliers of marine biological specimens to classrooms and research laboratories across the United States. Our customer base ranges from research facilities, to universities, junior colleges and high schools. Marine specimens are required for labs in a variety disciplines that include general biology, invertebrate zoology, physiology, biochemistry and embryology classes. Many of these classes are prerequisites for graduating with a bachelor's degree in biology, medical and other disciplines.

Over the past fifty years the biological supply market to colleges has proven to be incredibly stable. GSML is known to universities throughout the United States as the "go to" place for marine specimens for their teaching and research needs. Many customers have worked with us and ordered specimens throughout their academic careers and have cited Gulf Specimen as their main sources of marine life in their scientific papers. (see Google Scholar attached list).

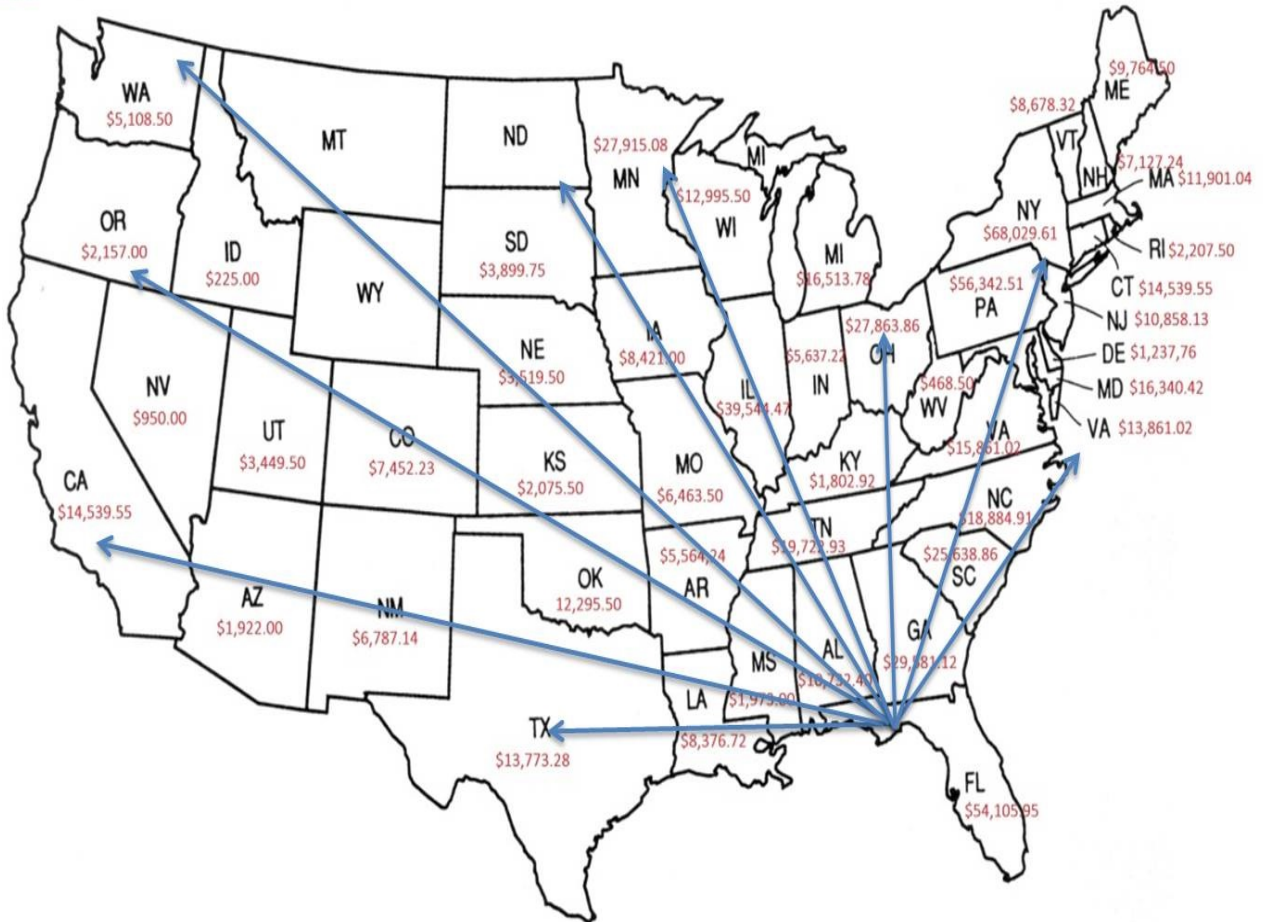
The United States is our primary market. However to meet our goals stated in the financial plan (see FSU attachment) we plan to expand our markets into Canada, Europe and Asia. Marketing to foreign entities with live marine animals requires extensive permitting and paper work, which we have not been able to exploit previously. However with increased man power that will come with Triumph's funding, we can expand into these markets, which enables us to meet the sales goals set forth in the financial plan. (See Attachment U for details.)

US Map of GSML Biological Supply Sales

² Shipping information provided by GSML FedEx account years 2016-2018

AK

\$2,086.50



3. Tourism/Ecotourism

GSML has become an anchor in Wakulla's tourism industry. Over the past decade the number of tourists visiting our facilities, field trips, memberships and special events have grown exponentially as our facilities have been upgraded and improved. Gulf Specimen Marine Lab and Aquarium currently hosts a number of ecotourism activities. We would like to offer several others in keeping with our mission to educate people concerning the sea life of the northern Gulf of Mexico. The list below gives existing ecotourism activities first in normal type, followed by proposed ecotourism programs in italics. (See Attachment T for specific ecotourism, existing and proposed) We are also working to expand our present visiting scientist/artist program. (See Attachment W)

Expansion and new displays will enable us to capture a much larger market and attract more of the several hundred thousand visitors that visit Wakulla Springs and St. Marks Wildlife refuge every year.³

Year (FY)	Wakulla Springs Visitation	St. Marks Refuge Visitation
2012-2013 (2013)	239,270	325,915
2013-2014 (2014)	260,229	321,000
2014-2015 (2015)	270,686	308,000
2015-2016 (2016)	224,725	265,000
2016-2017 (2017)	210,607	262,000
Accumulated Total	1,205,517	1,481,915

Increase in tourism will not only be beneficial to the GSML but to all businesses and restaurants in Panacea. Our application has the full support of local business owners in Panacea and the Wakulla County Tourist Development Council, Wakulla County Chamber of Commerce, Wakulla County BOCC and Panacea Waterfronts Group. Everyone involved recognizes the much needed economic stimulation that this project will bring to our region of Wakulla County and surrounding areas.

The GSML will also expand its ecotourism program. Ecotourism includes a wide range of outdoor recreation activities with far reaching economic benefits. In Florida, "ecotourism" is a diverse mix of activities which includes cycling, camping, fishing, hunting, padding, hiking, birding, visiting scenic byways, and other wildlife viewing. The diversity of wildlife in Florida has attracted tourists and created jobs, contributing \$552.8 million economic benefit in 2009. Florida has recognized the job creating potential of trails and is working to create a statewide system of greenways and trails. In 2011, Florida's 160 state parks attracted 20.4 million visitors, contributing \$967.3 million to the state economy and creating 19,347 jobs. Specifically, Wakulla Springs brought \$22.2 million economic contribution and created 347 jobs in 2011, ranking the 2nd place in all state parks. The numbers of accumulated visitors

³ Information provided by Bureau of Operational Services, Florida Department of Environmental Protection, TLH, FL.

since 2012 (FY2013) to 2016 (FY 2017) have reached 1,205,517 and 1,481,915 for Wakulla Springs and St. Marks Refuge respectively. (FSU, 2018)

In summary: GSML plans to improve our current education and training program by implementing a formal certification process meeting known international standards that will positively impact aquaculture and aquarium technology in our region. We intend to expand our current market into Canada, Europe and Asia, and we intend to expand our already successful ecotourism operation.

Attachment E: Priorities, Question 2

- ✓ **Generate maximum estimated economic benefits, based on tools and models not generally employed by economic input-output analysis, including cost-benefit, return-on-investment, or dynamic scoring techniques to determine how the long-term economic growth potential of the disproportionately affected counties may be enhanced by the investment.**

See Attachment D- Economic Analysis

- ✓ **Increase household income in the disproportionately affected counties above national average household income.**

See Attachment D- Economic Analysis

- ✓ **Leverage or further enhance key regional assets, including educational institutions, research facilities, and military bases.**

GSML developed partnerships with DARPA (US Defense Advanced Research Projects Agency) on research with electric rays and the U.S. Navy on deep sea hagfish (NAVY) with Valdosta State University on the development of cancer drugs from marine life; with Florida A & M University on marine science education, and with the Trust for Public Lands in long term planning for the future of GSML.

Biological Supply in domestic and foreign markets:

Patterned after the Marine Biological Laboratory's Supply Department in Woods Hole, in 1962 Gulf Specimen's founder Jack Rudloe began supplying marine life to schools and research laboratories. While the organization has morphed into an environmental educational center and public aquarium, biological supply remains the backbone that provides stability, income and contacts with hundreds of scientists and educators throughout the world. We presently collect and market over 300 marine invertebrates, fish and algae to over 1300 scientific and educational institutions.

Over the past fifty years GSML has become a significant arm of cutting edge marine biological research. Many of our clients have purchased specimens from us throughout their academic careers. We have provided live marine animals to thousands of the foremost research laboratories and universities in the United States, Canada, Europe and Japan. NASA has purchased sponges and toadfishes that were collected in the waters of Wakulla and Franklin Counties and flown them into outer space aboard the Space Shuttle. Our local sea urchins eggs are widely used in embryology, testing for pollution and biomedical research.

Our customer base ranges from research facilities, to college level in universities, junior colleges and high schools. Marine specimens are required for labs in a variety of disciplines that include general biology, invertebrate zoology, physiology, biochemistry and embryology classes. Many of these classes are prerequisites for students to graduate with a bachelor's degrees in biology, medical and other disciplines.

GSML has made significant contributions to medical research. In 1968 we provided a bryozoan, *Bugula neritina* to the National Cancer Institute which led to the development of the anti-cancer, anti-Alzheimer's drug Bryostatin. (See Attachment P Bryostatin)

GSML provides specimens to over 2,400 research customers in over 1300 schools and research laboratories. According to Google Scholar, over **300** scientific publications cite us as their source of research specimens. (See Attachment Q GSML in Google Scholar)

The discovery that horseshoe crab blood can be used to detect endotoxins, partly came from crabs that we provided to John's Hopkins, as did the electric rays that scientists at the Howard Hughes Medical Institute used to model brain degenerative diseases. Last year we provided the Naval Research Lab in Panama City with live hagfish slime, which was used in anti-submarine warfare and a reinforcement agent for protective gear. (See Attachment R US Navy)

Today the biological supply business remains crucial to our survival, generating nearly half our income, and has become the backbone of our popular marine aquarium. The collections of marine fish and invertebrates and algae gathered from the 8 affected counties in the eastern Gulf of Mexico that we display at our aquarium facility in Panacea has substantially increased our cash flow and become an economic anchor to the local economy.

With an infusion of capital, which will aide in advertising, we plan to expand our markets into Canada, Europe and Asia. Because of Marketing to foreign entities with live marine animals requires complex permitting and regulations dealing with both domestic and international customs agencies. Because of our small staff and lack of resources, we've made little effort to expand into the international market. However with increased man power that will come with Triumph's funding we will expand both our domestic and international markets. Additional locally hired staff and our GEMMS trainees, will enable us to handle the paperwork, using international brokers and shippers.

Gulf Specimen's existing small international market comes from word of mouth, and our excellent reputation among scientists that we've achieved over the past fifty years. However, with funding we will be able to expand our biological supply service to both domestic and foreign markets, advertising with direct mail, print ads, catalogs, exhibiting marine life at trade show booths, attending conferences and delivering lectures. We also plan to expand into the scientific tourism market bringing scientists to our laboratory to work on their research projects.

See Letters of Support, Santella Ph.D.

Potential Impact of GEMML on Aquaculture:

The aquaculture industry in Florida is in its earliest stages. It is currently focused on oysters.(1) One of the biggest barriers to the establishment of a booming aquaculture industry worldwide is a lack of trained labor that is so acute the industry is forced to import workers from other countries. (66,000 in the USA) Meanwhile, the pan handle of Florida has widespread unemployment and poverty. The creation of small and family owned operations is not going fill this growing labor shortage. ***Aquaculture needs trained labor and there is no industry recognized training program in the USA that specifically aims to meet that need.***(2) As an example of this, Newfoundland Canada has a booming aquaculture industry yet there is currently an eleven percent shortage of labor for aquaculture technicians in Newfoundland Canada.(3) Canada is setting up a new four month aquaculture technician training program to meet the need for a trained labor force in British Columbia. New certifications are being developed driven by the new industry.(4) Furthermore, expansion beyond oyster aquaculture is going to require trained labor already exposed to multiple other potential sources of aquaculture beyond oysters.(5) Gulf Specimen Marine Laboratory is already a proven specialist in the use and marketing of diverse species beyond oysters. There is simply no equivalent in Florida, or the USA to our proposed Gulf Education

and Marketing for Marine Life Specialist Certification (GEMMS). We foresee multiple job opportunities for graduates of the GEMMS certification as aquaculture expands and grows in the panhandle. GEMML certification is practical hands training on with graduates coming out of the program already knowing real practical knowledge such as how prepare a specimen for shipping, how to start a boat motor, or how fix a broken pipe. Labor shortage is one of the factors holding the aquaculture industry in Florida back. Our bold and innovative certification is aimed directly at fixing the shortage of practical hands on labor, trained right here in Florida. Our graduates will not just fill a need, they will create opportunities for the industry to grow.

Jobs in the Florida Aquarium Industry

There are currently one hundred and fifty four aquariums that Gulf Specimen Marine Laboratory supplies specimens to. Of those seventeen (11%) are located in Florida. There are twenty four aquariums in the state who are members of Visit Florida (6), three of which are located in the pan handle. All of these aquaria require employees and there is currently no formal aquarist technician training program for working in these aquariums. This is why participation in our present informal intern program and a letter of recommendation from Gulf Specimen Marine Laboratory is so popular. Practical experience is a virtual guarantee of employment in the aquarium industry.

References

- 1) <https://www.aquaculturenorthamerica.com/shellfish/oyster-farmers-find-strength-in-numbers-2002>
- 2) <https://www.aquaculturenorthamerica.com/news/guest-workers-fill-key-role-in-seafood-industry-1490>
- 3) <https://www.aquaculturenorthamerica.com/news/funding-to-boost-nls-aquaculture-labor-market-2060>
- 4) <https://www.aquaculturenorthamerica.com/showcase/demand-for-aquaculture-technicians-prompts-new-certificate-program-2064>
- 5) <https://www.aquaculturenorthamerica.com/profiles/rebranding-integrated-multi-trophic-aquaculture-into-3d-ocean-farming-inspires-attracts-followers-beyond-industry-borders-2038>
- 6) <https://www.visitflorida.com/en-us/things-to-do/attractions/25-aquariums-around-florida-for-families.html>

✓ Benefit the environment in addition to the economy

In addition to improving the local economy, GSML benefits the environment by instilling public appreciation and knowledge about the woods and waters of the Florida panhandle and the eastern Gulf of Mexico, which is world famous for its biological diversity. The aquarium's sea turtle program has not only rehabilitated hundreds of endangered Kemp's Ridleys and other sea turtles but created a great awareness in the general public and with commercial fishermen who once considered them part of their dinner fare.

With funding GSML can increase its positive impact on children and adults through education. By bringing critical information in regards to the protection of our environment and sea life into the schools in a dynamic fashion, we eliminate the obstacles to understanding the need for conservation and conscious stewardship: school budget deficiencies, distance from the ocean, lack of access, lack of information.

For 50 years, the founders of Gulf Specimen Marine Lab have promoted sea turtle conservation in the Florida Panhandle through publication of multiple books, widely-distributed popular magazine articles and scientific peer review journals, as well as television appearances and local lectures. During this time, Jack Rudloe and the late Anne Rudloe became the area's foremost experts on sea turtle conservation and habitat protection. GSML staff work tirelessly to promote coastal conservation and awareness of human impact on fragile ecosystems, building relationships with school administrations, festival promoters and media outlets. The lab holds a certificate for sea turtle rehabilitation and uses social media to keep the public aware and involved in stewardship and restoration efforts.

In addition to providing marine specimens to schools and research facilities, maintaining a popular marine environmental education center, rehabilitating sick and wounded sea turtles, and publishing material on sea turtle biology and coastal conservation, the GSML also has a mobile marine display called the Sea Mobile <http://www.gulfspecimen.org/sea-mobile/>

With this interactive display, the GSML can interest generations of Florida panhandle citizens in protecting sea turtles, habitats and food sources, and help young people to understand how human actions impact our fragile coastal ecosystem at a time when they are forming ideas about the world around them.

Awareness of the critical issues facing our endangered sea turtle populations can best be addressed through interactive media and hands-on displays, as people, especially children, are more likely to engage with information they can touch. With the decreasing ability of schools and parents to offer such opportunities, the Sea Mobile has become an essential vehicle for providing and promoting the knowledge necessary to establish a mindset of stewardship and conservation that can protect Florida's marine turtles and their habitats for generations to come.

✓ **Provide outcome measures.**

See Attachment D- Economic Analysis

✓ **Partner with K-20 educational institutions or school districts located within the disproportionately affected counties as of January 1, 2017.**

GSML hosted over 10,000 K-20 field trips in 2017-2018. Students come from the disproportionately affected counties and all over Florida and Georgia.

✓ **Are recommended by the board of county commissioners of the county in which the project or program will be located.**

See attachment I – Letters of Support

✓ **Partner with convention and visitor bureaus, tourist development councils, or chambers of commerce located within the disproportionately affected counties.**

GSML is partners with VISIT FLORIDA, Wakulla County Chamber of Commerce, Wakulla County Tourist Development Council, Franklin County Chamber of Commerce and Franklin County Tourist Development Council.

Attachment F: Discretionary Priorities, Question 3

✓ **Are considered transformational for the future of the Northwest Florida region.**

As the oceans are becoming depleted of seafood, aquaculture is becoming of prime importance. Oyster aquaculture has already transformed much of Wakulla County from a commercial wild stock harvesting to cage culture. GSML's aquaculture training programs, will enable students to open new avenues of fish farming, algae culture and biotechnology in the surrounding counties, as well as worldwide.
See attachment I- Letters of Support, McIntosh

Robins McIntosh, Vice President of CP Foods, Inc. the largest shrimp farms in Thailand will consult on the design of the facilities and the development of curricula. Florida Aquaculture, Inc. which grows native shrimp for bait, will also participate. Dr. Brian LaPointe, of the FAU's Harbor Branch Institute will assist in the construction of algae tumble tanks,

✓ **May be consummated quickly and efficiently.**

Much of the equipment and technology to grow seaweeds, and train technicians is being practiced on a small scale at GSML. This is a 3-year proposal. It will take approximately 1 year to build the new facilities, during which time we will develop the curricula, and recruit the necessary staff. At the beginning of the second year, we will open our first courses. By the end of the 4th year the program will be self-sustaining. It will take between one and three years to scale up production and start marketing more "Fresh from Florida" locally grown products.

✓ **Promote net-new jobs in the private sector with an income above regional average household income.**

See Attachment D- Economic Analysis

✓ **Align with Northwest Florida FORWARD, the regional strategic initiative for Northwest Florida economic transformation**

Almost every aspect of GSML's operation corresponds to the directives of Northwest Florida's initiative, from training to technology development and

entrepreneurship. The GSML continues to expand the work based learning and career exploration for students in the fields of science, sea farming and technology.

- ✓ **Create net-new jobs in targeted industries to include: aerospace and defense, financial services/shared services, water transportation, artificial intelligence, cybersecurity, information technology, manufacturing, and robotics.**

GSML is on the forefront of the growing field of Biomimetics, - the study of the formation, structure, or function of biologically produced substances and material by providing specimens used in a wide range of technologies. As markets for marine biotechnology products develop, students will gain knowledge and background that is transferrable to a multiple of disciplines. For example, GSML has provided ghost crabs to Cal Tech who used them as models to develop robots that climb could mountainous terrain that wheeled and tracked vehicles were unable to climb. The U.S. Navy used hagfish provided by GSML to develop weapons. (NAVY) GSML provides electric rays, which have served as models to produce biological batteries and provided live remoras, or shark suckers to the Georgia Institute of Technology to produce medical adhesion devices.

Close cooperation with the researchers is required, giving students and interns direct exposure to scientists and professionals who come to GSML to pick up materials, or get directly involved with collecting and culture operations. Students and volunteers are periodically involved in collecting pen shells from St. Joe Bay, which are shipped to the University of Florida and Israel to develop a bone grafting materials in medical research. Without the GSML involved with the collecting, preparation and shipping specimens to scientists and other professionals that they would not be in contact with otherwise.

- ✓ **Promote industry cluster impact for unique targeted industries.**

Oyster and clam aquaculture is a growing field in the Florida panhandle. Although TCC, FSU and other groups are developing aquaculture programs, and have hatcheries and grow out facilities in their planning stages. Until those facilities come on line, GSML's advanced aquarium water systems can be used to demonstrate methodologies in cooperation with other academic groups and agencies can aide in the development of new aquaculture facilities in the eight affected counties.

- ✓ **Create net-new jobs with wages above national average wage (e.g., similar to EFI QTI program, measured on graduated scale).**

See Attachment D- Economic Analysis

- ✓ **Are located in Rural Area of Opportunity as defined by the State of Florida (DEO).**

Wakulla County has been designated as a Northwest Florida Rural Area of Opportunity

- ✓ **Provide a wider regional impact versus solely local impact.**

GSML already has a regional impact with over 300 schools from North Florida and South Georgia visiting on field trips to the aquarium. It also ships marine specimens to 2400 scientists and educators around the nation, Canada and overseas.

- ✓ **Align with other similar programs across the regions for greater regional impact, and not be duplicative of other existing projects or programs.**

GSML'S facilities are unique and completely different from other scientific and educational institutions in the region, that exist or in the planning stages. The Apalachicola National Estuarine Research Reserve has aquariums and excellent museum displays, but none have touch tanks which draw people to the region. Gulf World in Panama City focuses on marine mammals and large fish, but not invertebrates which are featured at GSML which will also have the world's first Marine Botanical Garden. (PARTNERS) **See attachment L**

- ✓ **Enhance research and innovative technologies in the region.**

In addition to its ongoing support of university research and education through its biological supply program, GSML's externally funded research programs have focused largely on the fields of sea turtle research and aquaculture of marine species for laboratory use. They have included tag and release studies of the endangered Kemp's Ridley sea turtle (National Marine Fisheries Service); ecology and aquaculture methods for the electric ray, a biomedical model species (Howard Hughes Medical Institution); aquaculture of bryozoans as a source of anticancer drugs (National Cancer Institute); migratory patterns of blue crabs (Florida Department of Environmental Protection); ecology and pharmaceutical use of horseshoe crabs (U.S. Food and Drug Administration). Gulf Specimen Marine Laboratory has been active in campaigns to protect coastal wetlands, sea turtles, marine resources and public lands since the early 1970s. **See attachment M**

- ✓ **Enhance a targeted industry cluster or create a Center of Excellence unique to Northwest Florida.**

GSML has expanded its visibility throughout its service region of North Florida and South Georgia significantly. In the last Division of Cultural Affairs funding cycle, goals were to improve interpretive services by enhancing the volunteer program and to improve promotion. This was achieved by using paid staff to better organize and expand the volunteers program. Since then, approximately 50 volunteers have participated in GSML programs, working as docents, in leading field trips, and in helping to write new promotional material and grant applications.

GSML received numerous awards over the years which align with the goals of Center of

Excellence. It has helped disadvantaged youth and received the Governor's Community Investment Award from Governor Jeb Bush and the Department of Juvenile Justice for the at risk youth program; and 2.Environmental Protection Agency's Gulf Guardian Award for our marine educational program, along with the Chevron Texaco's Conservation awards. **See attachment N**

To expose students to technology, GSML highlights the use of marine life in scientific and biomedical research, particularly cancer research, providing a unique venue for broader aspects of science education and the immediate concrete value of marine biodiversity to human well-being in fields such as medicine and to communicate both the practical benefits of scientific research and the intellectual excitement, adventure and discovery involved in doing science.

- ✓ **Create a unique asset in the region that can be leveraged for regional growth of targeted industries.**

The project is pivotal to the future growth and economic viability of Panacea, FL. (Wakulla County) and will most certainly be a unique asset in the region. With TRIUMPH funding the GSML will build out its Master Plan adding 8 new marine displays, a much needed education and training center and upgrade all facilities. In turn GSML's anticipates tripling its tourism which will bring a much needed economic boost to Panacea, a small unincorporated town in Wakulla County. In such a town as Panacea, all businesses work together for the greater good. Recently Wakulla County has resurfaced and striped Hwy 98 through Panacea, installed sidewalks, improved storm water ditches and has a new overlay for the waterfront County Park just a couple blocks from the GSML. Wakulla County also has a heavily used public dock and boat launch 1 block from GSML that was just recently expanded and improved.

See attachment H

- ✓ **Demonstrate long-term financial sustainability following Triumph Gulf Coast, Inc. funding.**

See Attachment D Economic Analysis

- ✓ **Leverage funding from other government and private entity sources.**

See attachment D Economic Analysis

- ✓ **Provide local investment and spending.**

The permanent staff of GSML live in Wakulla County, and volunteers and interns come from Tallahassee. GSML has a wide array of local vendors. GSML purchases building

supplies, fuel, bait, hardware, chemicals from local vendors whenever possible.

- ✓ **Are supported by more than one governmental entity and/or private sector companies, in particular proposed projects or programs supported by more than one county in the region.**

See attachment L

- ✓ **Provide clear performance metrics over duration of project or program.**

See attachment D Economic Analysis

- ✓ **Include deliverables-based payment system dependent upon achievement of interim performance metrics.**

See attachment D Economic Analysis

- ✓ **Provide capacity building support for regional economic growth.**

The GSML grew from a single house to a thriving facility and has remained stable for over 50 years. GSML will continue to expand and improve creating new opportunities and developing new products

- ✓ **Are environmentally conscious and business focused**

The GSML has taught generations of children environmental stewardship and has operated a sea turtle rescue facility for many years. All of this while balancing a successful business. GSML specimen collection techniques also comply with The Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process

- ✓ **Include Applicant and selected partners/vendors located in Northwest Florida.**

See attachment L (PARTNERS)

Contribution Breakdown	Year 1	Year 2	Year 3	3-Year Total	3-Year %
Triumph Fund Contribution	\$3,950,000	\$650,000	\$350,000	<i>\$4,950,000</i>	<i>47.19%</i>
GSML Contribution; Co-applicants and Partners Contribution and	\$1,362,000	\$1,916,000	\$2,262,000	<i>\$5,540,000</i>	<i>52.81%</i>
Revenues from membership dues, ticket sales, and	\$287,000	\$361,000	\$402,000		
Revenues from specimen sales, education outreach	\$902,000	\$1,307,000	\$1,569,000		
Benefits from other [1]	\$70,000	\$101,000	\$119,000		
[2]	\$103,000	\$147,000	\$172,000		
Total Expenditures	\$5,037,000	\$2,105,000	\$2,150,000	\$9,292,000	<i>53.27%</i>

1. Identify the amount of funding sought from Triumph Gulf Coast, Inc. and the time period over which funding is requested.

Year 1	Year 2	Year 3	3-Year Total	3-Year %
\$3,950,000	\$650,000	\$350,000	<i>\$4,950,000</i>	<i>47.19%</i>

2. What percentage of total program or project costs does the requested award from Triumph Gulf Coast, Inc. represent? (Please note that an award

3-Year Total	3-Year %
<i>\$4,950,000</i>	<i>47.19%</i>
	<i>53.27% of Expenditures</i>

3. Please describe the types and number of jobs expected from the proposed project or program and the expected average wage.

Types, Number, and Total Expenditure See Table 15, 16, and 17 in the report

Attachment G Cash Flow Table

Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	4-10 Year Total	4-10 Year %
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0%
\$2,710,000	\$2,861,000	\$2,968,000	\$3,061,000	\$3,152,000	\$3,222,000	\$3,295,000	\$21,269,000	100%
\$464,000	\$485,000	\$500,000	\$513,000	\$526,000	\$536,000	\$545,000		
\$1,892,000	\$2,000,000	\$2,077,000	\$2,144,000	\$2,209,000	\$2,259,000	\$2,313,000		
\$144,000	\$153,000	\$159,000	\$164,000	\$170,000	\$174,000	\$178,000		
\$210,000	\$223,000	\$232,000	\$240,000	\$247,000	\$253,000	\$259,000		
\$2,247,000	\$2,397,000	\$2,503,000	\$2,594,000	\$2,685,000	\$2,755,000	\$2,827,000	\$18,008,000	

See Table 13 in the report

rd of funding will be for a defined monetary amount and will not be based on percentage of projected project costs.)

penditure

10-Year Total	10-Year %
\$4,950,000	15.59%
\$26,809,000	84.41%
\$27,300,000	18.13%

10-Year Total	10-Year %
\$4,950,000	15.59%
	18.13% of Expenditure

Year	Labor, Direct Permanent Employees	Direct Permanent Employment (FTE)	Expected Average Wage of Direct Permanent Empl
1	\$252,000	6.5	\$38,769
2	\$396,000	10.5	\$37,714
3	\$406,000	10.5	\$38,667
4	\$605,000	15	\$40,333
5	\$692,000	17	\$40,706
6	\$741,000	18	\$41,167
7	\$778,000	18.5	\$42,054
8	\$812,000	19	\$42,737
9	\$830,000	19	\$43,684
10	\$850,000	19	\$44,737

4. Does the potential award supplement but not supplant existing funding sources? If yes, describe how the potential award supplements existing fi

5. Please provide a Project/Program Budget. Include all applicable costs and other funding sources available to support the proposal.

See Cashflow table

Attachment H

CashFlow and Budget Summary

And

Attachment H GSML Masterplan

Gulf Specimen Marine Lab Contribution
Adjusted Triunseh Grant Request

\$4,325,000

Table 1. Timeline and Personnel

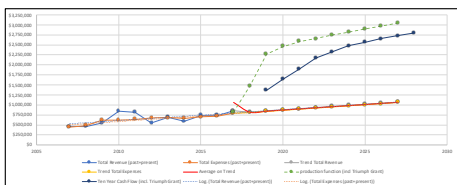
[illegible]

Table 2. Expenditure

between 1800 sq ft and \$250 per sq ft and 1800 sq ft and \$166.67 per sq ft

\$345,000	7.51%
-----------	-------

Year 5 GSML is officially sustainable (although sustainable threshold is more accurate



	2007	2008	2009	2010	2011	2012
<u>Beginning Fund Balance:</u>						
Estimated Fund Balance						
ADD: REVENUES	\$463,287	\$457,390	\$555,805	\$842,793	\$821,902	\$546,459
TRANSFERS IN						
TOTAL RECEIPTS	\$463,287	\$457,390	\$555,805	\$842,793	\$821,902	\$546,459
<u>TOTAL ESTIMATED AVAILABLE</u>						
DEDUCT: EXPENDITURES	\$444,150	\$483,023	\$625,537	\$612,672	\$639,163	\$668,367
TRANSFERS OUT						
<u>ESTIMATED FUND BALANCE (end)</u>						
Total Available less Disbursements	\$19,137	-\$25,633	-\$69,732	\$230,120	\$182,739	-\$121,908
Total Estimated reserve and unincumbered						

2013	2014	2015	2016	2017	2018	2019	2020	2021
					\$3,950,000	\$650,000	\$350,000	
					\$3,950,000	\$650,000	\$350,000	
						\$275,000	\$461,000	\$462,000
\$691,853	\$587,572	\$735,143	\$737,203	\$854,999	\$1,362,000	\$1,641,000	\$1,890,000	\$2,172,000
\$691,853	\$587,572	\$735,143	\$737,203	\$854,999	\$5,312,000	\$2,566,000	\$2,701,000	\$2,634,000
\$687,877	\$666,157	\$697,166	\$723,396	\$796,248	\$4,682,000	\$2,105,000	\$2,139,000	\$2,221,000
\$3,976	-\$78,585	\$37,977	\$13,807	\$58,751	\$630,000	\$461,000	\$562,000	\$413,000
NOT CASH FLOW Depreciation					\$275,000	\$461,000	\$462,000	\$463,000
NON-Profit					\$355,000	\$0	\$100,000	-\$50,000

2022	2023	2024	2025	2026	2027
------	------	------	------	------	------

\$463,000	\$464,000	\$465,000	\$466,000	\$467,000	\$468,000
\$2,323,000	\$2,477,000	\$2,567,000	\$2,657,000	\$2,726,000	\$2,798,000

\$2,786,000	\$2,941,000	\$3,032,000	\$3,123,000	\$3,193,000	\$3,266,000
-------------	-------------	-------------	-------------	-------------	-------------

\$2,372,000	\$2,476,000	\$2,566,000	\$2,656,000	\$2,725,000	\$2,798,000
-------------	-------------	-------------	-------------	-------------	-------------

\$414,000	\$465,000	\$466,000	\$467,000	\$468,000	\$468,000
-----------	-----------	-----------	-----------	-----------	-----------

\$464,000	\$465,000	\$466,000	\$467,000	\$468,000	\$468,000
-\$50,000	\$0	\$0	\$0	\$0	\$0

	2007	2008	2009	2010	2011	2012
<u>Beginning Fund Balance:</u>						
Estimated Fund Balance						
ADD: REVENUES	\$463,287	\$457,390	\$555,805	\$842,793	\$821,902	\$546,459
TRANSFERS IN						
TOTAL RECEIPTS	\$463,287	\$457,390	\$555,805	\$842,793	\$821,902	\$546,459
<u>TOTAL ESTIMATED AVAILABLE</u>						
DEDUCT: EXPENDITURES	\$444,150	\$483,023	\$625,537	\$612,672	\$639,163	\$668,367
TRANSFERS OUT						
<u>ESTIMATED FUND BALANCE (end)</u>						
Total Available less Disbursements	\$19,137	-\$25,633	-\$69,732	\$230,120	\$182,739	-\$121,908
Total Estimated reserve and unincumbered						

2013	2014	2015	2016	2017	2018	2019	2020	2021
					\$3,950,000	\$650,000	\$350,000	
					\$3,950,000	\$650,000	\$350,000	
						\$275,000	\$461,000	\$462,000
\$691,853	\$587,572	\$735,143	\$737,203	\$854,999	\$1,362,000	\$1,641,000	\$1,890,000	\$2,172,000
\$691,853	\$587,572	\$735,143	\$737,203	\$854,999	\$5,312,000	\$2,566,000	\$2,701,000	\$2,634,000
\$687,877	\$666,157	\$697,166	\$723,396	\$796,248	\$4,682,000	\$2,105,000	\$2,139,000	\$2,221,000
\$3,976	-\$78,585	\$37,977	\$13,807	\$58,751	\$630,000	\$461,000	\$562,000	\$413,000
NOT CASH FLOW Depreciation					\$275,000	\$461,000	\$462,000	\$463,000
NON-Profit					\$355,000	\$0	\$100,000	-\$50,000

	2022	2023	2024	2025	2026	2027
Operating income	\$463,000	\$464,000	\$465,000	\$466,000	\$467,000	\$468,000
Depreciation expense	\$2,323,000	\$2,477,000	\$2,567,000	\$2,657,000	\$2,726,000	\$2,798,000
Amortization expense						
Goodwill impairment expense						
Other non-recurring expenses	\$2,786,000	\$2,941,000	\$3,032,000	\$3,123,000	\$3,193,000	\$3,266,000
Total operating expenses	\$2,372,000	\$2,476,000	\$2,566,000	\$2,656,000	\$2,725,000	\$2,798,000
Income before taxes	\$414,000	\$465,000	\$466,000	\$467,000	\$468,000	\$468,000
Tax expense						
Income after taxes	\$464,000	\$465,000	\$466,000	\$467,000	\$468,000	\$468,000
Non-recurring items	-\$50,000	\$0	\$0	\$0	\$0	\$0

												2018	2019	2020	2021	2022	2023	2024	2025	2026	2027		
												Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	SUM	
1. Please provide a Project/Program Budget. Include all applicable costs and other funding sources available to support the proposal.																							
A. Project/Program Costs:																							
Example Costs (Note: Not exhaustive list of possible Cost categories.)																							
Construction	\$ 3,369,000											\$ 254,000	\$ 200,000						\$ 3,823,000				
Reconstruction	\$ _____																						
Design & Engineering	\$ _____																						
Land Acquisition	\$ _____																						
Land Improvement	\$ _____																						
Equipment	\$ _____																						
Supplies	\$ _____																						
Salaries	\$ 226,000											\$ 396,000	\$ 150,000						\$ 772,000				
Other (specify) _____	Total Project Costs:																						
B. Other Project Funding Sources:																							
Example Funding Sources (Note: Not an exhaustive list of possible Funding Sources):																							
City/County	\$ _____																						
Private Sources	\$ _____																						
Other (e.g., grants, etc.) \$ _____																							
Total Other Funding												\$ 256,000	\$ 605,000	\$ 692,000	\$ 741,000	\$ 778,000	\$ 812,000	\$ 830,000	\$ 850,000	\$ 5,564,000	match in cost	match compensated out of Revenue	
Total Amount Requested:																				\$ 4,595,000	requested		
Project Total Amount																				\$ 10,159,000			
													\$ 275,000	\$ 461,000	\$ 562,000	\$ 513,000	\$ 464,000	\$ 465,000	\$ 466,000	\$ 467,000	\$ 468,000	\$ 468,000	
Total Expenditures	\$ 4,682,000											\$ 2,105,000	\$ 2,139,000	\$ 2,221,000	\$ 2,372,000	\$ 2,476,000	\$ 2,566,000	\$ 2,656,000	\$ 2,725,000	\$ 2,798,000	\$ 22,613,000		
Total Revenues (excl Triumph)	\$ 1,362,000											\$ 1,641,000	\$ 1,890,000	\$ 2,172,000	\$ 2,323,000	\$ 2,477,000	\$ 2,567,000	\$ 2,657,000	\$ 2,726,000	\$ 2,798,000	\$ 22,613,000		
Total Revenues	\$ 4,957,000											\$ 3,566,000	\$ 2,701,000	\$ 2,734,000	\$ 2,836,000	\$ 3,041,000	\$ 3,032,000	\$ 3,123,000	\$ 3,193,000	\$ 3,266,000	\$ 26,754,000		
													\$ 275,000	\$ 461,000	\$ 562,000	\$ 513,000	\$ 464,000	\$ 465,000	\$ 466,000	\$ 467,000	\$ 468,000	\$ 468,000	\$ 4,609,000

		2004	2005	2006	2007	2008	2009	2010	2011	2012
								FROM IRS 990 FORMS		
								11	8	7
									25	25
									33	32
	Membership dues						8618		11980	10978
	Direct Public Support				16682					
	Government Contributions				32284				8140	8140
	All Other contributins etc								74046	16804
		76404	65071	81870	48966	35184	61405	282699	94166	35922
Program Service Revenue	Specimen Sales				228089			272347	275755	292848
	Tours/ Education Outreach				94611			103289	110011	150847
					322700	434567	369515	375636	385766	443695
	Investment Income					55	117	1014	184	126
	fundraising events (net)							7981	6705	
a	Gross revenue									
b	Direct expenses					-77631				
	FEMA Reimbursement									
a	Gross Sales				30035		53217	50905	54626	46468
b	Less cost of goods sold				19516		19826	18479	25619	24379
c					10519		33391	32426	29007	22089
	Other							33588	221963	
Total Revenue					382185	392175	473046	733344	737791	501832
	Program services				257204					
	Management &				109194					
	Salaries and Wages					242244	248792	260444	274815	278926
	Prof.fees					5476	4835			
	Occupancy					66296	63753			
	Other					100137	215015			334858
Total Expenses					366398	414153	532395	533108	573753	613784
	Excess or Deficits				15787	-21978	-59349	200236	164038	-111952

2013	2014	2015	2016	2017
6	9	12	12	13
25	25	25	25	25
31	34	37	37	38
14058	15727	28742	34138	32178
9190	18514	141435	120453	61938
23248	34241	170177	154591	94116
287448	284169	286073	305167	304318
157374	197181	201073	202161	243067
444822	481350	487230	507328	547385
681	44	60	828	19
4567	3669	-2648		7675
				132758
58304	67169	79113	80253	100667
29008	30826	39974	39332	48521
29296	36343	39139	40921	52146
139493	326	262	330	350
642107	555973	694220	703998	834449
261623	253887	241686	230537	275405
376794	376445	416671	460276	501705
638417	630332	658357	690813	777110
3690	-74359	35863	13185	57339

9190	18514	141435	120453	61938
23248	34241	170177	154591	94116

287448	284169	286073	305167	304318
157374	197181	201073	202161	243067
444822	481350	487230	507328	547385
681	44	60	828	19
4567	3669	-2648		7675

				132758
58304	67169	79113	80253	100667
29008	30826	39974	39332	48521
29296	36343	39139	40921	52146
139493	326	262	330	350

642107	555973	694220	703998	834449
--------	--------	--------	--------	--------

261623 253887 241686 230537 275405

376794	376445	416671	460276	501705
638417	630332	658357	690813	777110
3690	-74359	35863	13185	57339

INFLATION ADJUSTED					
2007	2008	2009	2010	2011	2012
206.686	214.823	213.24	218.009	224.906	230.085
1.212205955	1.166290388	1.174948415	1.149246132	1.114003184	1.088928005

--	--	--	--	--	--

463286.9329	457389.9329	555804.6479	842792.7555	821901.5228	546458.9185

444149.8375	483022.663	625536.6614	612672.307	639162.6686	668366.5865

STED April-to-April

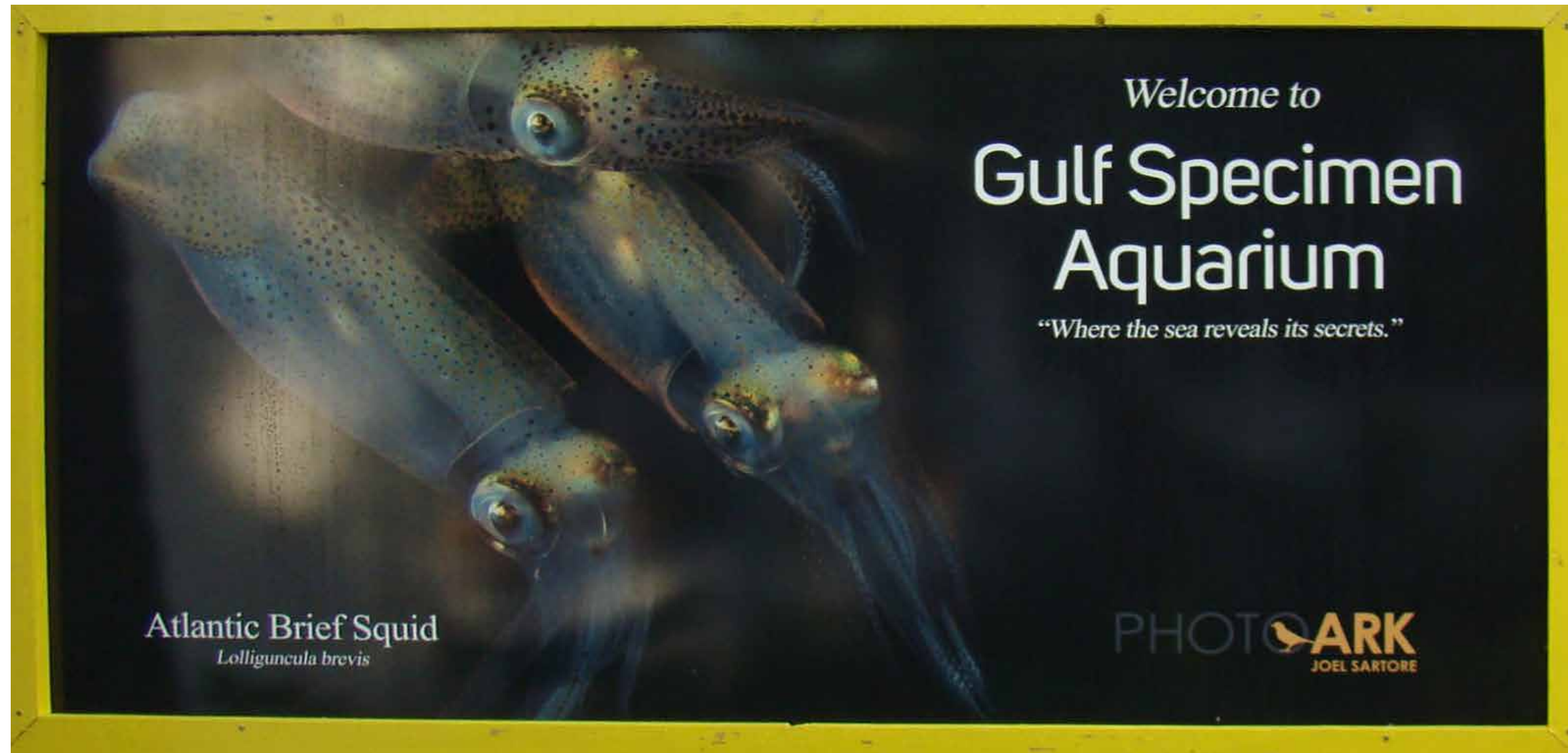
2013	2014	2015	2016	2017	2018
232.531	237.072	236.599	239.261	244.524	250.546
1.077473541	1.056835054	1.05894784	1.047166066	1.024627439	1

--	--	--	--	--	--

691853.3031	587571.7557	735142.7695	737202.8158	854999.3422	

687877.4257	666156.9535	697165.7231	723395.9312	796248.2295	

Gulf Specimen Aquarium



Welcome to
**Gulf Specimen
Aquarium**

"Where the sea reveals its secrets."

Atlantic Brief Squid
Lolliguncula brevis

PHOTO **ARK**
JOEL SARTORE

Masterplan

Introduction

The Gulf Specimen Marine Laboratories, Inc. was started in 1963 as a non-profit tax exempt organization engaged in marine education, research, and coastal conservation, but primarily involved with supplying living, custom collected marine species for use in university research and teaching. In the early 1990's, the lab shifted focus to become more of a public aquarium by allowing paid guests and school groups to tour the laboratory grounds and view their captive live specimens and preserved artifacts. Toward this end, the laboratory grounds have been improved with the addition of both wayfinding and informational graphics, videos, some limited guest amenities and an air conditioned gift shop. And they added “and Aquarium” to their name. This public viewing component of the Labs has also allowed for the pursuit of additional funding in the form of grants from a variety of sources.

The GSML&A leadership has determined that expanding and improving the Aquarium portion of their business is critical to their future successful growth and provides needed diversity to their income streams. This document is intended to provide ideas and possibilities for this growth as well as suggested enhancements to existing exhibits.

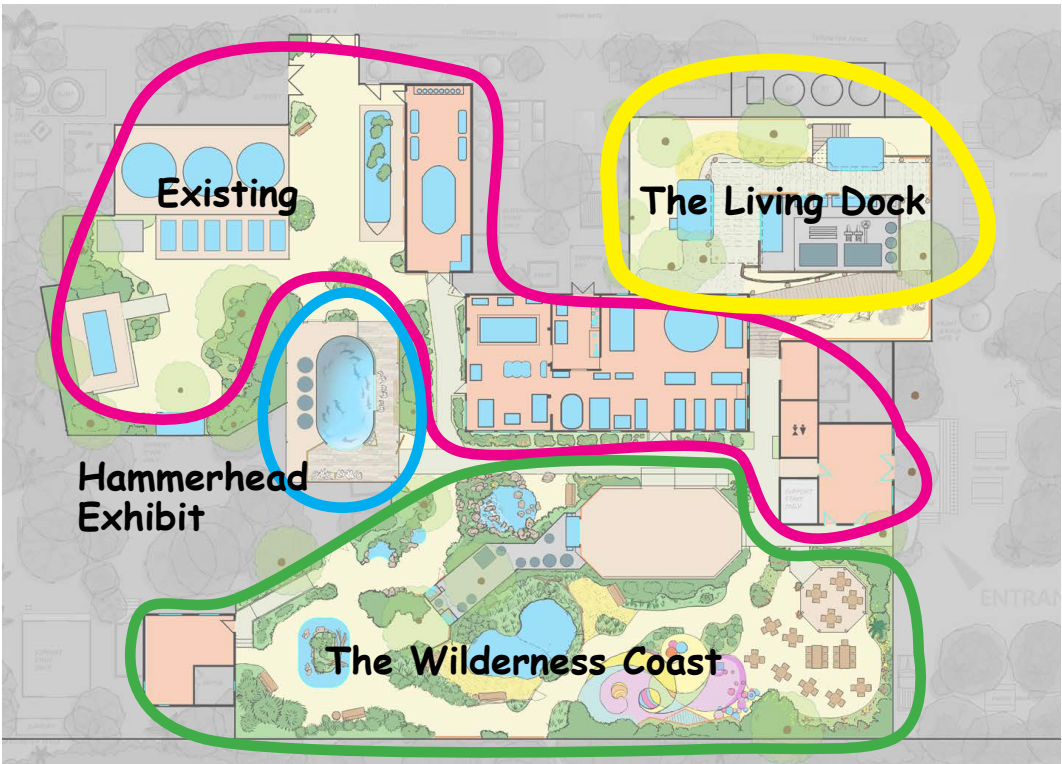
The aquarium’s focus on local species allows the opportunity to display animals out of doors. The first section shows the design of four new areas:

1. A Hammerhead shark exhibit in a 20,000 gallon tank
2. The Living Dock display with a series of smaller and larger cut-away tanks
3. The Wilderness Coast: native plants and landscaping with a wade-in ray tank, a play area and several smaller tanks.
4. The Gulf Coast Nature Trail: a discovery walk through the land adjacent to the aquarium

An integral part of the design for new and existing areas is the addition of plantings to create beautiful grounds. Planting islands and gardens with native plants will give visitors the chance to experience and enjoy the nature unique to this area. New exhibits are planned to be low-impact with construction sensitive to existing trees and their root systems.

The second part of the brochure makes suggestions for enhancing the existing aquarium and facilities while highlighting the role they have played in supplying schools and research programs with sea life for study. Visitors will have a view of a wide and changing range of sea life of the Gulf Coast and learn about collecting and shipping these animals.

These pages were prepared by Martin Schuchert (wild-design) with Joe Choromanski (Serviette LCC).



New Exhibit Areas

Hammerhead Shark Tank.....	4—7
The Living Dock.....	8—13
The Wilderness Coast.....	14—28
Gulf Coast Nature Trail.....	29—31

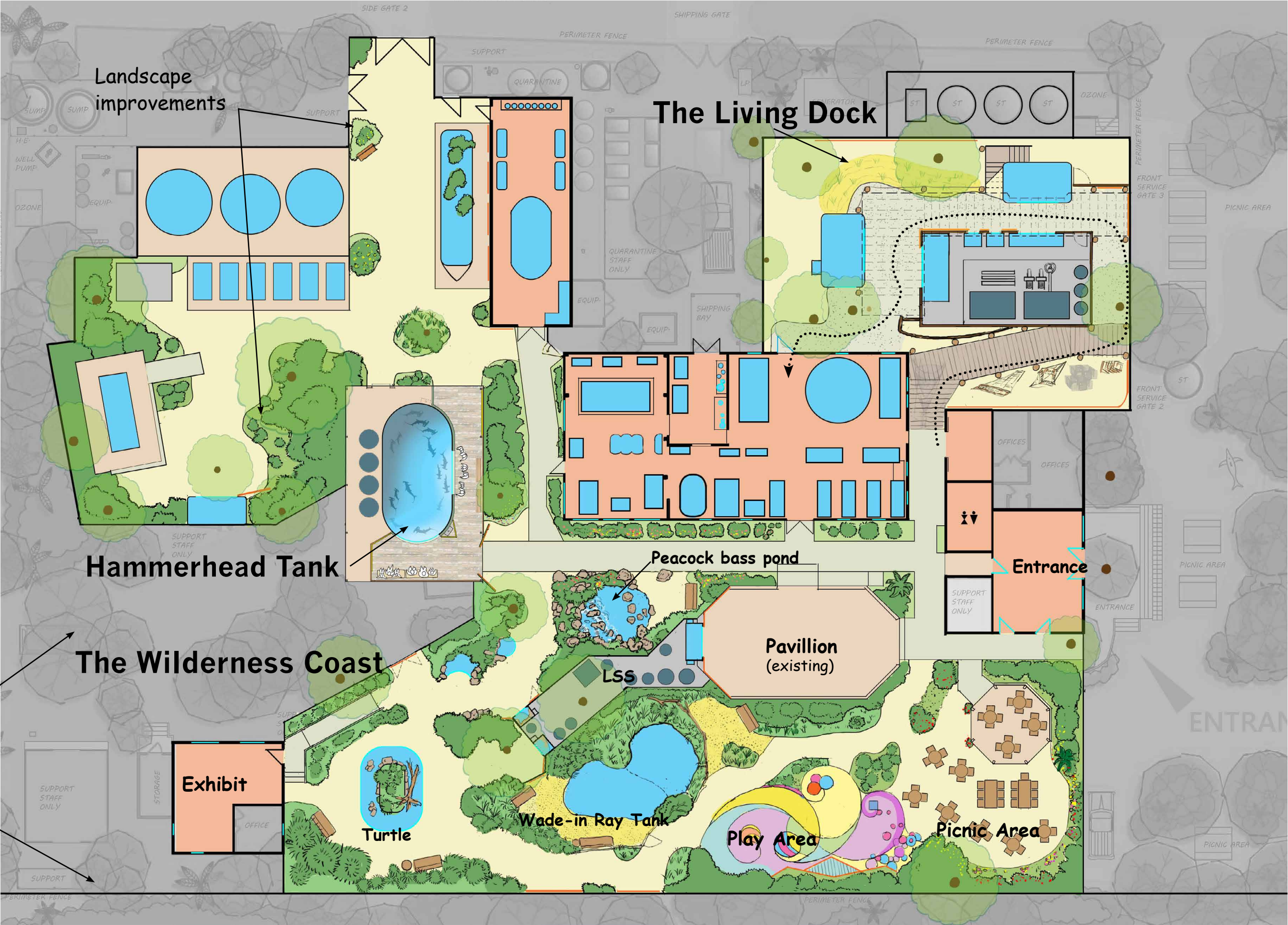
Renovation to Existing

Underwater Viewing.....	33—34
Tanks.....	35—36
Color Scheme.....	37—39
Pavillion.....	40—41
Packing.....	42-43
Mother Ocean.....	44—45
Monsters of the Deep.....	46
Crab Tanks.....	47
Aquarium.....	48—49

Martin Schuchert
wild-design.com
mschuchert@gmail.com
Tel 419 350 9740

Joseph M. Choromanski
serviettegroupp.com
joe@serviettegroupp.com
Tel 407 342 7416

Plan Overview



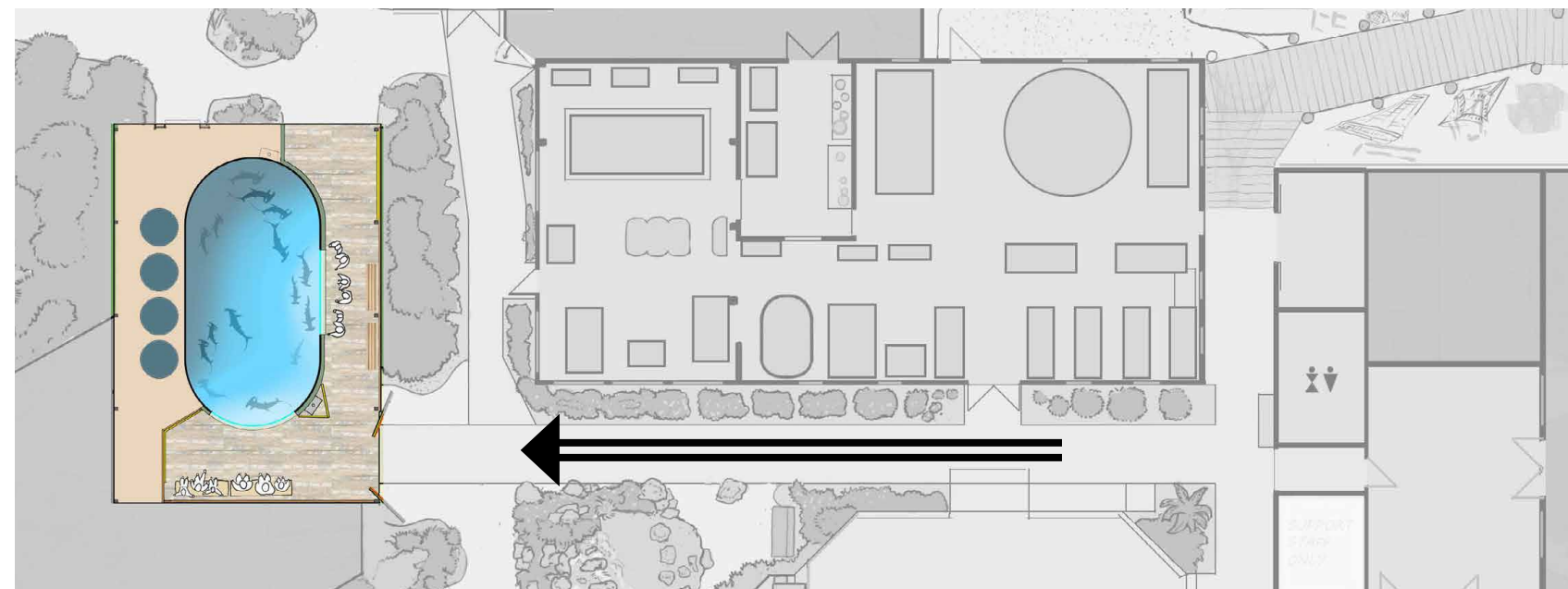


Hammerhead exhibit

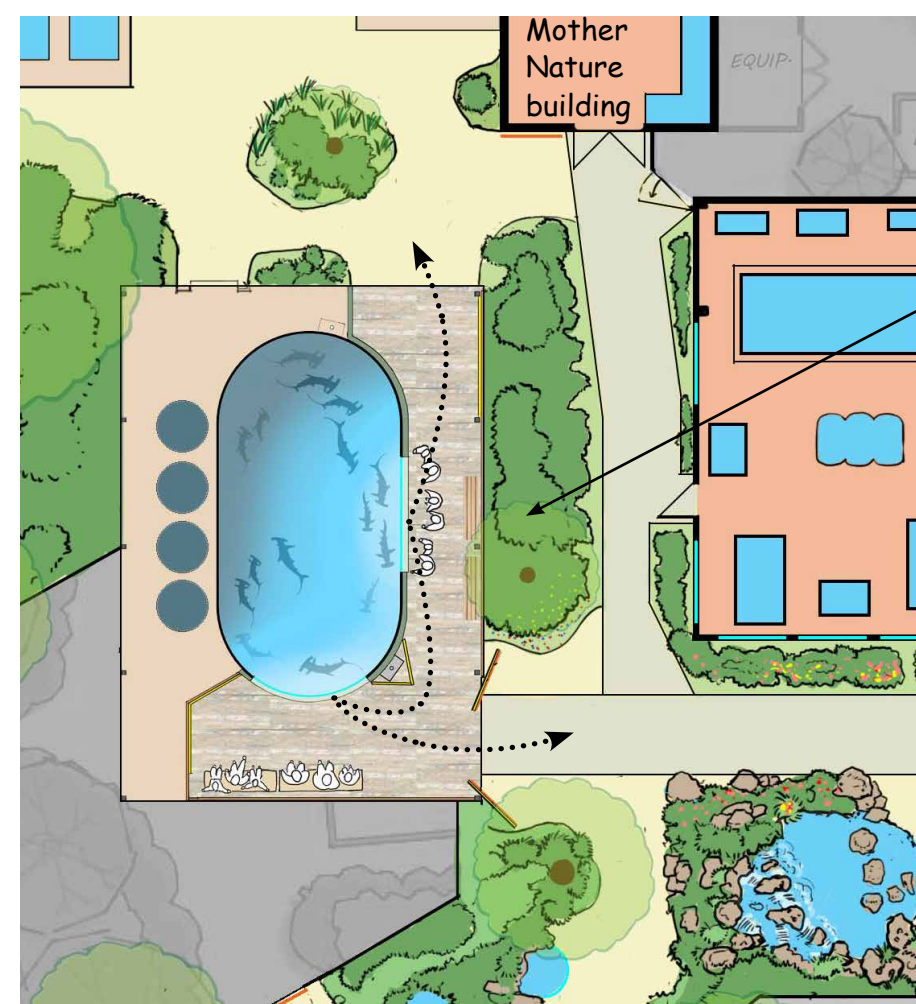
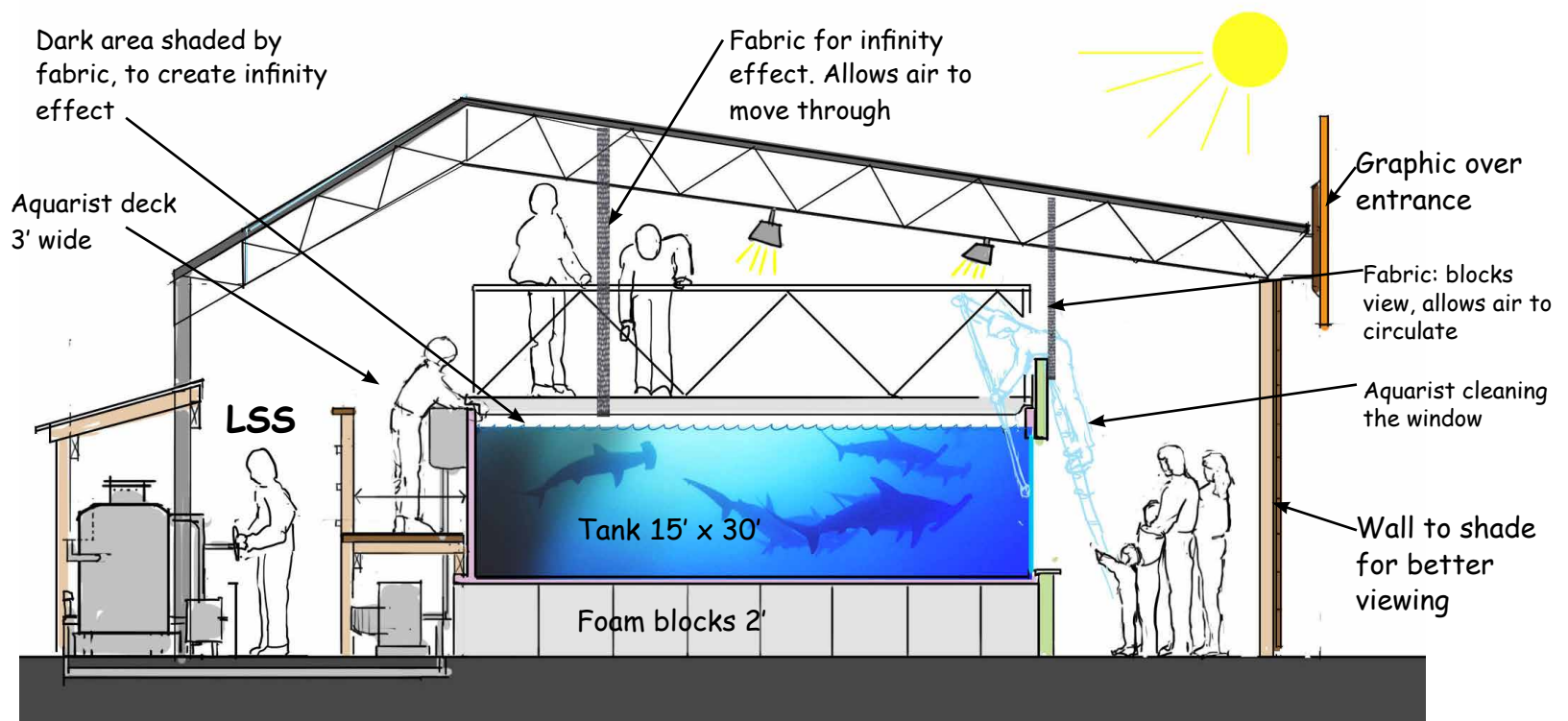
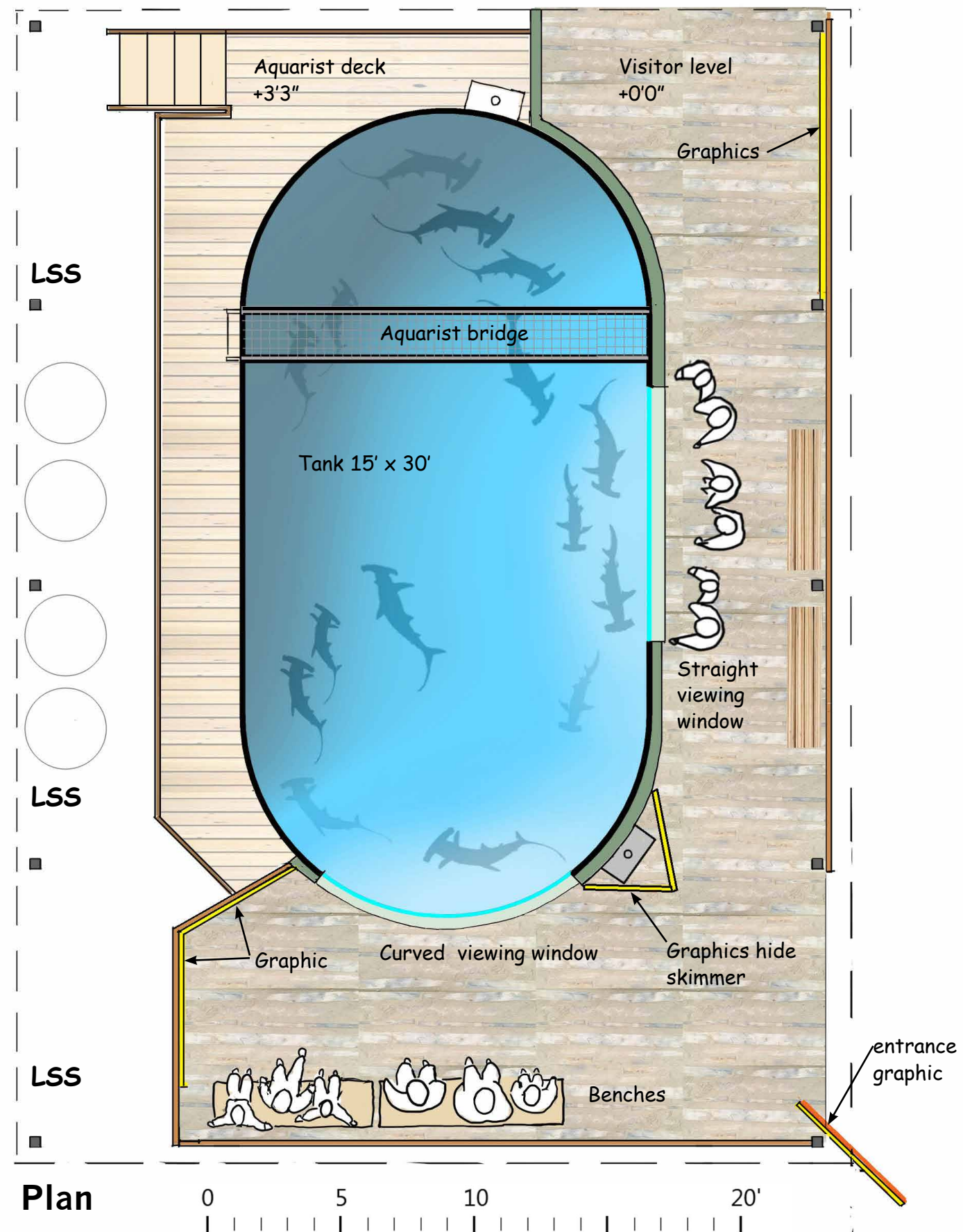
Every visitor has certain basic expectations when they visit an aquarium. Some want to see Nemo the clownfish and his friends, others want to view seahorses and sea turtles, but everyone wants to see a shark! Although GSML&A currently does have a nurse shark on display, it is in a relatively small tank that is somewhat poorly viewed from above. Since the GSML&A logo has been a hammerhead shark for so many years, appearing on each and every Styrofoam shipping cooler shipped all over the world, it seems fitting that the Aquarium have its own purpose-built hammerhead shark exhibit! The scalloped hammerhead shark (used on the logo) while native to the Gulf of Mexico, grows large and would require a larger exhibit than the campus could accommodate, but a closely related cousin, the Bonnethead shark (*Sphyrna tiburo*) is an excellent alternative.

We chose the location for this new exhibit based primarily on the best point in the visitor path but also keeping it nearer to the sources of power and make-up seawater (although this exhibit will definitely have its own dedicated recirculating Life Support System). Currently, the trailer home of the on-site staff night watchperson is located here but this is planned to be relocated soon.

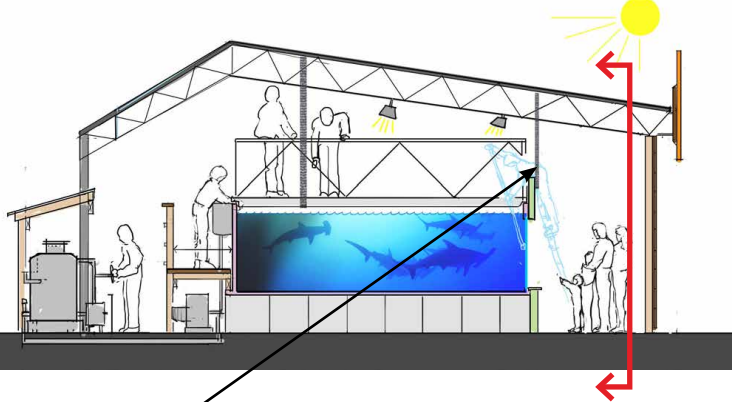
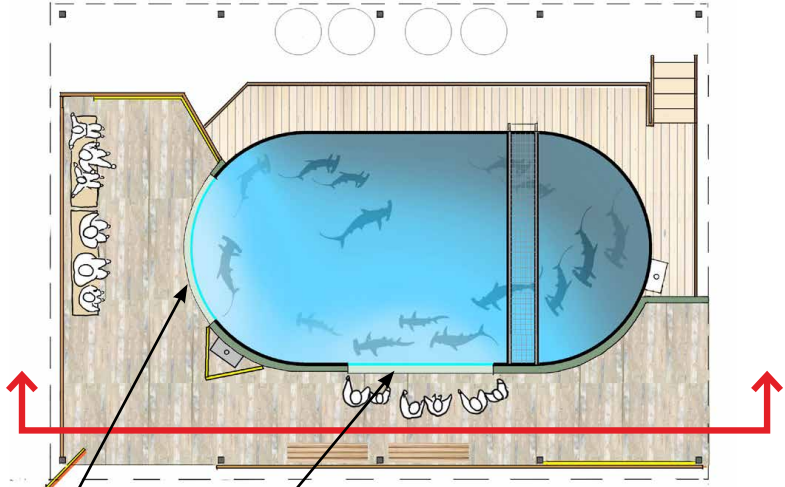
View along the path to the Hammerhead Shark Exhibit entrance



Hammerhead Plan and Section

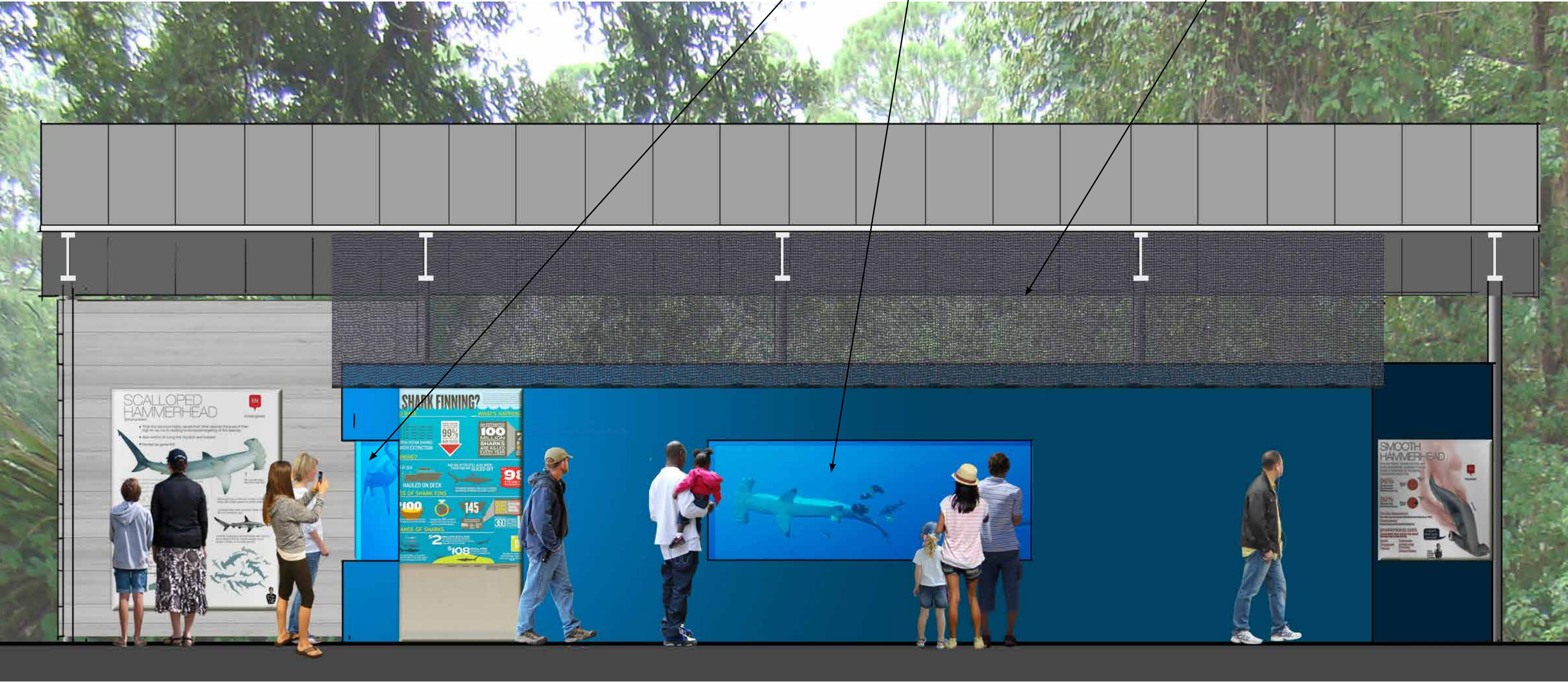


Hammerhead Section Elevation



viewing windows

Fabric blocks view of the roof and the lights over the tank, allows air to circulate



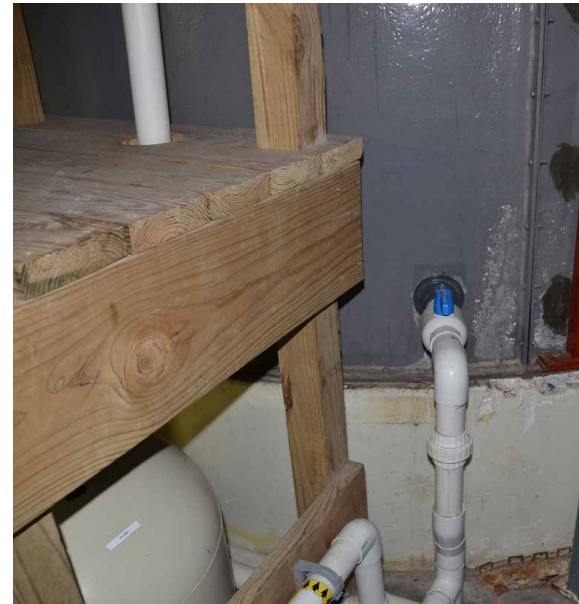
Hammerhead

Reference photos

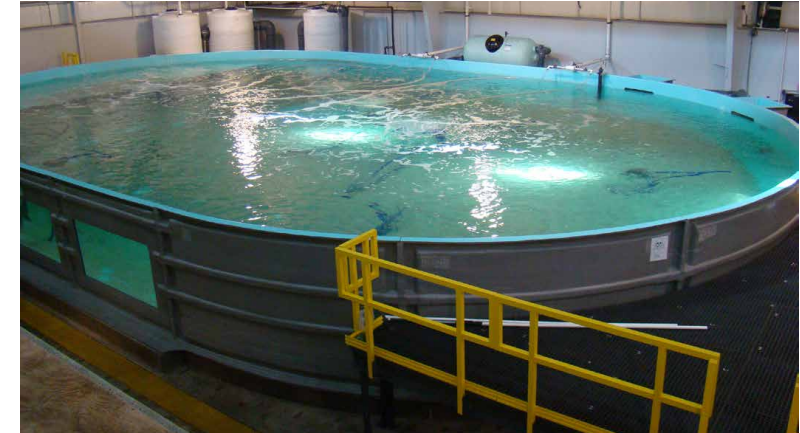
Pole structures. Photos from the internet by Panhandle construction companies.



*Substructure under tank: 2' foam blocks.
Bottom row: Aquarist deck behind tank.
Reference photos: Oklahoma Aquarium, Tulsa*



Fiberglass tank reference photos



The Living Dock

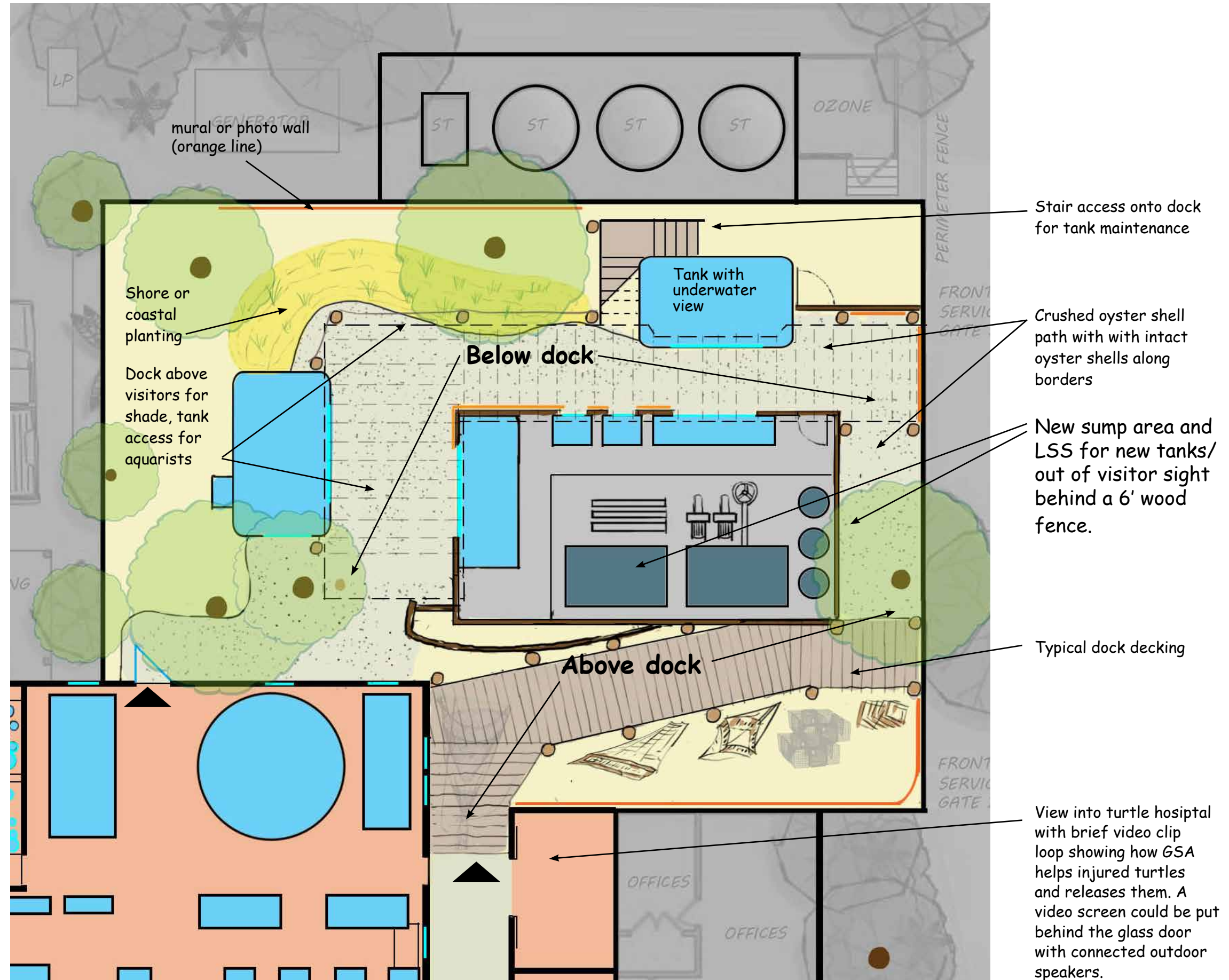
This area in the northeast corner of the campus is a prime location for redevelopment into an exhibit space while also allowing for some much needed main Life Support System (LSS) upgrades. Currently, there is an old unusable building and the existing old main LSS. By demolishing the building, this creates space to rebuild a new main LSS (with new larger/deeper return reservoirs for system stability) just north of its current location so that the new LSS can be installed while the old LSS is still operating. After the old LSS is removed, space is created for this new exhibit “gallery” path. This design also requires the removal of a small seahorse exhibit in the main building to allow for a new door/passageway which provides a circular path in the new exhibit area.

These exhibits focus on fishing in Panacea: the history, the industry and conservation.

The exhibit begins on a wooden dock decorated with commercial fishing equipment and information. The path continues on crushed oyster shell to an area under a dock where the visitor can see several tanks. The dock serves as a shade structure for the visitors, allows better tank viewing and enables the aquarist to service the tanks from above.

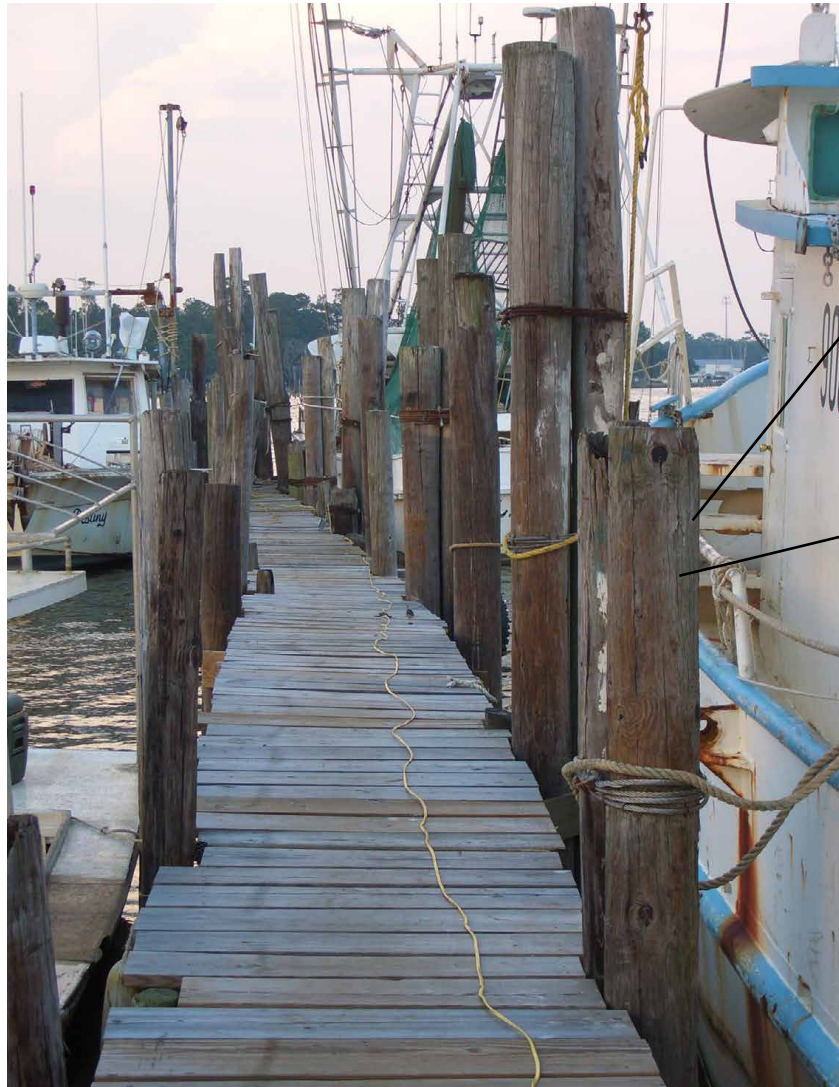
The tanks may be stocked with mixed species or with a single species. They may change according to what is available and what can safely and healthily survive the season. Some species that are currently inside in tanks with limited views (only from above) could move out here if the temperature is suitable.

Fish, Fishing and Fisheries



The Living Dock

Above the dock



Boardwalk path: framed by pilings riddled with wormholes, themed with fishing ropes and equipment

Part of the hull of the ship "Panacea"; a fishing net hangs over the visitors' heads.



Below: Wood decking either level with the ground as shown below or 6" above the ground, to keep visitors on the path. Also consider a low rope railing.



Commercial fishing gear

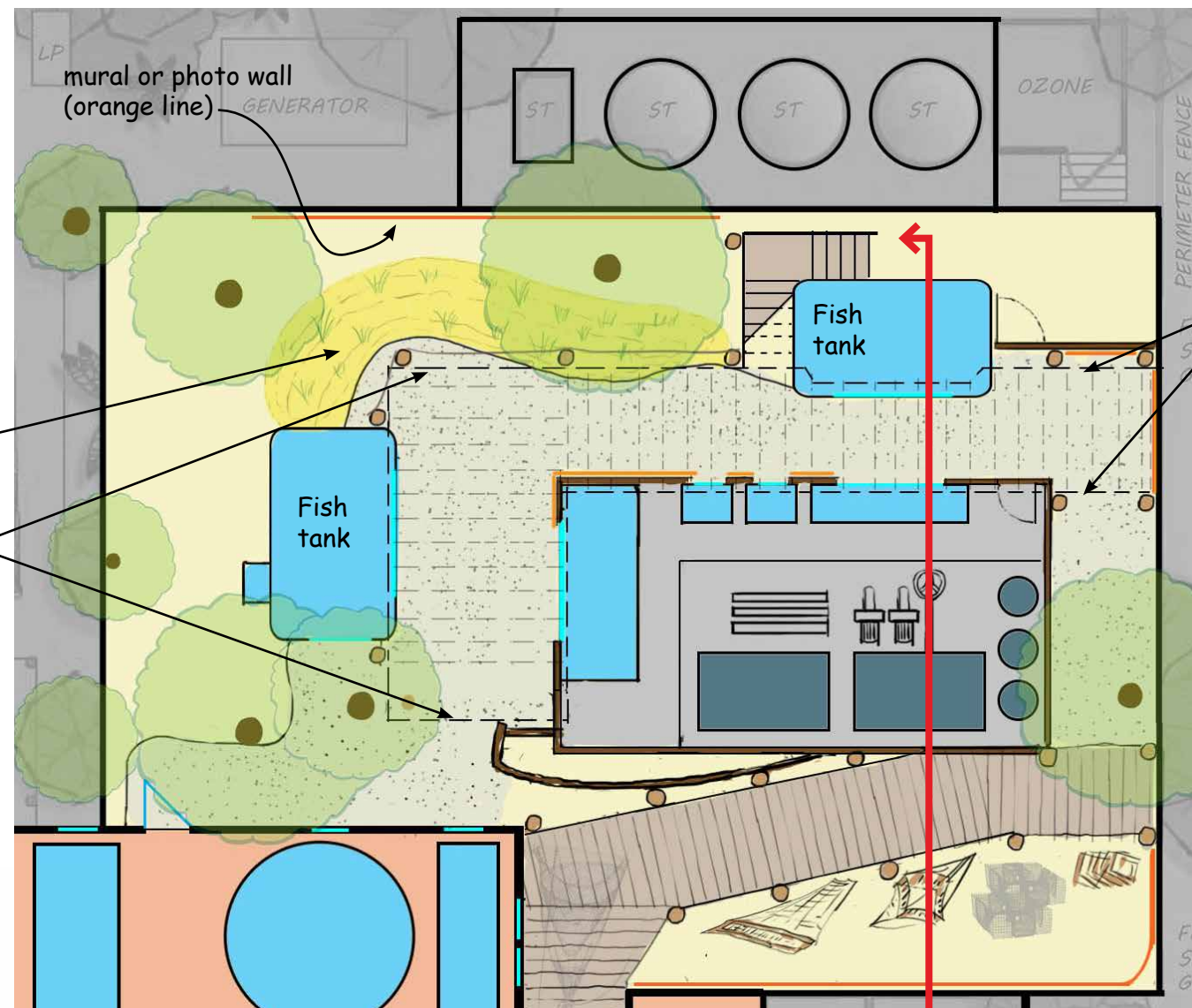


The Living Dock

Below dock



Landscaping in front of mural or photo wall: native grasses or shrubs that create a coastal feel.

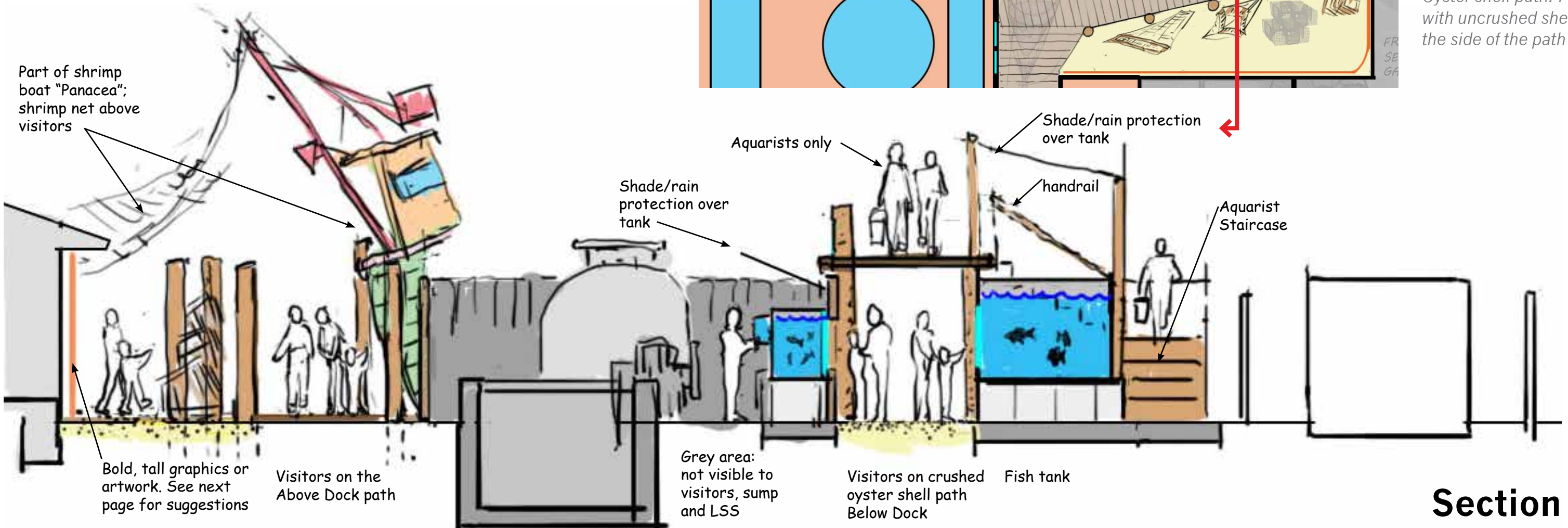


Plan

Limit of wood dock above visitor path



Oyster shell path. Possibly with uncrushed shells along the side of the path

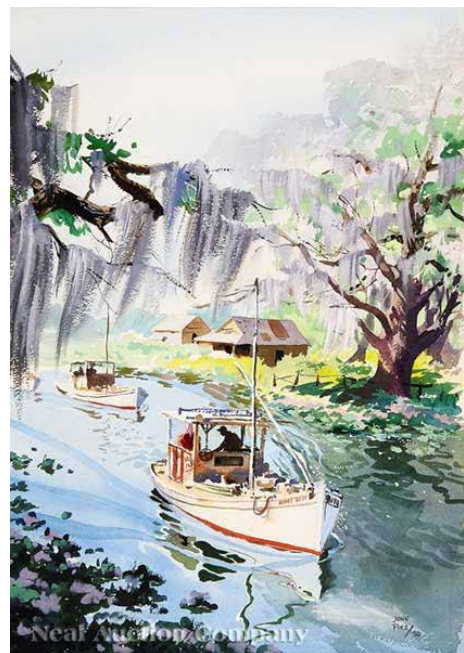


Section



The Living Dock Art

The Living Dock is surrounded by wooden fencing; the sump in the center is also enclosed. This wall space can be used to exhibit art, murals or photography. Some possibilities include art replicas or prints from Walter Inglis Anderson, fine art photos of commercial fishing, photos from collecting trips, or historic prints.

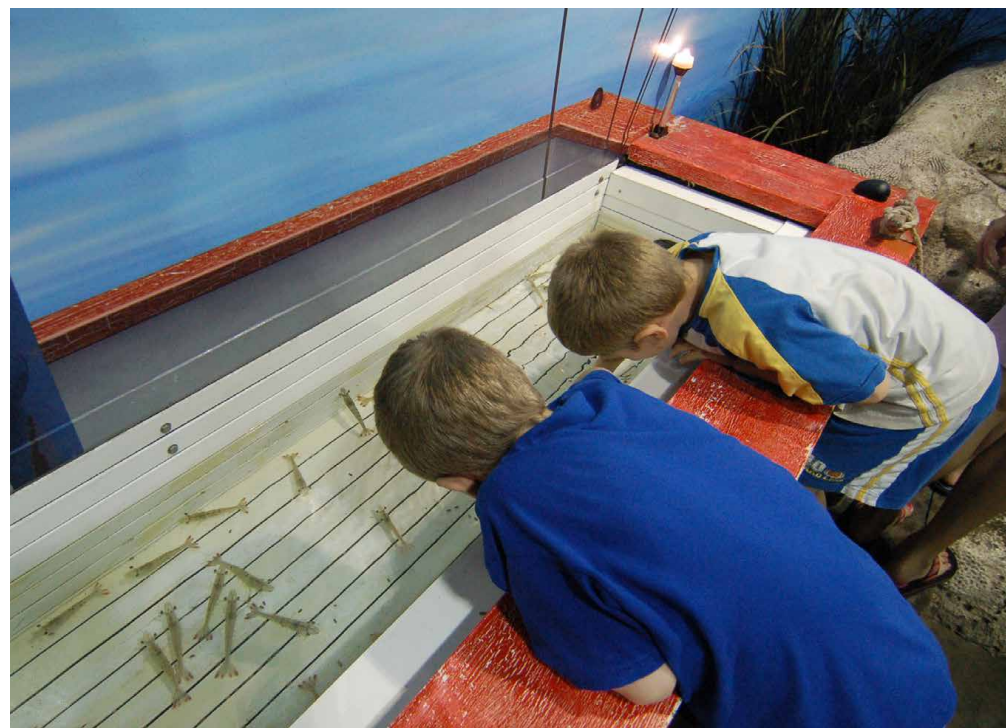


The Living Dock

Shrimp Tank



Reference photos: Oklahoma Aquarium, Tulsa, OK



Alternative to exhibiting fishing gear along the boardwalk of the Living Dock: an open shrimp tank.

Reference photos are from the Oklahoma Aquarium in Tulsa. (GSA tank would preferably be without feeding)

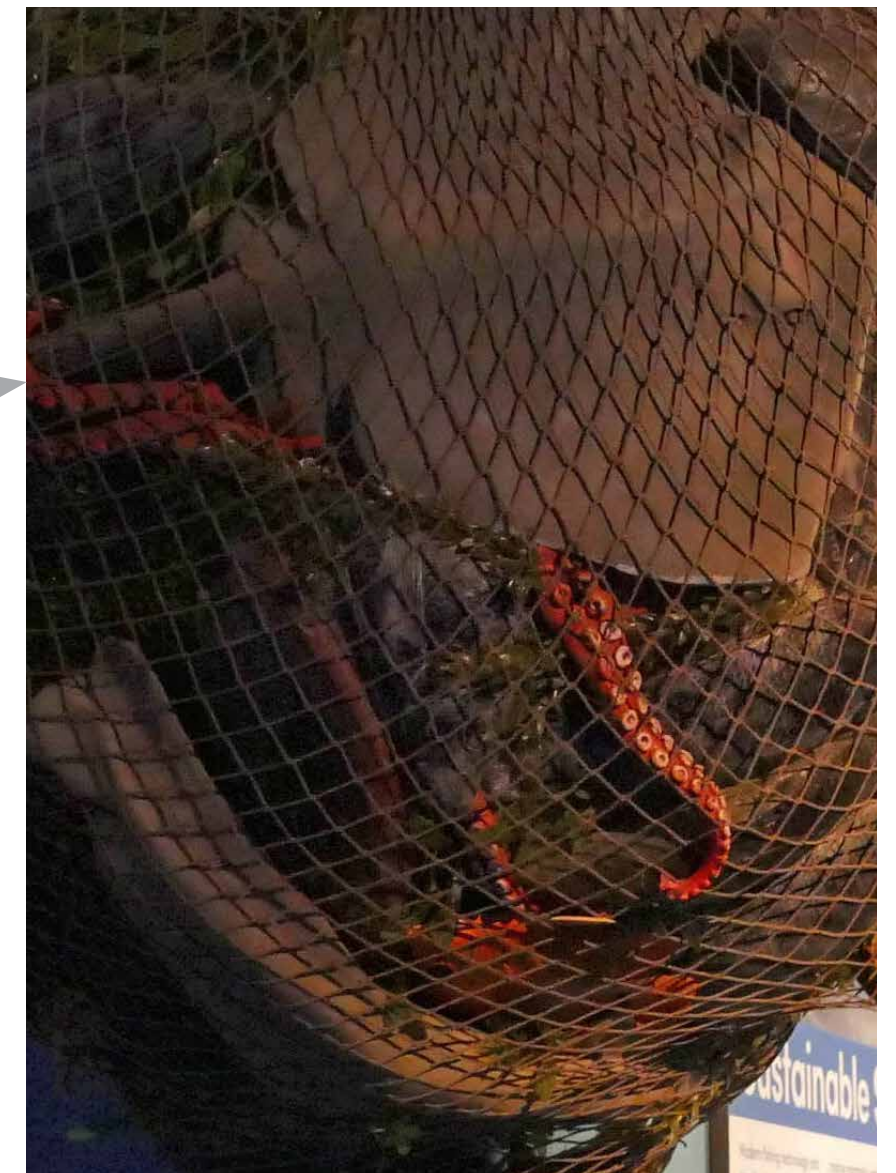
The Living Dock

The impact of shrimping.

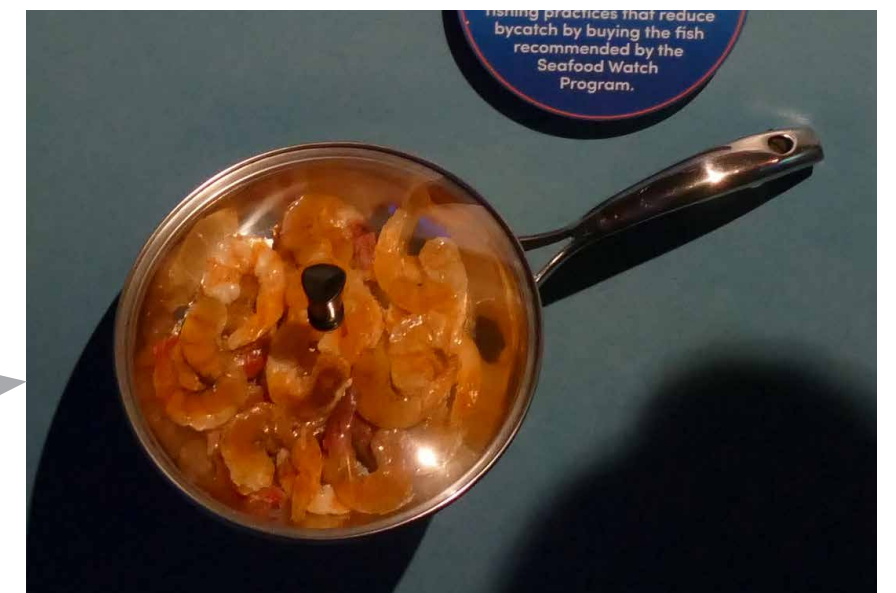
Educational signage display



Signage with models showing how much bycatch comes with one pan of shrimp, including an explanation of overfishing and choosing sustainable fish to eat. Additional text explaining GSA's beginnings and use of bycatch.



Reference photos: display at the Arizona Sonora Desert Museum

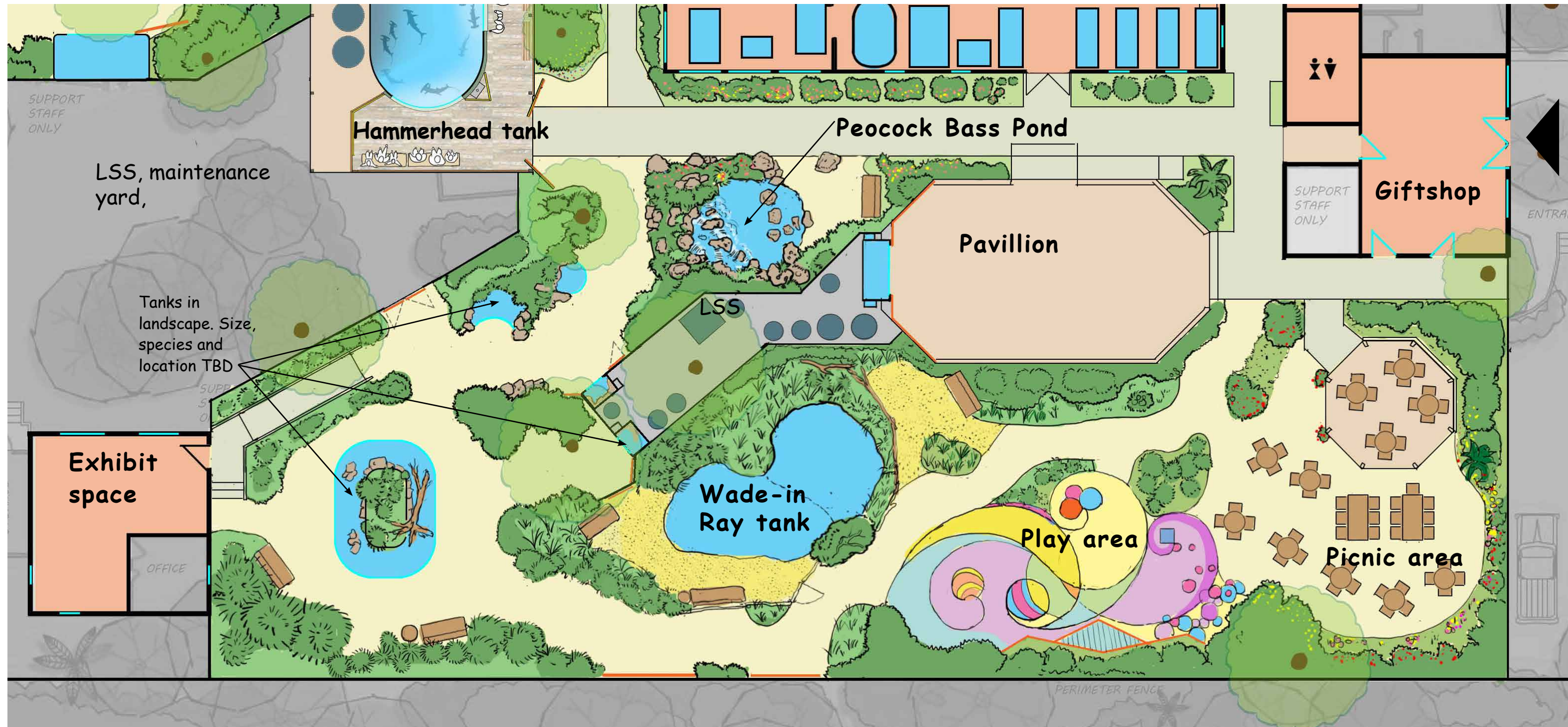


The Wilderness Coast

Fish, Flowers, Fun

This area offers visitors an active aquarium experience. It includes a wade-in ray tank, play area and picnic area. Additional tanks may display baby alligators and turtles. This area should be heavily landscaped with a focus on flowering plants. The landscaping and seating will create a space that is desirable for social functions (weddings, fundraising events, etc.)

Plan Overview



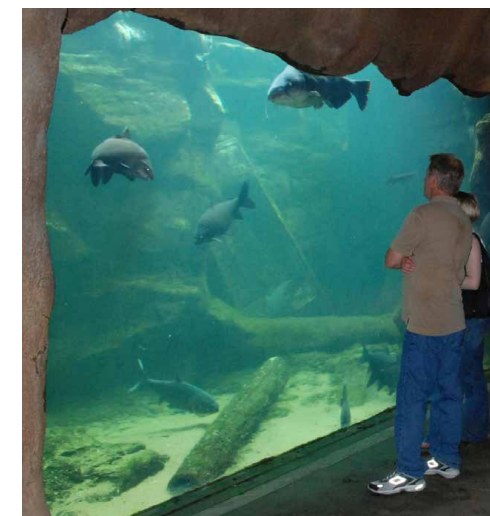
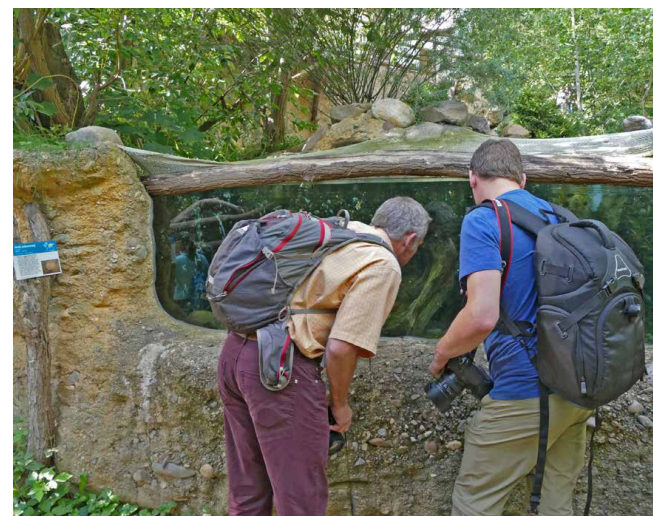
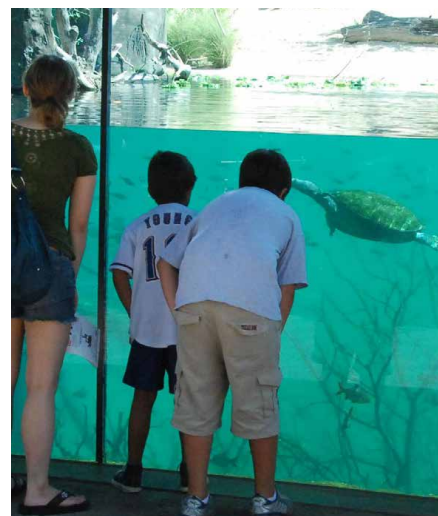
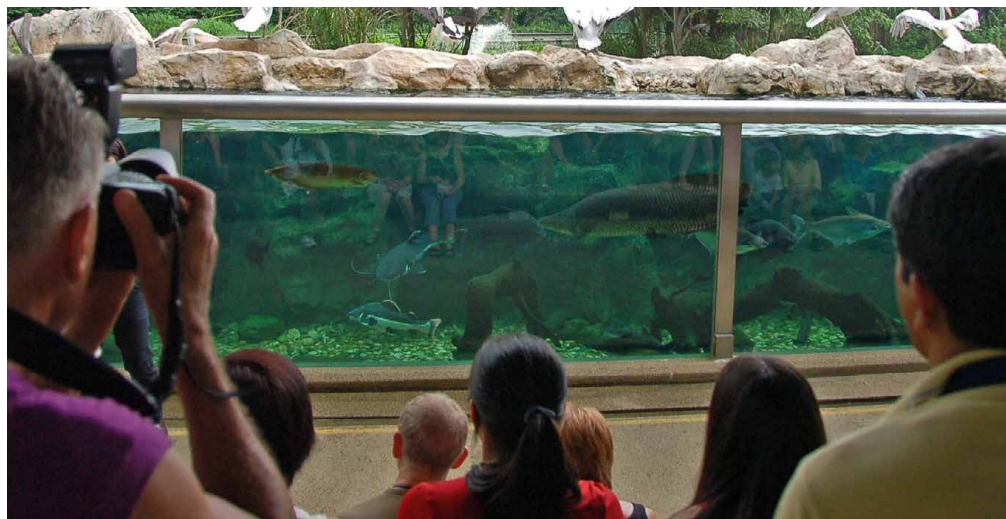
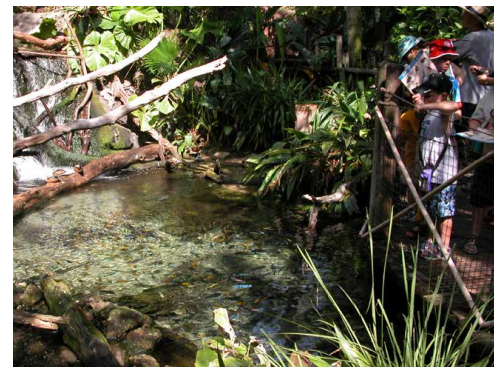
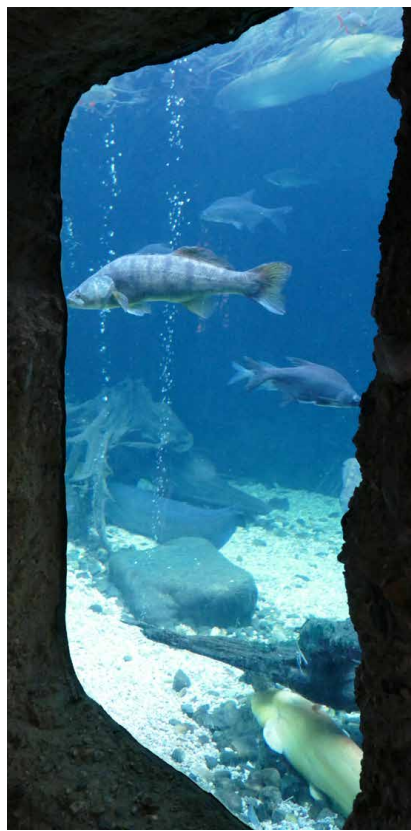
The Wilderness Coast Outdoor Tanks

reference photos

These reference photos show tanks that are located outside - some with covered visitor viewing. The tanks are located in Florida, Texas, Missouri, Oregon, the Czech Republic, Switzerland, Singapore and Japan.

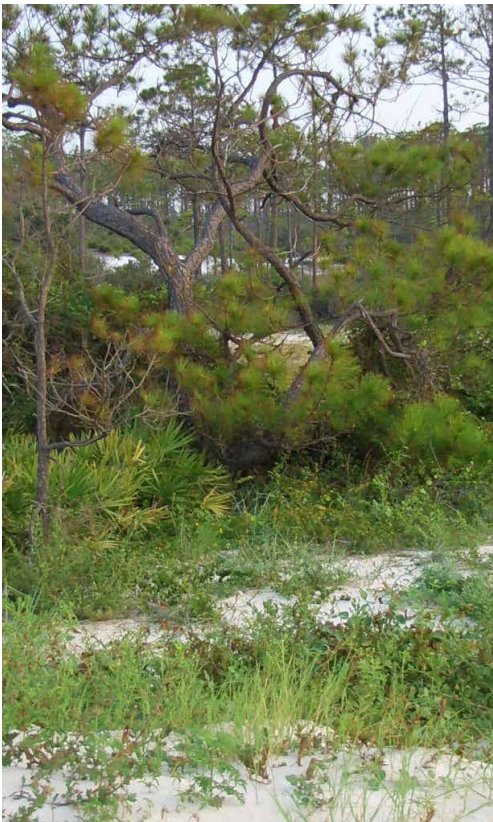
By using local species GSA can expand its displayed collection without the need for climatized construction. Some species may only be displayed seasonally. Tanks might need rain or sun protection.

Many of the tank viewing panels shown here are made of glass, not acrylic.



The Wilderness Coast

Native plant landscapes



Landscaping can play a huge role in helping to create the relaxing atmosphere and natural environment that aquarium visitors enjoy, especially at outdoor facilities, which is why the big animal parks like Sea World, Bush Gardens and Disney World (Living Seas) spend much time and effort planting and maintaining these landscapes.

We are big fans of native plants. They require less water once established, and provide food and shelter for insects, birds and mammals. A large majority of the plants used in Walt Disney World Resort landscapes are native species. They consult regularly with horticulturists and botanists from several universities and other institutions to select appropriate species.

It would be ideal if you could find a Florida Nursery, Growers and Landscape Association (FNGLA) Certified horticulturist to help you. Parks that use these include Atlantis Resorts and Baha Mar (Bahamas), Sea World Orlando, Walt Disney World and Busch Gardens Tampa.

As the most inexpensive building material, plants-should be used extensively throughout The Wilderness Coast area to hide structures, frame tanks and border paths. All exhibits are to be respectful of exisiting trees. Most fences, that are not covered by graphics, should have climbing plants and other plantings to make them disappear.

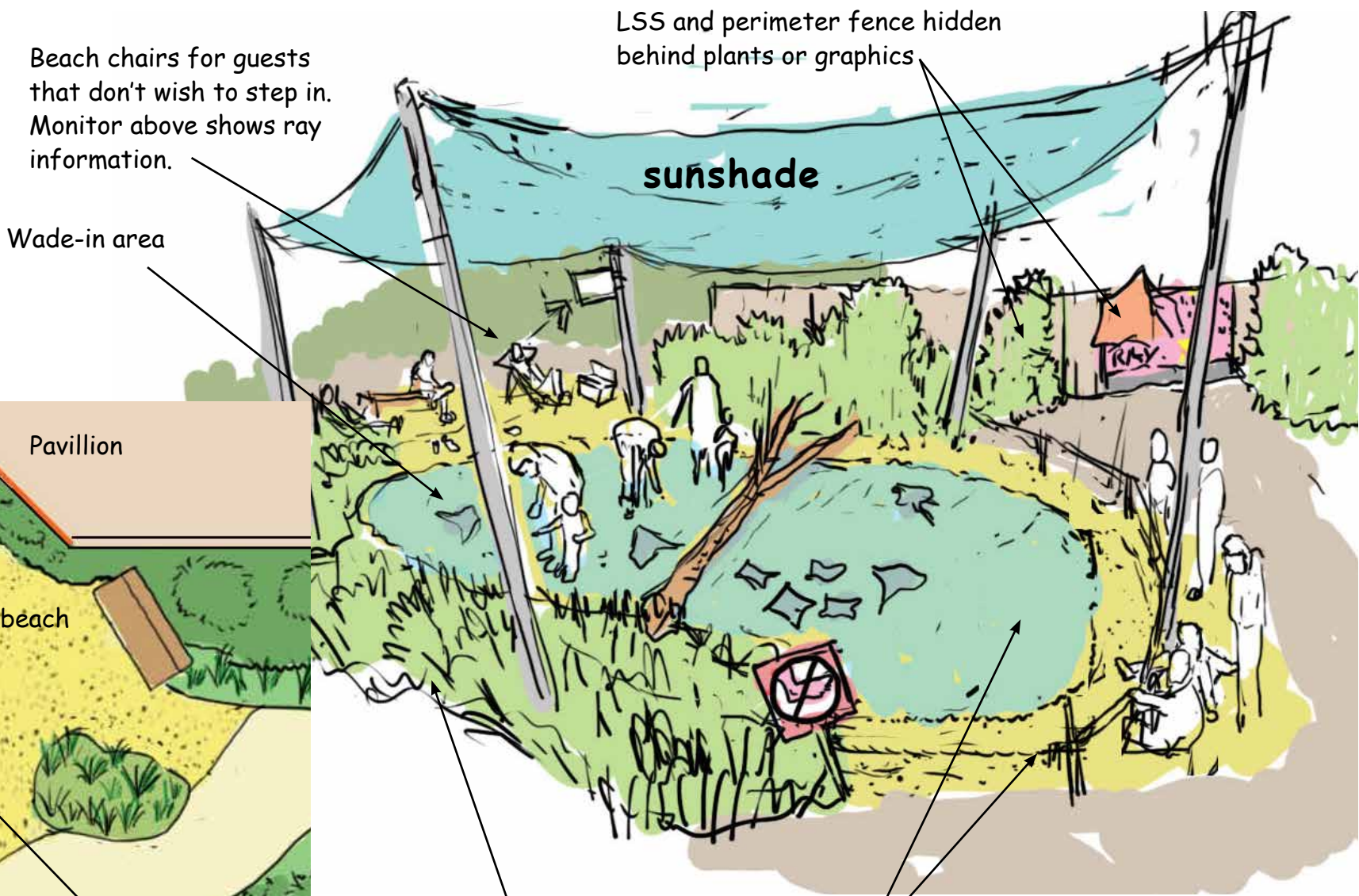
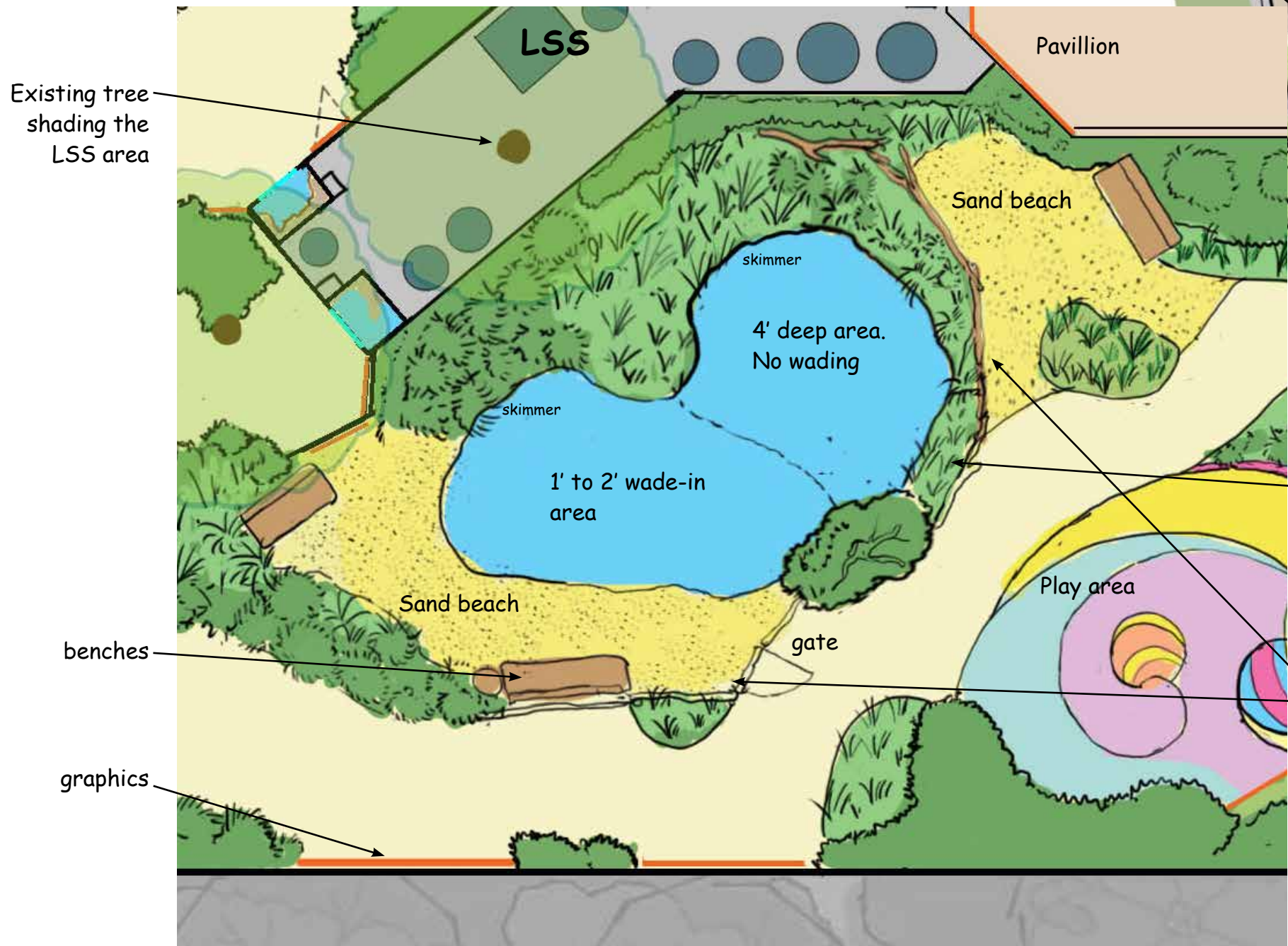
Native plants of the Florida Panhandle (<http://floridayards.org/index.php>)



The Wilderness Coast

Ray Touch Wade-in Pool

Immersion is the new trend in aquariums and a “wade-in” touch tank is one of the best examples of this and well suited for an outdoor campus. This can be as simple as a shin-deep or knee-deep pool with horseshoe crabs, skates and benthic stingrays (barbs removed of course), or this can be and even more immersive waist deep exhibit with schooling cownose or spotted eagle rays. This could be a fee-based exhibit to participate or it could be free with fee-based feeding options. These exhibits are wildly popular!



This sketch shows the design intent of the adjacent plan.



Reference photo: Rays in shallow water of wade-in pool at SeaWorld Texas

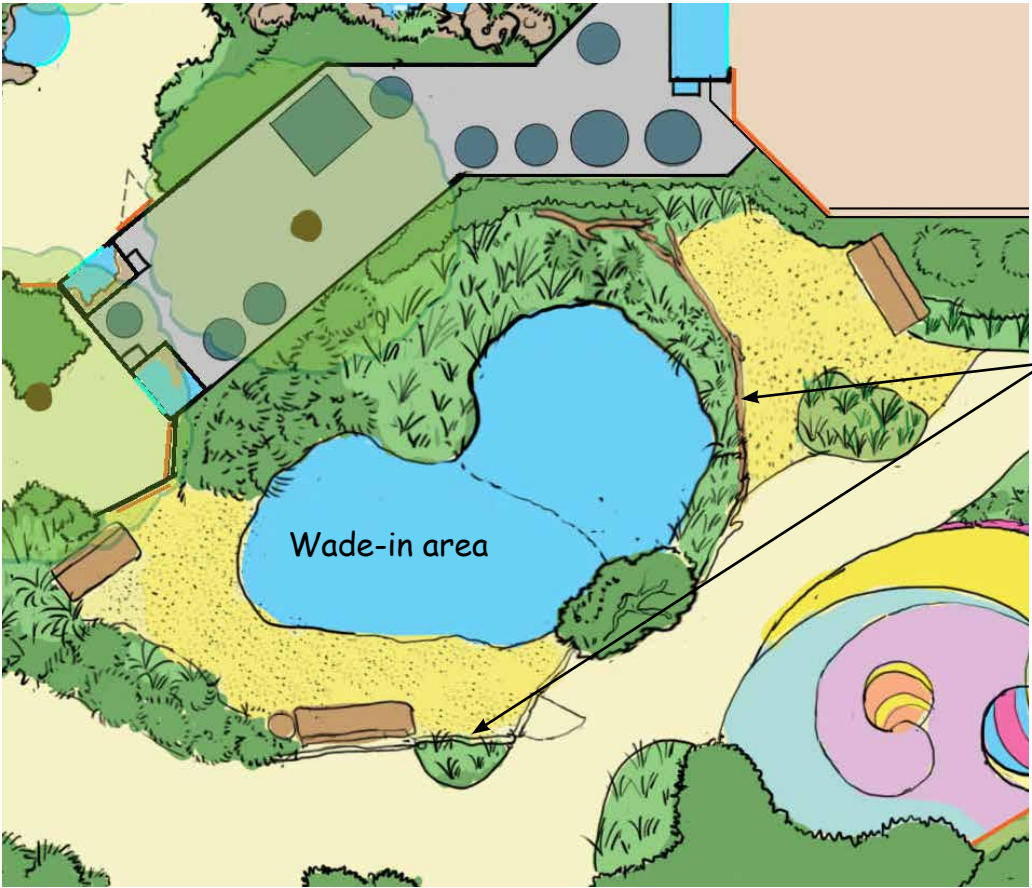
The Wilderness Coast

Ray Touch Wade-in Pool

Reference photos



Shade structure and wade-in area
Atlantis Aquarium, Long Island, NY



Beach fence



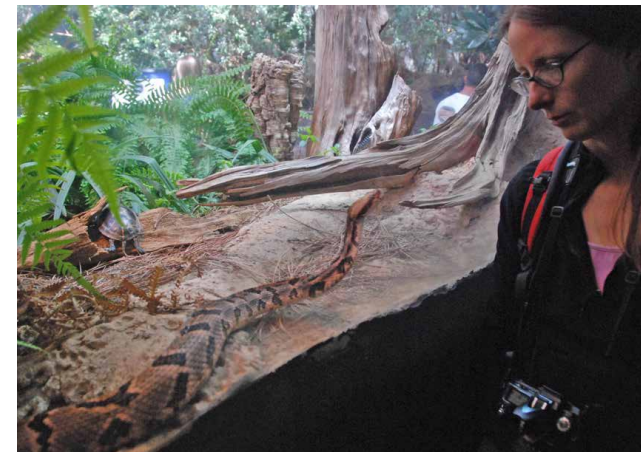
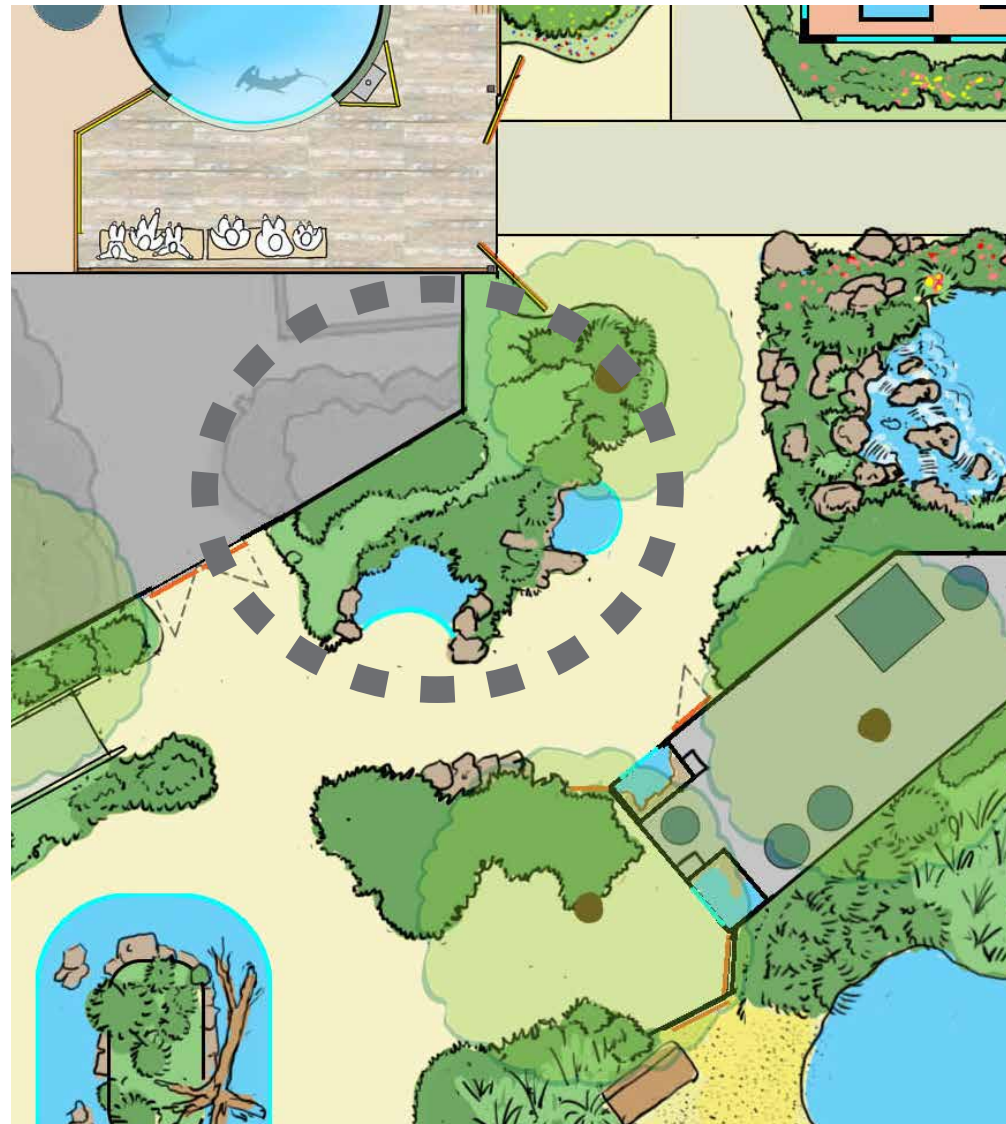
Native coastal grasses and shrubs
Beach/ sand fencing

Wade-in ray touch



The Wilderness Coast Reptiles

Outdoor displays of reptiles and amphibians will show visitors other local aquatic animals. The exhibits can be heavily planted without the threat that the plants will be destroyed.



Large, richly landscaped rattlesnake exhibit with water and land areas. Unique because of: large size, proximity to animals, beautiful plantings
Tennessee Aquarium

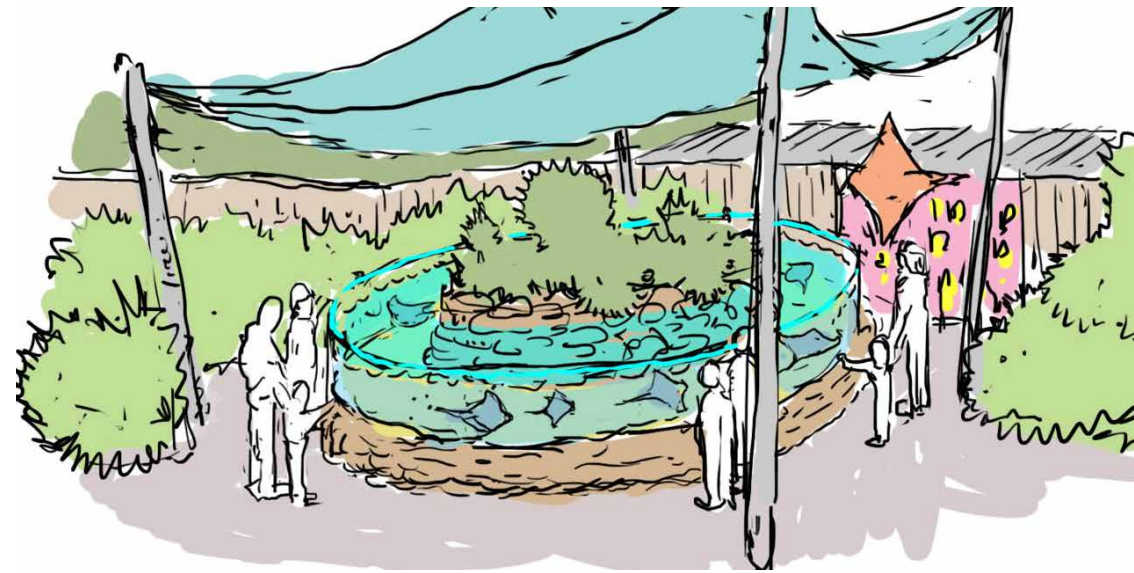
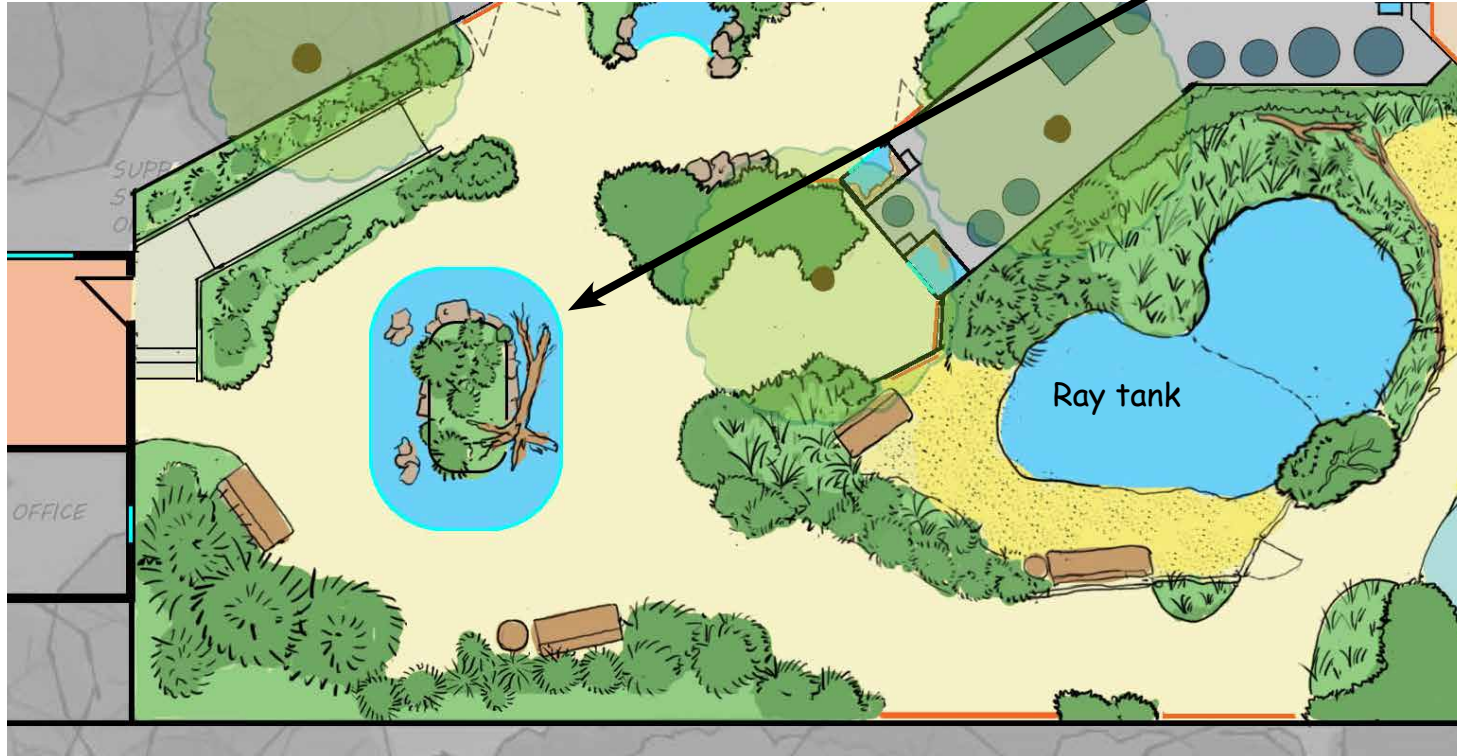


Baby alligators are appealing and don't need large exhibit space. This exhibit has logs, rocks, sand patches, hiding places, running water and a larger pool.

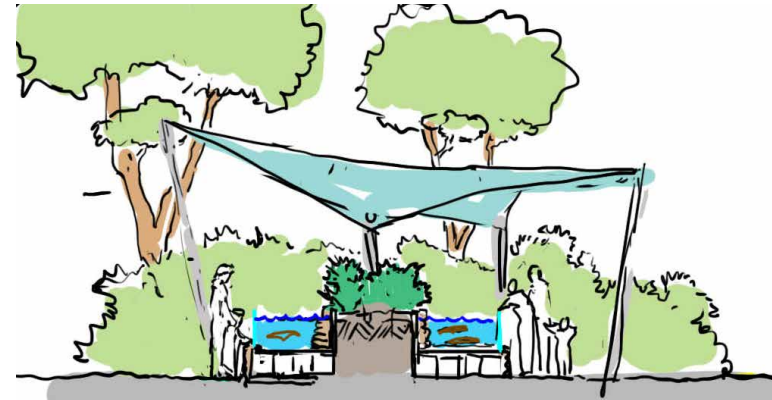
San Diego Zoo

The Wilderness Coast

Turtles



Alternative to the sun shade construction shown here, consider shade trees within the tank and surrounding the exhibit area.



Turtle exhibit Tennessee Aquarium

Turtle feeding for special tours or birthday events.
Carrot peelings clamped in clothespins on poles
Oklahoma Aquarium, Jenks OK





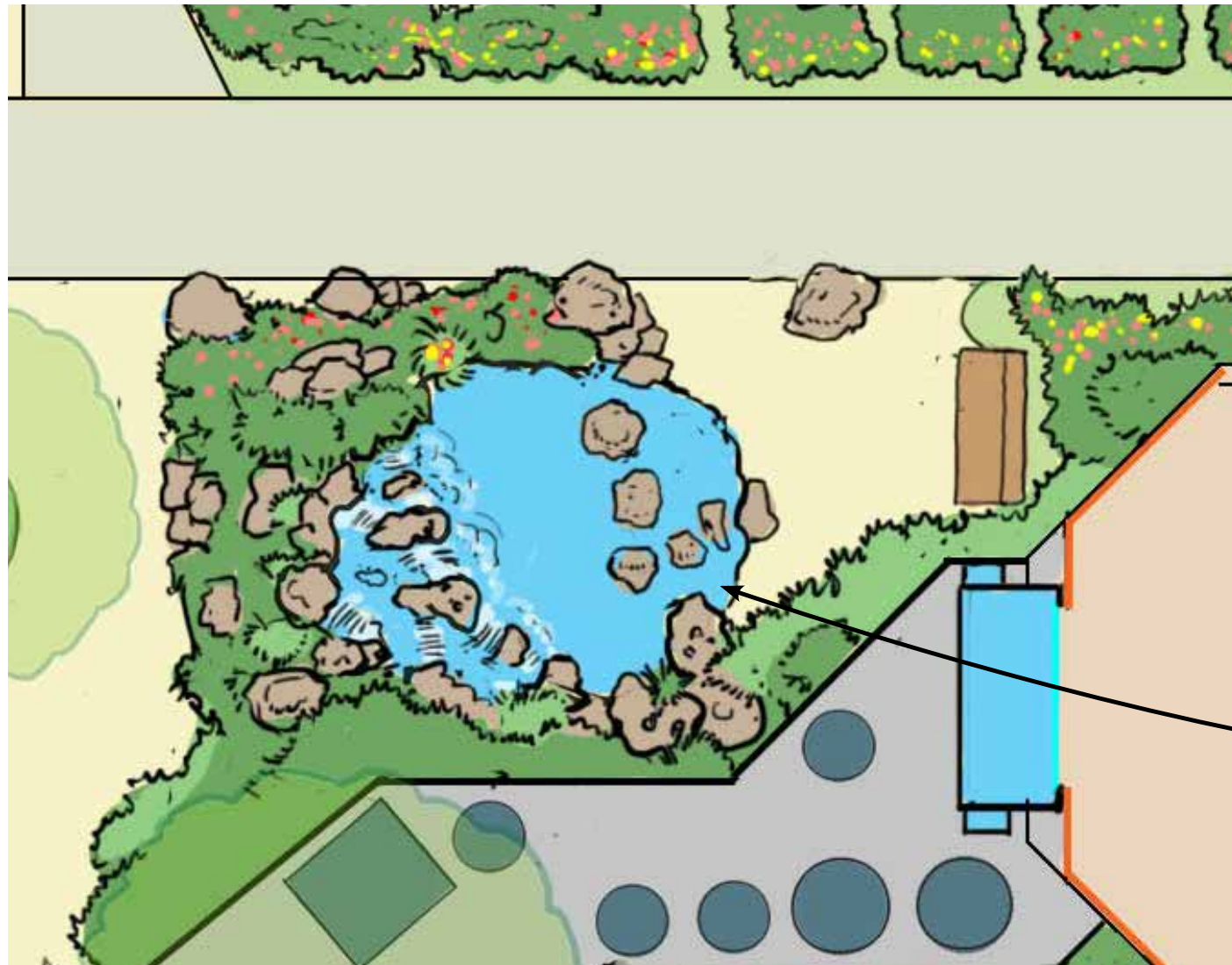
The Wilderness Coast

Peacock Bass Pond

The peacock bass pond is located along the path to the Hammerhead Tank. The sound of cascading water at the exhibit will add ambience to the area and create a garden-like experience.



Cascading water



The Wilderness Coast

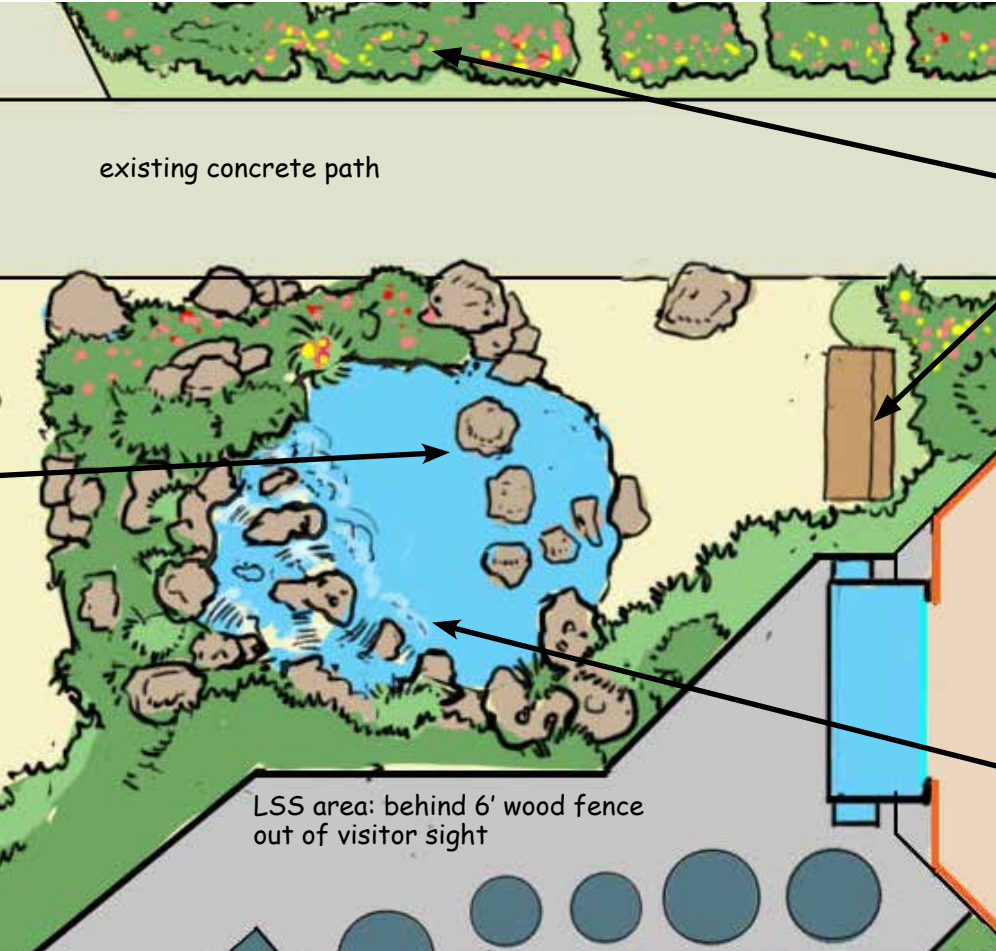
Peacock Bass Pond Features



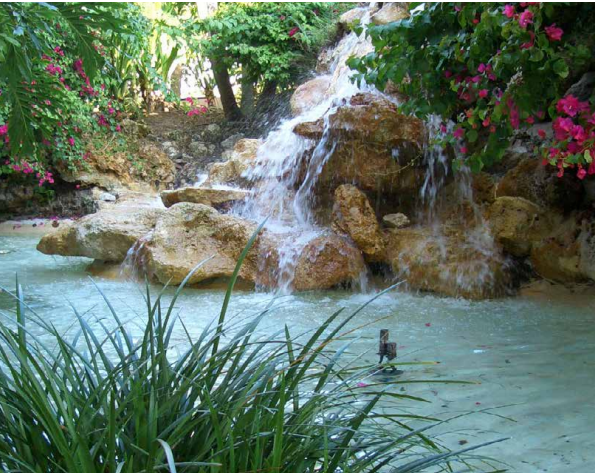
Stepping stones through shallow water



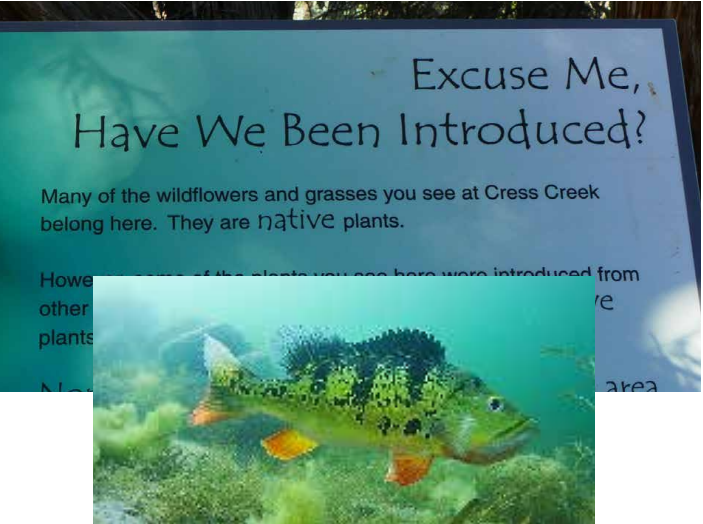
Periscope to observe the fish under water



Landscaping with native flowers and shaded benches

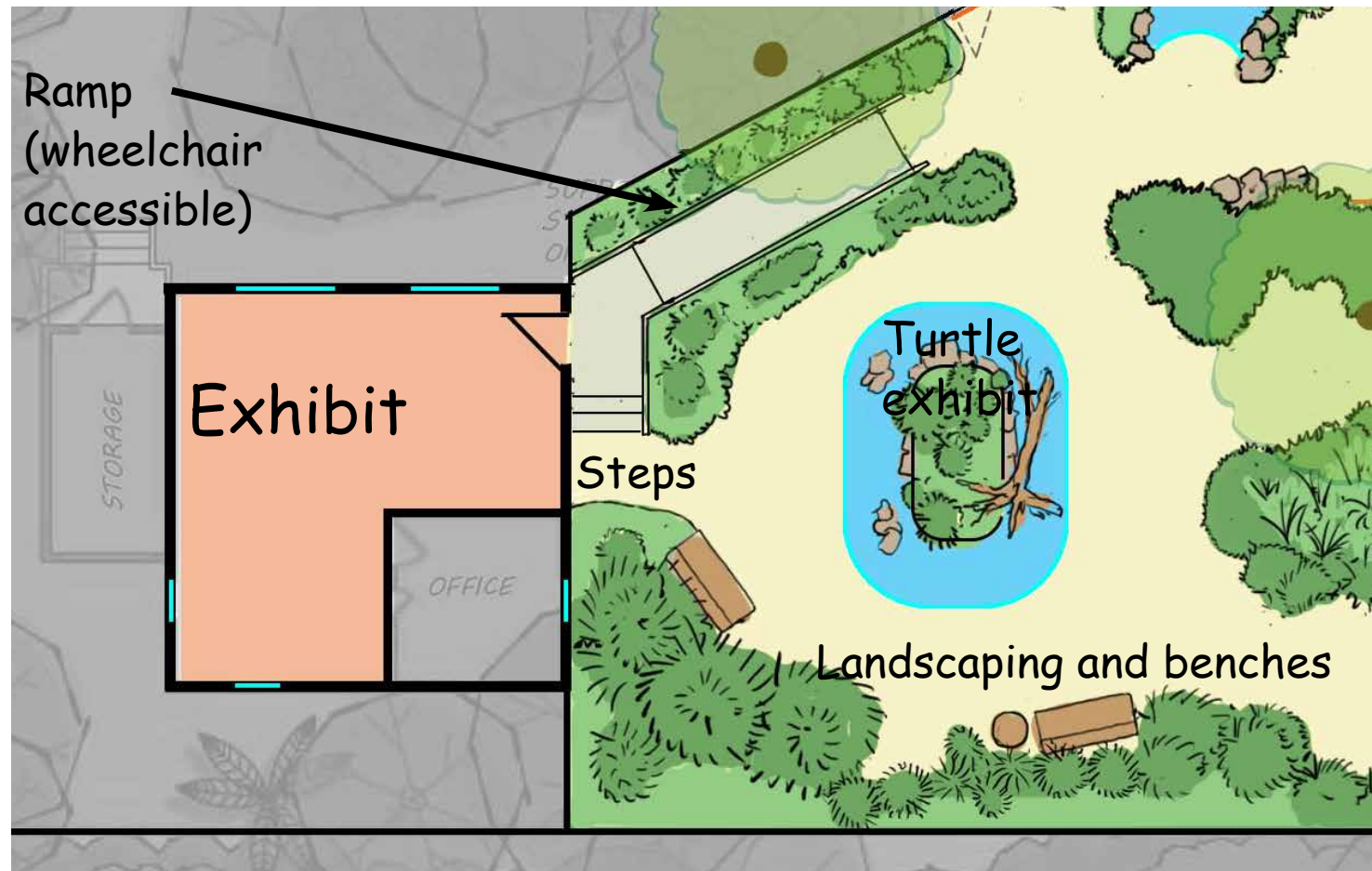


Cascading water and flowering plants



Educational signage : Introduced species

The Wilderness Coast Exhibit Space



Although this building is used as a secondary office for some staff, it might be better repurposed as a public exhibit (and if so, handicap-access would likely need to be added as shown). The Lab has a plethora of historic information and preserved specimens that might make a great “dry” exhibit display similar to Doc Ricketts Lab of Cannery Row fame. Indeed, Jack Rudloe has correspondence from John Steinbeck who encouraged the creation of Gulf Specimen. Alternatively, this space could be used for temporary exhibitions of local artists or small exhibits on loan from other small museums or aquariums. This provides a regular “new” topic to market each year.

*Wall of ocean related movie posters
Odysea Aquarium, Phoenix*

This movie wall could be adapted for the GSA to a book wall with titles about the sea, oceans, and fish including:

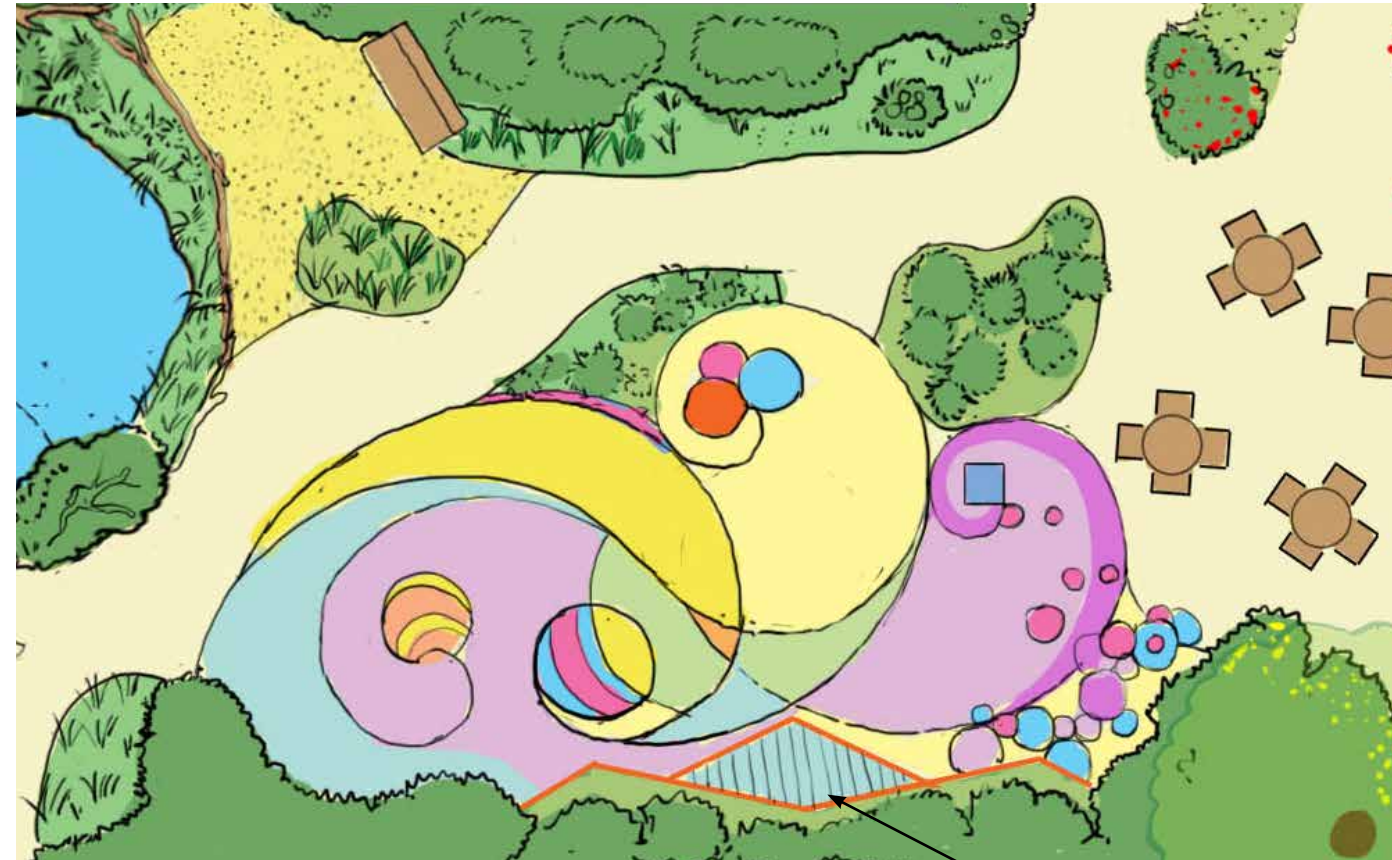
The Old Man and the Sea, Moby Dick, 20,000 Leagues Below the Sea, In The Heart of the Sea, The Rime of the Ancient Mariner, The Perfect Storm, The Sea Brings Forth, The Wilderness Coast, The Living Dock etc...



The Wilderness Coast Play area

This area gives kids the chance to have active fun outside and will extend the duration of the family's visit.

Climbing structures allow for play in all seasons. Sand lets kids dig, discover and build. Water sprays and jets are cooling in the summer.

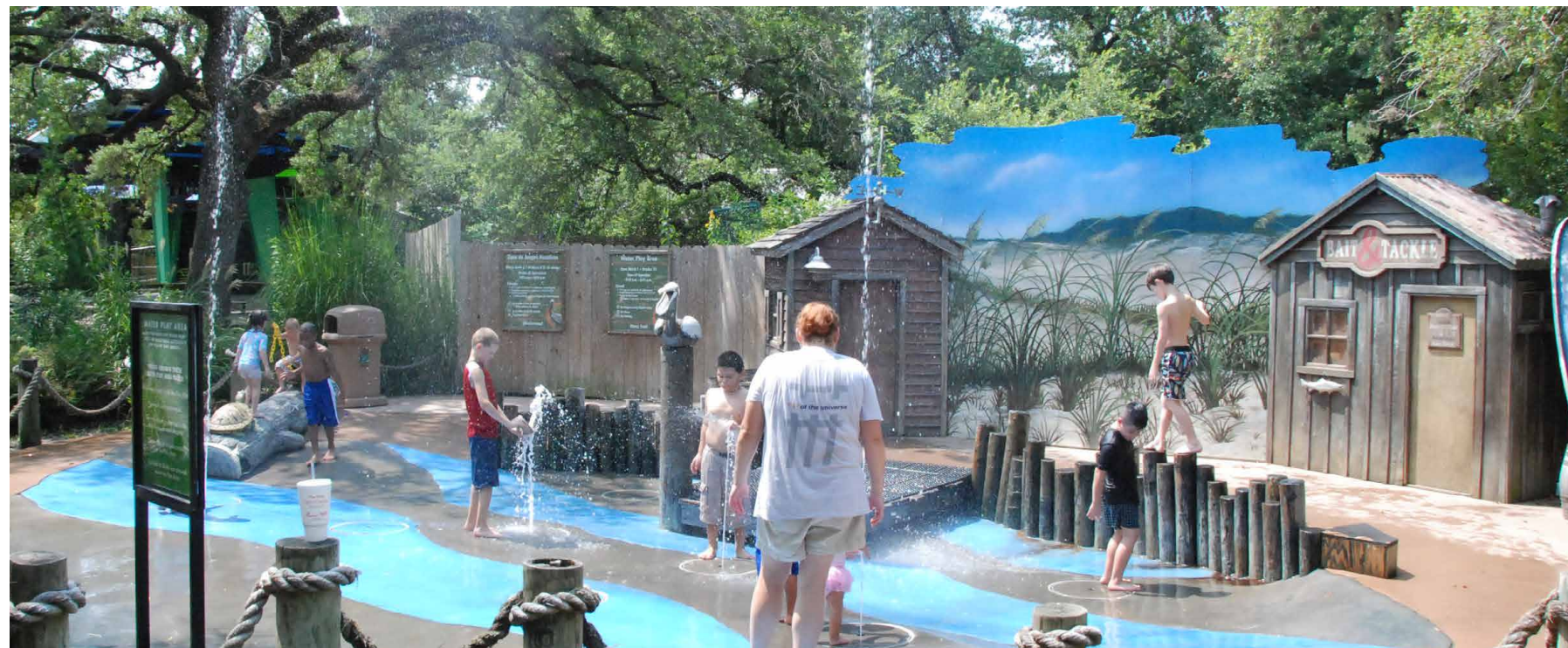


Informative, fun graphics along the back of the playground



Nuremberg Zoo, Germany
Visitors take off their shoes to dig and play in the sand

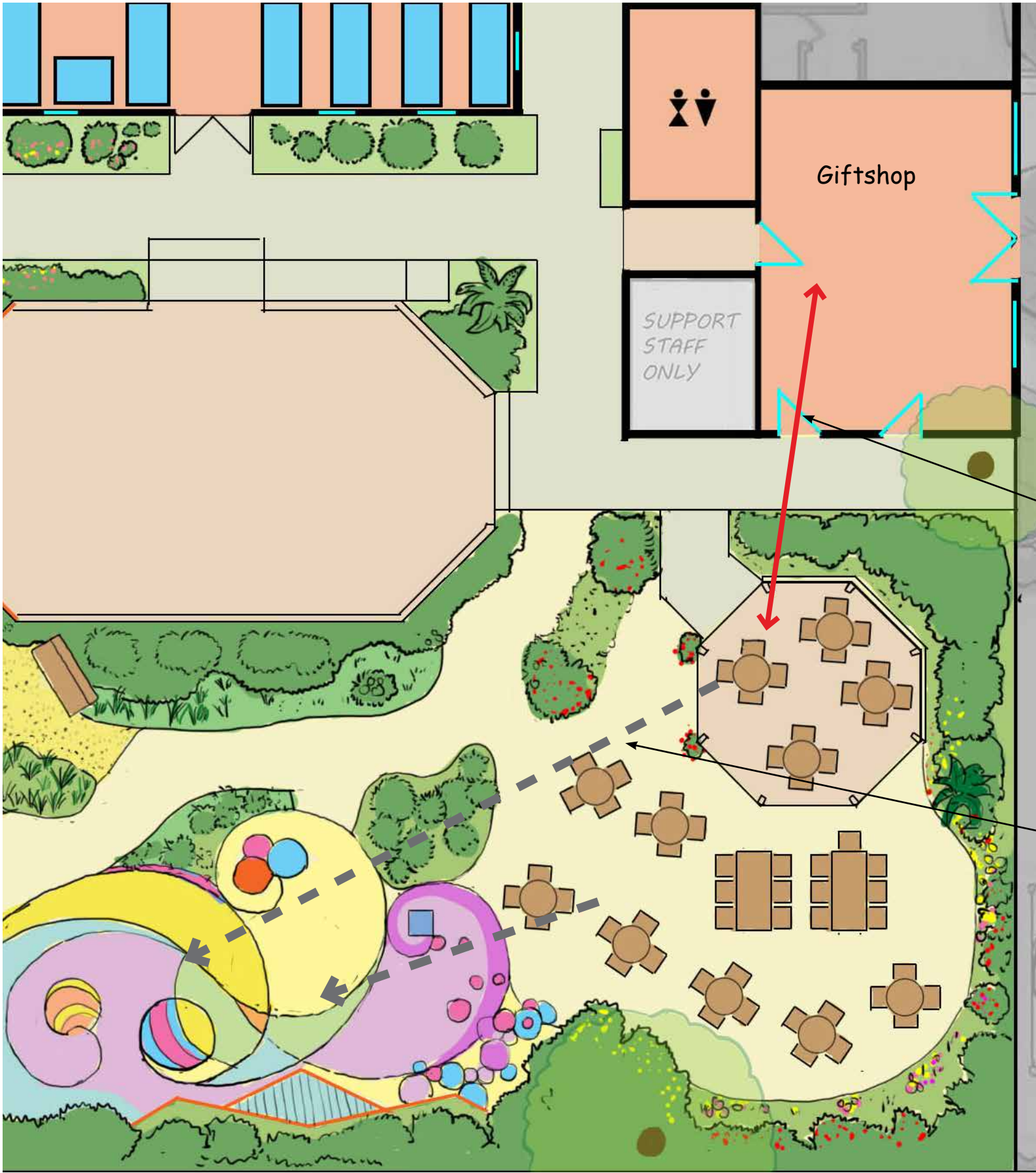
below: kids use tools to excavate "bones"



The Wilderness Coast

Picnic area

Picnic and cafe area with beautiful, native plantings. The gazebo provides weather-protected seating and could serve as a special area for weddings or social events.



Proximity between picnic and sales.

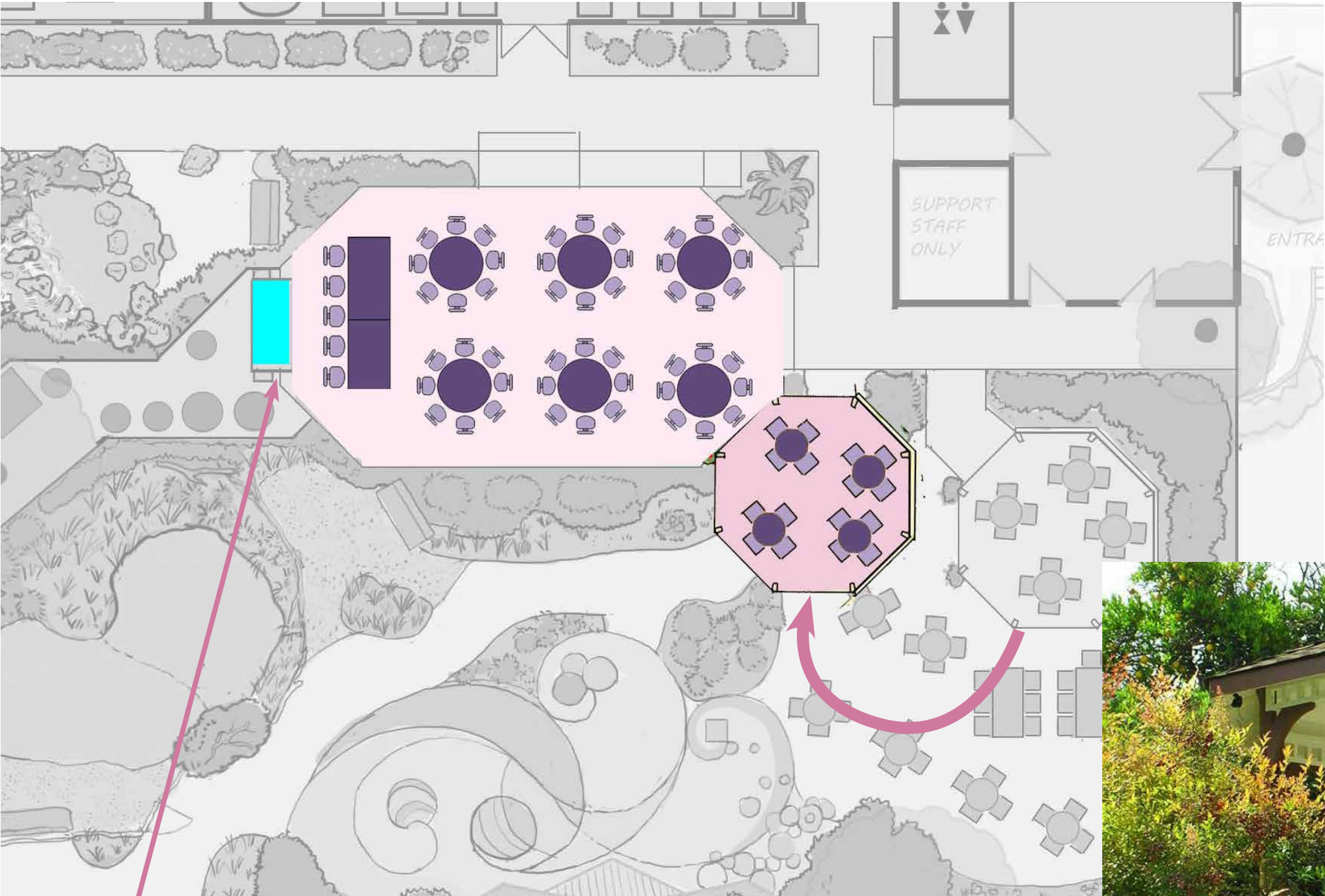
Parents can sit and see children at play



Depending on the location and type of construction, the gazebo may be attached to the pavilion to allow events to be independent of the weather



The Wilderness Coast Event area



Fish tank (new)

By moving the gazebo towards the pavillion it can be made part of an event space. The gazebo could be used for ceremonies, as band space or for seating.

Weddings and other events may usually happen in the picnic area under open skies. By making some minor improvements to the pavillion and adding a larger tank this exisiting construction could become an event facility to be used in inclement weather.



Above : pavillion drecorated for wedding event.

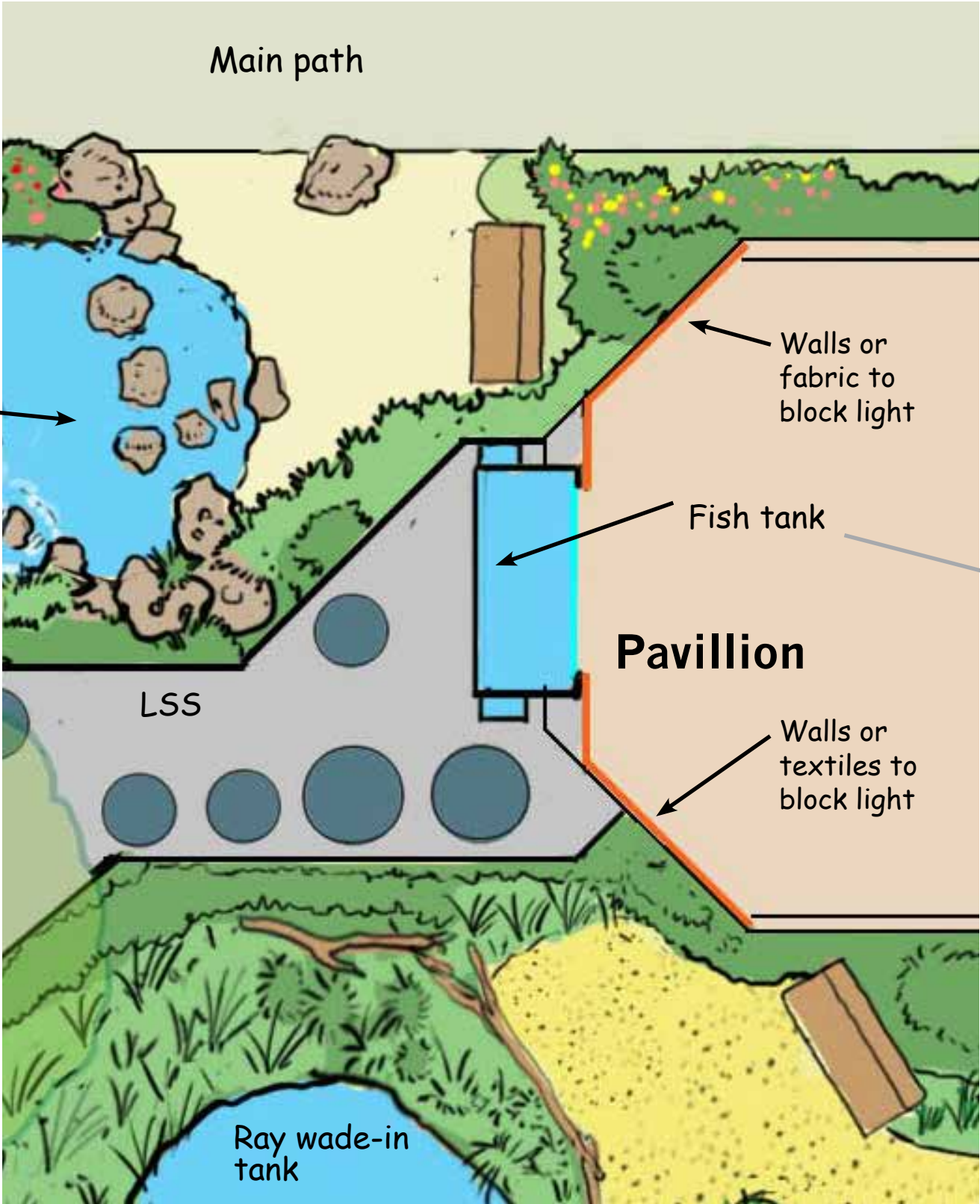
Below: pavillion with lush, beautiful plantings



The Wilderness Coast

Fish tank in Pavillion

Original Photo



Below: Photomontage of pavillion with fish tank and wedding decor. The content of the monitors can easily be adjusted for events.



The Wilderness Coast Butterfly Garden

Florida has 180 species of butterflies - 170 are native. Using native flowering plants create a pollinator garden to attract butterflies, hummingbirds and wedding guests.

The University of Florida IFAS website (<http://edis.ifas.ufl.edu/uw057>) gives information on nectar plants to attract butterflies by specific region.



Left: Flowering plantings with small plant identification signs

Gulf Coast Nature Trail



Gulf Specimen
Aquarium grounds

Nature Trail area
(path to be determined)

A .25 mile interpretive path through the property gives visitors an impression of the nature of the area. The path can be a boardwalk, a partial boardwalk, crushed shell or cleared ground.

As a pre-emptive move to preserve access to the GSL&A, and because the parcels directly adjacent to the lab to the south within the same block were not affordable, two connected lots totaling 0.86 acres were purchased directly across the street (Clark Drive) from the Lab/Aquarium. Currently the perimeter sides of this property on Clark Drive and Palmdale Street are used for visitor parking. Because this property is physically separated from the main Lab/Aquarium campus by a city street, its development as additional aquarium exhibit space is unlikely. As such, it is envisioned that this property be used as an adjunct low impact second “free” campus consisting of a new Gulf Coast Nature Trail. In addition to its educational purpose, this trail can also serve as a “flow control” when more than one classroom bus arrives at the same time.

A map at the beginning of the path will show highlights and the length of the trail. Another sign shows the birds and animals that may be in the area. Small plant and tree identification signs can be placed at points of interest.



Gulf Coast Nature Trail

Artifacts



Objects to discover and pick up or touch can be placed (or fastened) along the path.

Several signs along the path explain that objects along the path may be picked up, but should be returned for others to enjoy.

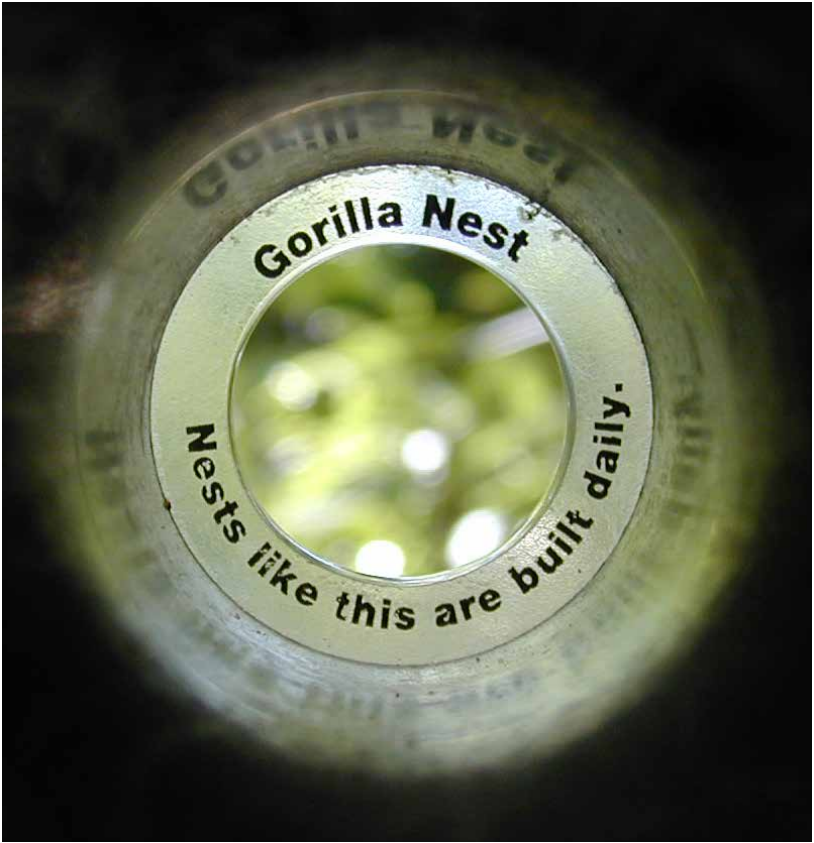
Small signs next to animal habitats in the ground, in trees or at unique elements (fallen tree, ephemeral pool, etc) can explain what visitors are seeing



Gulf Coast Nature Trail

Discovery

For nests or views that are further away a stationary telescope pointed at the object, with an explanation of what is seen written inside.



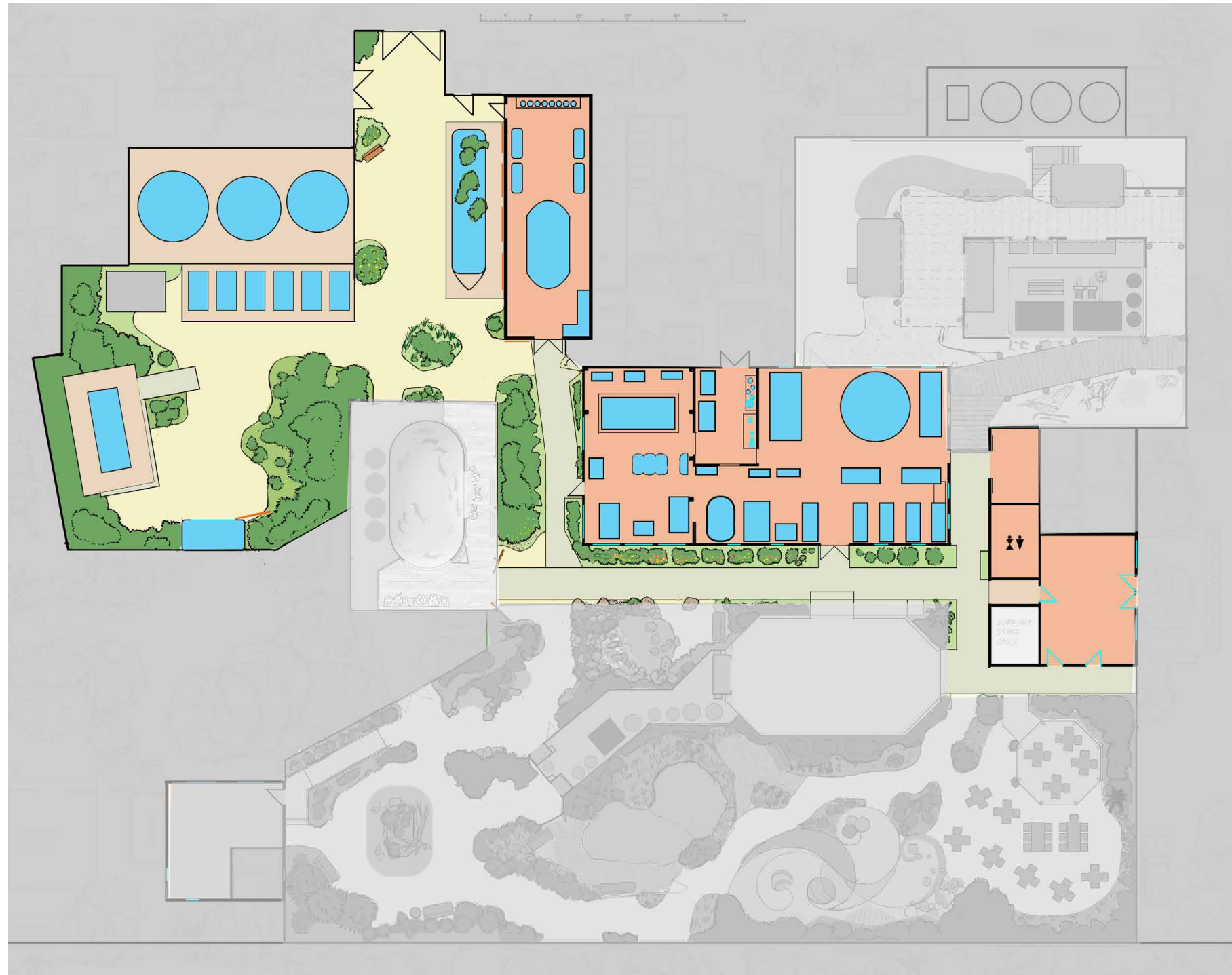
A mirror mounted above a nest gives a view into the nest.



A metal ring set close to the object that is highlighted helps the visitor look through to see where the focus is.

2nd Part

Renovation Existing Facility



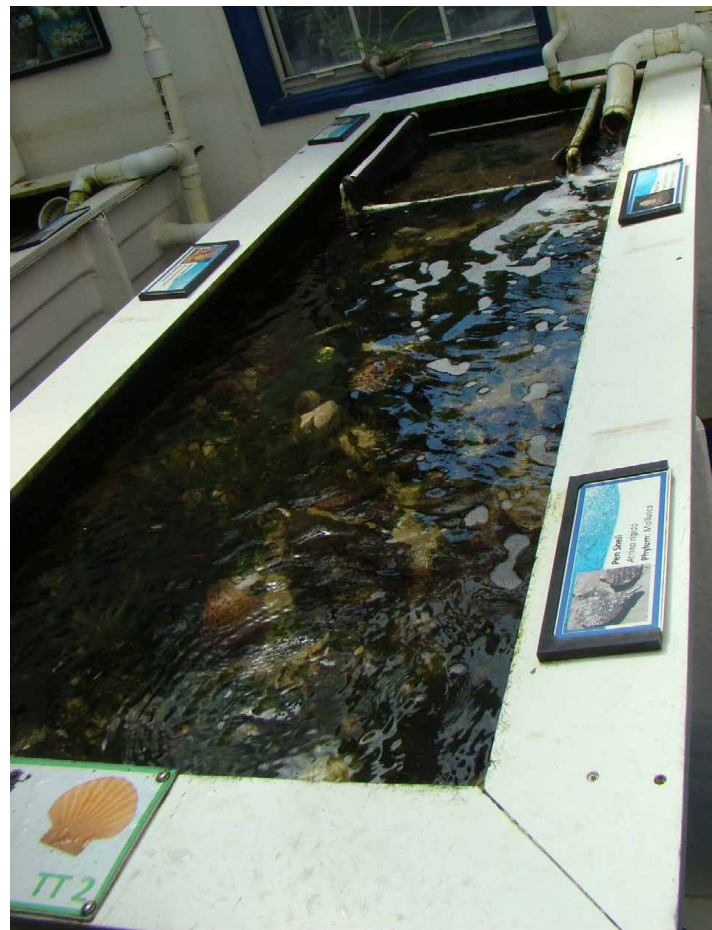
These pages are suggestions for changes to existing aquarium tanks to give the facility a cohesive look and enhance the appearance of guest areas.

We also suggest that:

- specimen packing becomes part of the visitor experience
- the turtle hospital becomes part of the visitor experience.
- a wheelchair/family restroom be added to the grounds
- improved landscaping and plantings be implemented throughout the visitor areas

Renovation Limited Underwater Viewing

Because of the lab's original purpose of supplying marine animals to universities and other clients, most of the original holding tanks (and now also display tanks) are relatively shallow for easy access but possess no underwater viewing windows. As such, aquarium visitors must view most of the animals from above through the water surface which is problematic because the surface is disrupted by water flows in and out of the tank and the presence of oxygenating airstones.



Reflection and glare are also issues with surface only viewing, especially at the outdoor tanks.

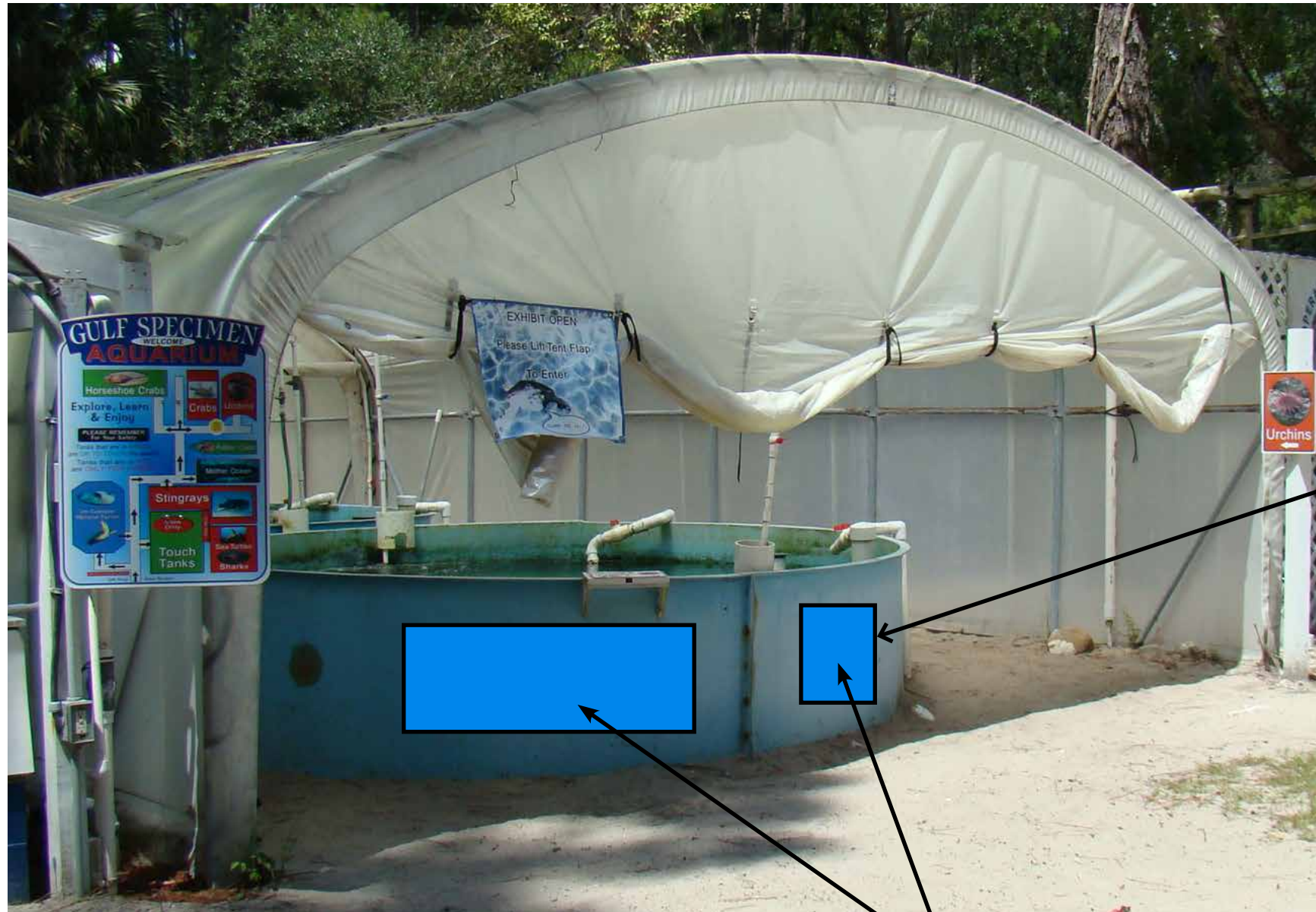


One solution for this (already in progress with the Octopus touch tank) is the addition of floating magnifiers.



Renovation Limited Underwater Viewing - Solutions

This can also be rectified with certain of the existing tanks (i.e., those that are plastic or FRP and are deep enough to warrant) by simply cutting out a section of tank wall and adding an acrylic viewing panel.



Add pre-curved acrylic viewing panels to all FRP tanks



Renovation Tanks



Original photo

Block view of background. In this photosketch the mirror is similar to the mirrors in the SEAMOBILE.

The blue distracts from what matters: the content of the tanks, the graphics or monitors. Color should mainly come from them.

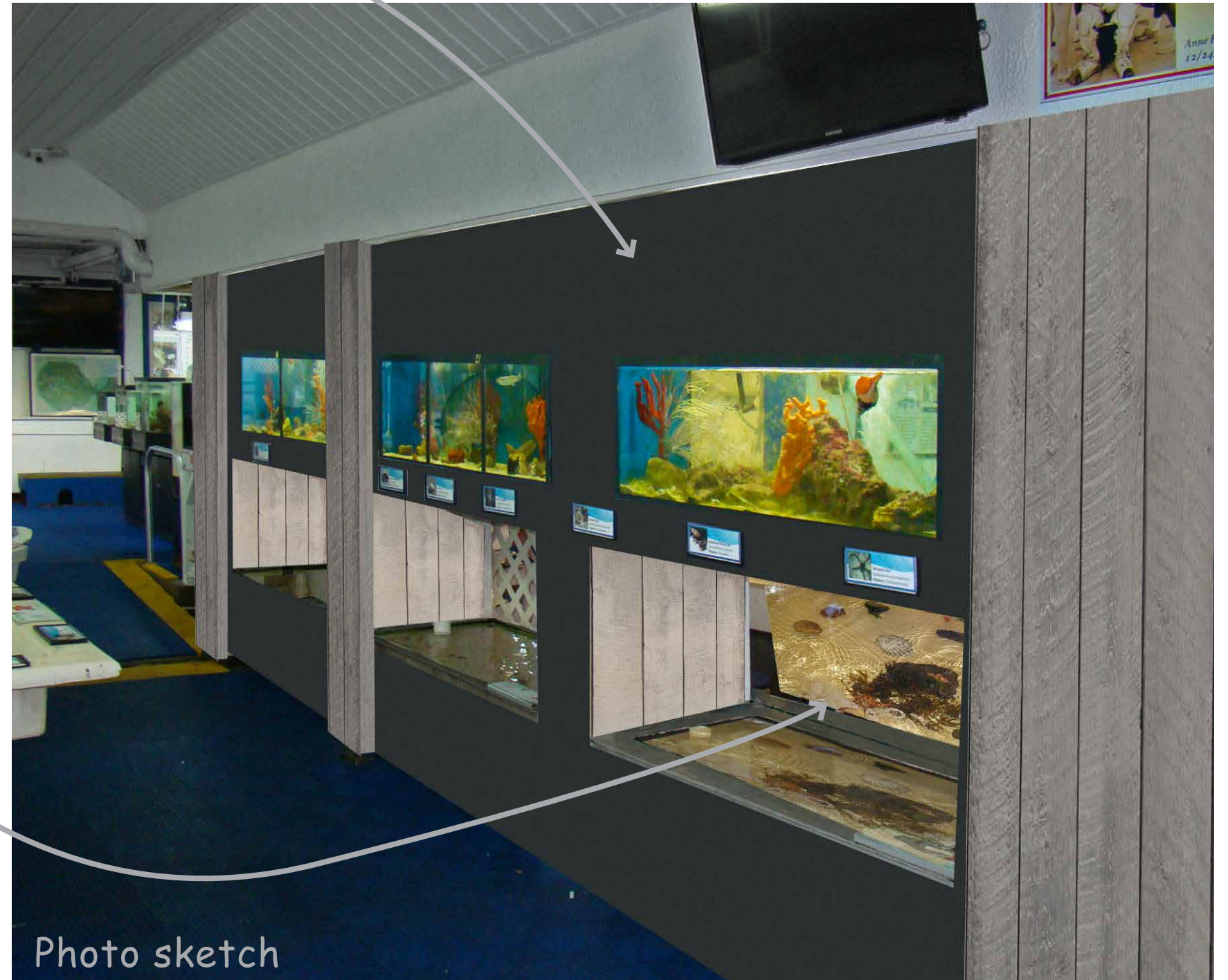
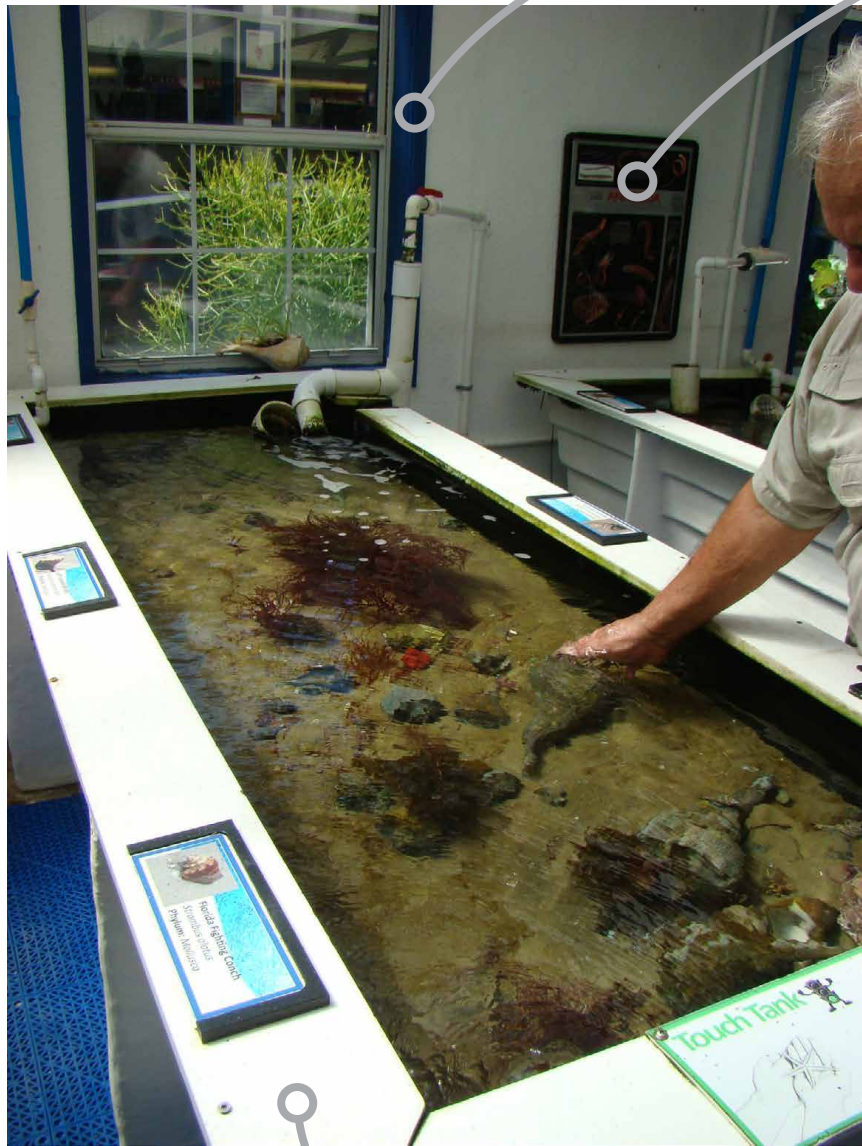


Photo sketch

Renovation Tank ledge frames

Original photo



Frame from blue to a neutral color

Larger graphic. Adds visual interest

Photo sketch



Darker frame brings out the content. (think of a picture frame)

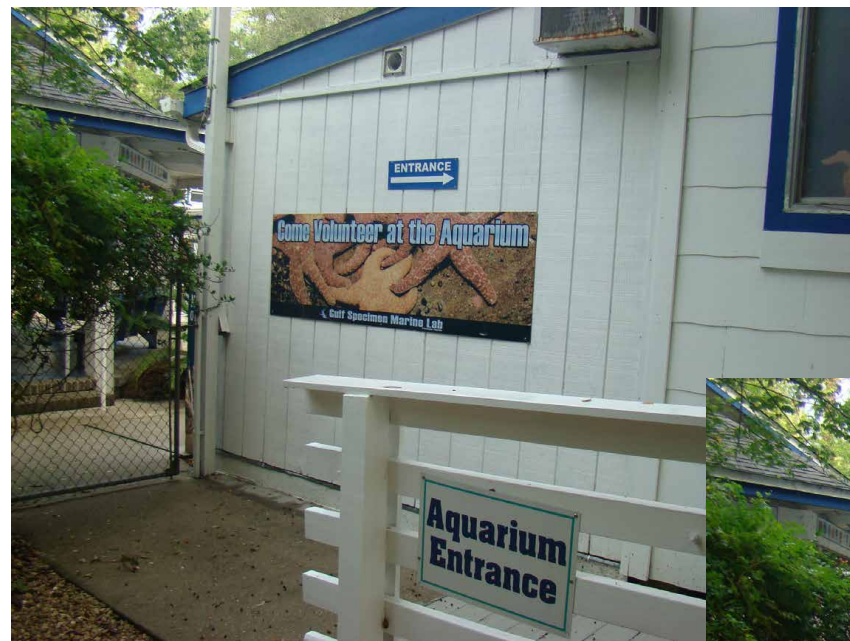
Renovation Color scheme

The color scheme needs more thought and any preferences should be tested with large sample areas.

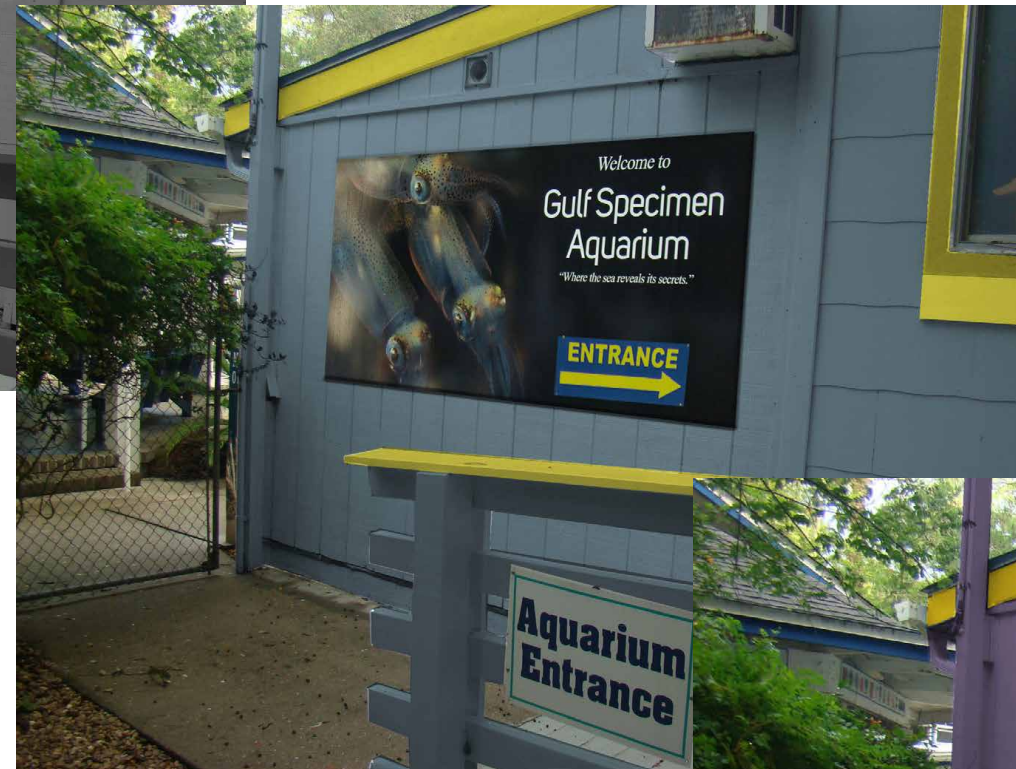
A darker color will better highlight foreground plants. Ideally minimal amounts of the fences or buildings will be visible.

Hiding them behind beautiful landscaping with climbing flowering plants is preferable.

Further Photoshop testing needed.



Original photo



Samples of various color schemes. Notice how darker colors make plants and graphics pop out.



Photo sketches

Renovation Color scheme

Here, too, the color scheme needs more thought and any preferences should be tested with large sample areas.

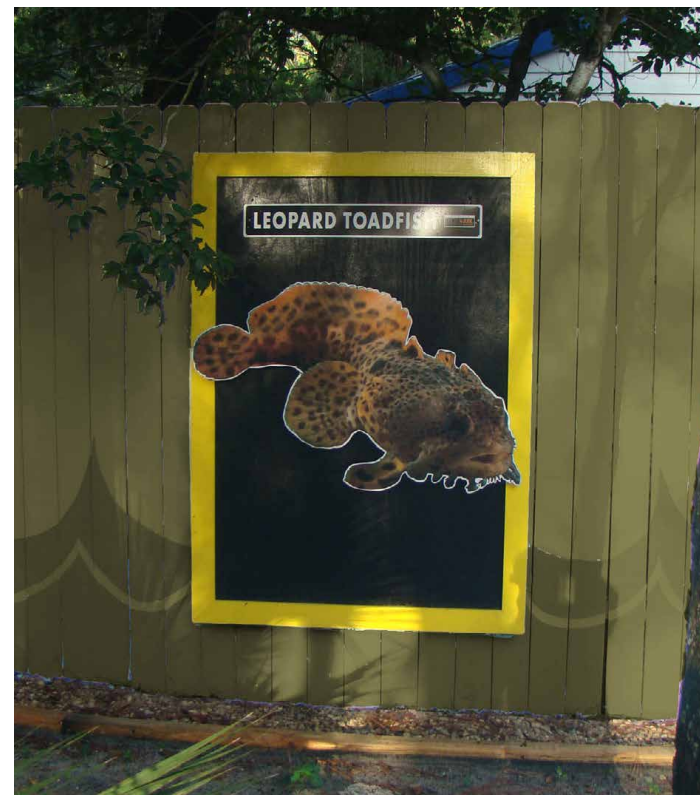
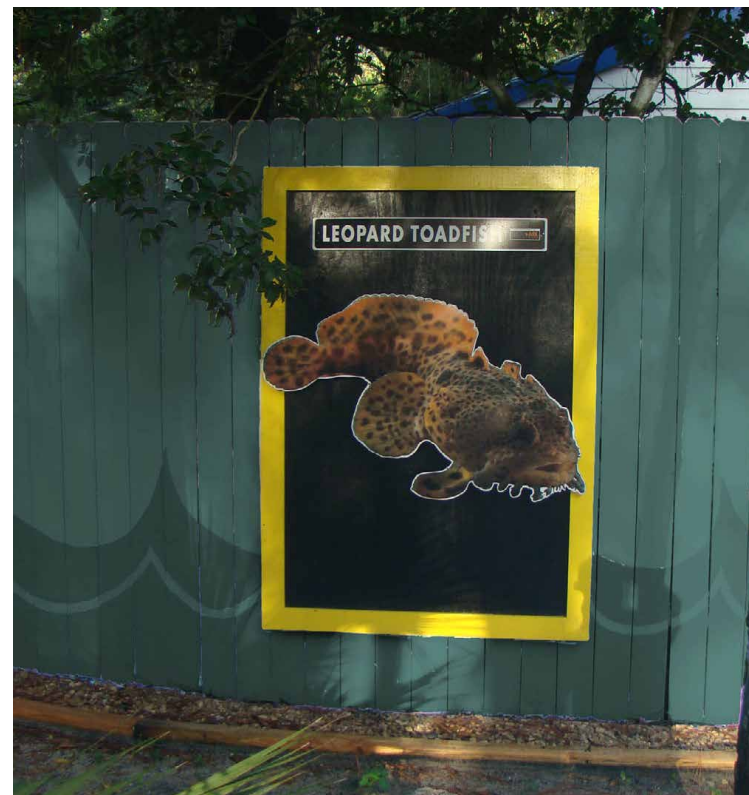
Notice how the yellow frame is brighter with darker background colors on the fence.

And again, little of the fences or buildings will be visible. Hiding them behind beautiful landscaping with climbing flowering plants is preferable.

Further Photoshop testing needed.



Original photo



Renovation Color scheme

Here: examples showing consistent use of a color scheme.
Yellow is already used at the aquarium and could be part of the new color scheme.



Reference photo above: existing facility



Reference photo below: Tank at Vancouver Aquarium

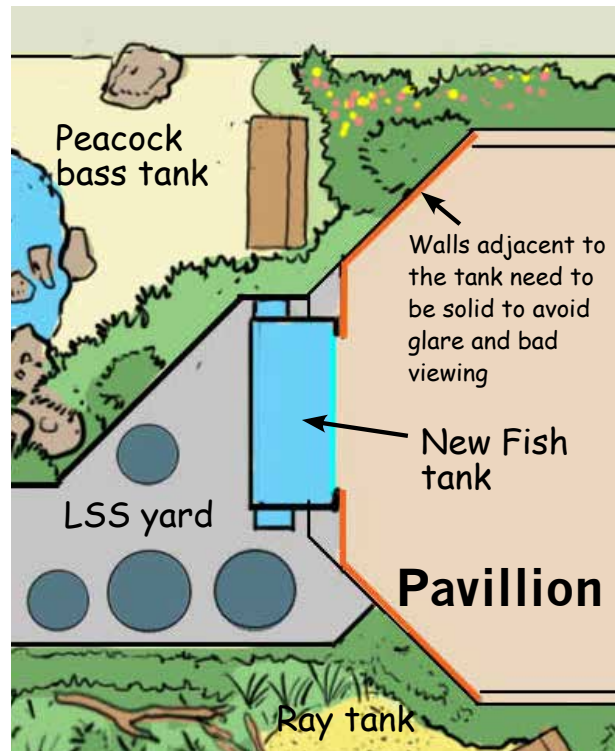


Left: A yellow frame, with a logo or some educational information could become a photo op for visitors.

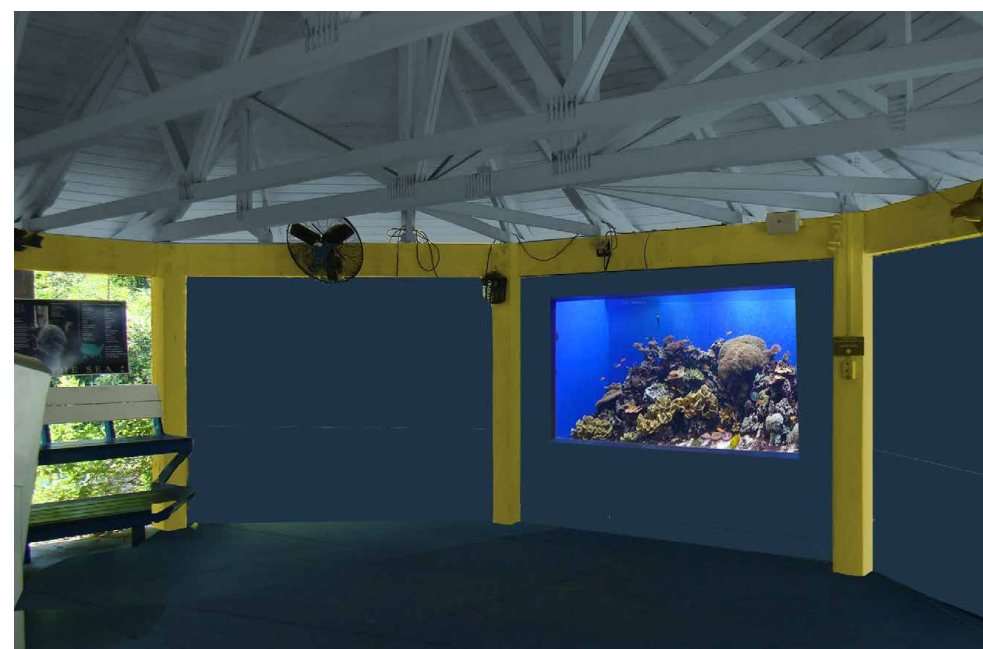
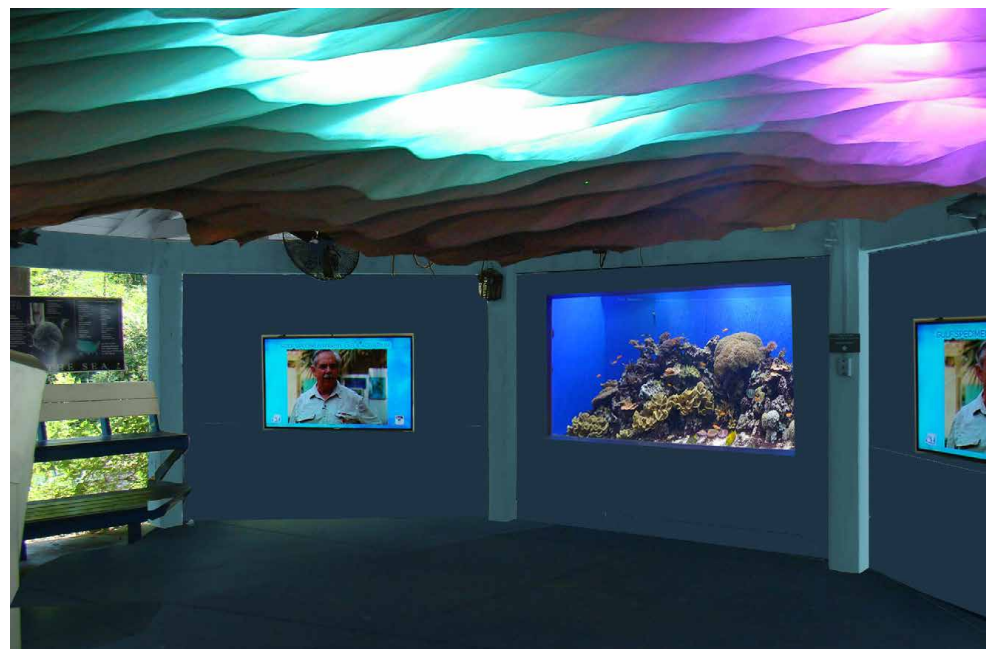


Renovation Color scheme and a new tank at the Pavillion

An outdoor tank at the pavillion would add interest to the visitor path and create a highlight for event rentals.



A new tank in the center and two monitors right and left with video and/ or graphics and information.

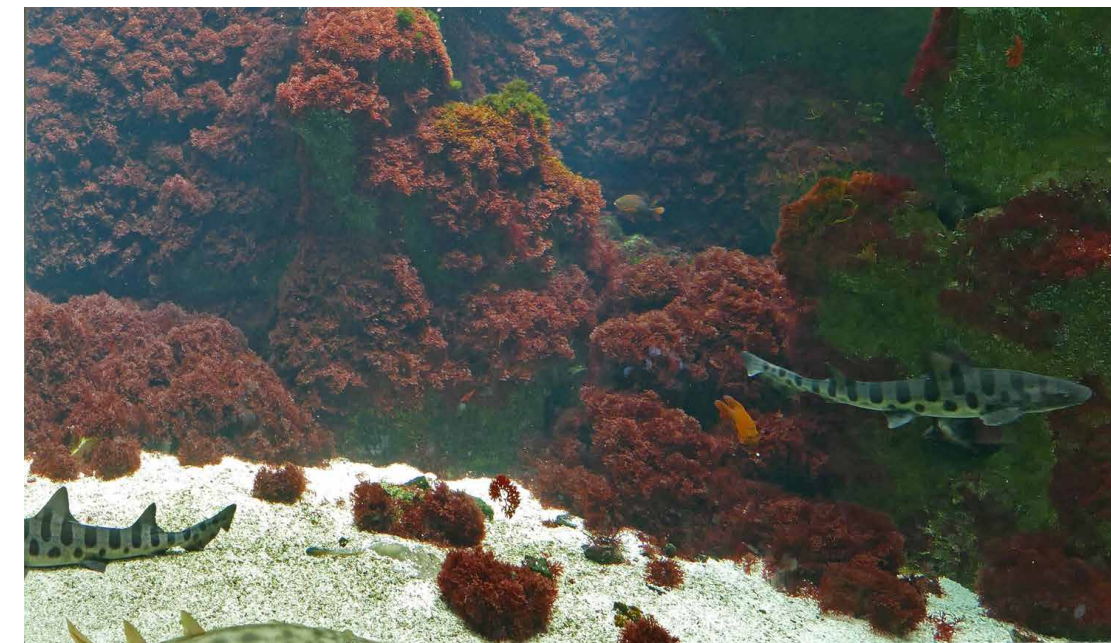
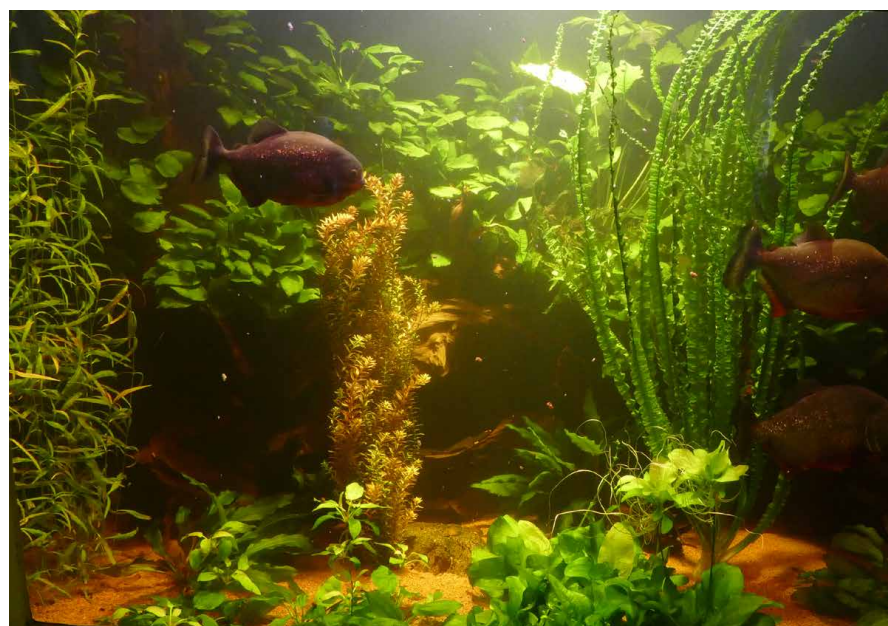
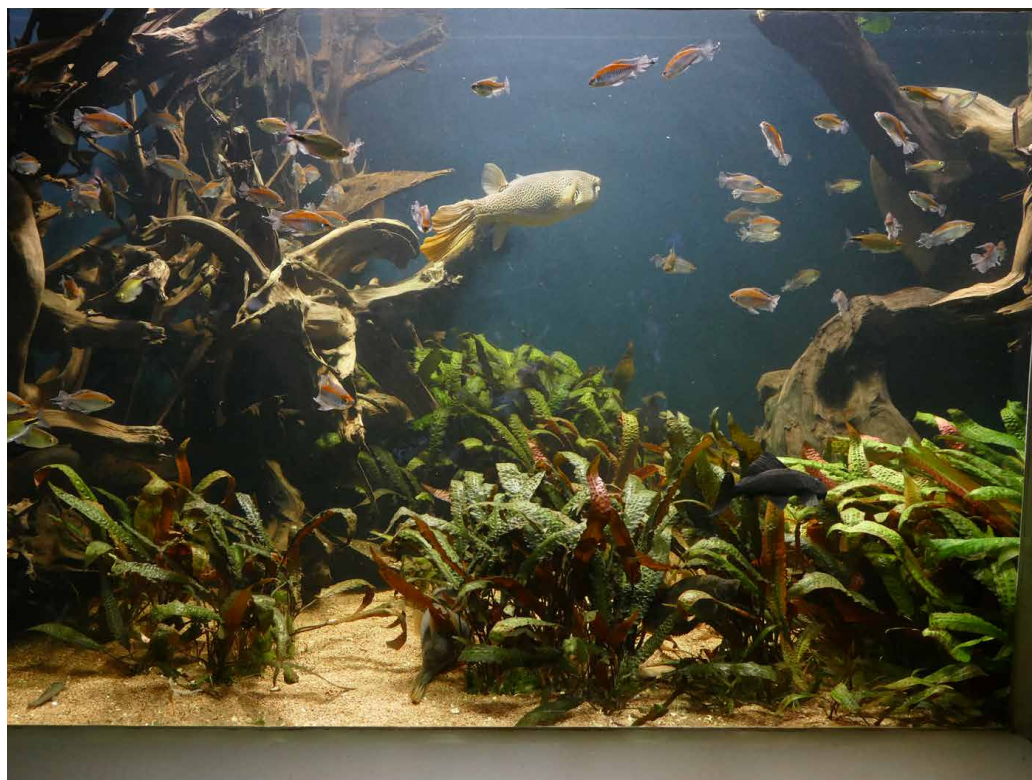
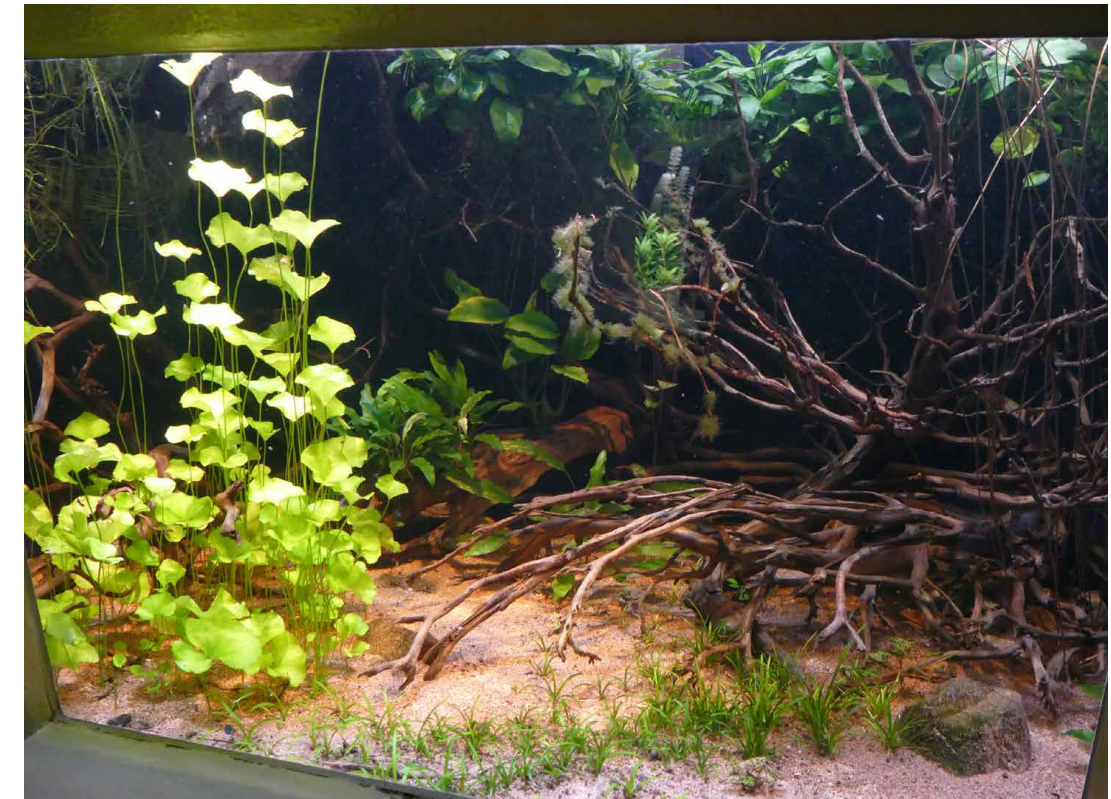




Renovation

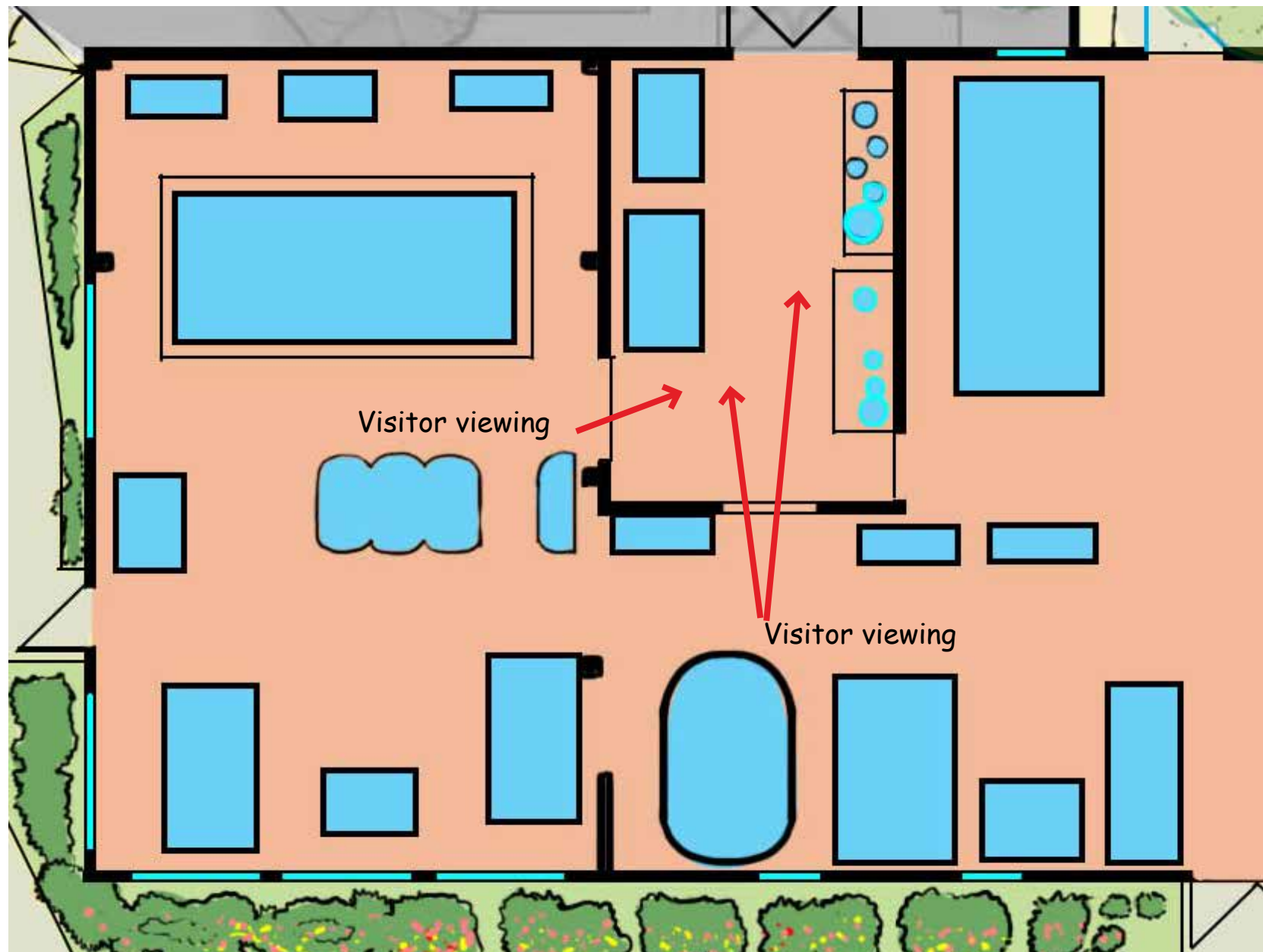
New tank at Pavillion

This page shows beautifully decorated freshwater tanks (one tank is saltwater) as an alternative to the reef tank shown on the page before. Rain and sun might hit the tank and provide enrichment for the fish

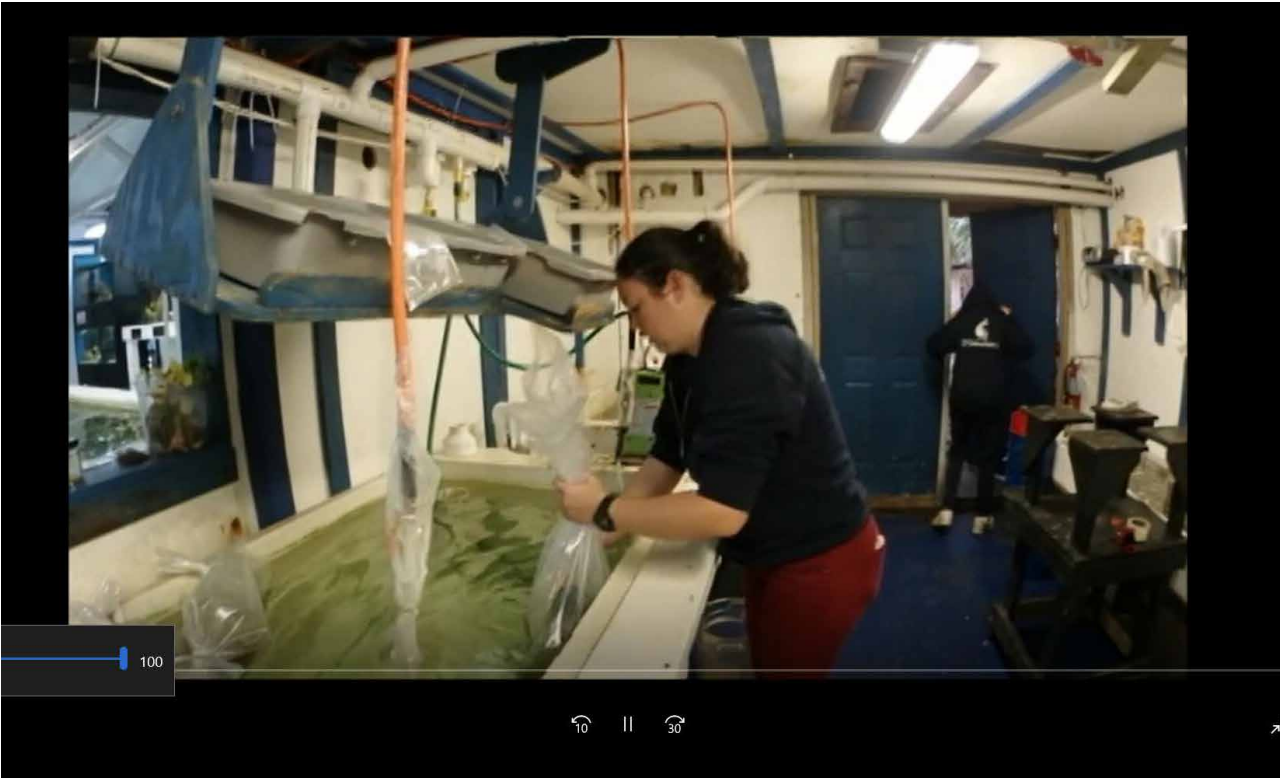


Renovation Packing

Located in the center of the main exhibit building lies the heart of the original specimen collecting and shipping business...The Packing Room! Presently this room is empty of activity much of the day and, although the visitor has side views into this room, its purpose is not explained at all or celebrated. This room too, because of its daily use, is showing much more “wear and tear” than other parts of the public aquarium. Our suggestion is to spruce up this room with new paint and new equipment, better lighting and trying best to eliminate all sources of rusting metal, to present a modern, scientific and aesthetically pleasing living and working exhibit! We suggest the relocation of the existing small aquariums which are blocking the direct view of the room and adding ID signage and graphics, along with a cool and narrated video of the packing process for those times during public hours when packing and shipping is not occurring live. This is an exhibit that will be unique to this Aquarium!



Renovation Packing



Mount a monitor on the wall next to the viewing window into the packing area. Monitor can show packing video in a continuous loop. A second monitor could show video clips from collecting trips.



Signage for packing area:
U.S. (and World?) map showing all the places GMSA ships animals.



Update signage to explain how schools and universities use animals, and what research is being done that uses the marine animals GSL&A ships.

Renovation

Mother Ocean Building

Whereas the Main Building (Shark / Stingray / Touch Tanks) is very open air with a clerestory and many windows and doorways, which creates a nice well lit airy atmosphere, it makes aquarium viewing somewhat problematic with ambient light coming in from all directions. The Mother Ocean Building on the other hand, albeit smaller, only has two doors, one on each end and no windows. As such, this room can be better used for the addition of new live exhibits in a light controlled space. The room lighting in this room should only be used for cleaning and maintenance and should be turned OFF during public hours. The existing Octopus touch tank should remain but should only be illuminated by exhibit specific drop lighting.



Add Exhibit-specific drop Lighting above Octopus Touch Tank and Turn OFF all room lighting



Likewise, the also concrete-based tray exhibit on the far right could stay but the tanks swapped out for better enclosures, preferably those with return skimmers or piping to eliminate the overflow approach. This could be a good location for a mini jellies culture area. This tray might also be used as a new shallow touch tank for invertebrates.

Renovation Mother Ocean Building (2)

The remaining exhibits however, which are mostly conventional glass aquariums on stands without any shrouds or masking or backing (allowing the less aesthetic aspects to be seen), should be replaced or remodeled as a gallery with aquariums viewed from one (or occasionally 2 or 3) sides, enclosed behind façade walls with all lighting and equipment hidden (accessed from the rear or from front panels).



This exhibit especially should be removed and replaced with a better exhibit that is more aquarium-like and more aesthetically pleasing.

Renovation Monsters of the Deep

This is an exhibit of preserved deep sea animals in jars which are located inside a room but are viewed from the outside via fake “ship portholes”. The specimens are backlit or lit from above and can be rotated by the visitor by turning a crank which turns a small turntable upon which the specimen jar sits.



This is a very cool interactive but suffers from several easily-correctable mistakes:

1. The lighting of the specimens is much too dim. Since these are viewed from the outside, typically during daylight hours, the illumination of the specimens must overcome this outside ambient light. Replacing the existing dim and warm lighting with new aquarium-style LED lighting will make a huge difference. And the LED lighting will not impart any heat to the specimens as the current incandescent lighting is doing which may be affecting the clarity of the preservative (which should also be replaced with new, clear preservative).

2. The specimens are located inside an air conditioned room but are viewed from the outside, typically on a hot day. This causes the porthole viewing panel to condense on the outside which makes viewing the specimens very difficult. This can be rectified by swapping out these viewing panels with panes of insulated glass (two panes with a sealed airspace for insulation) or even a thick piece (3/4" or thicker) of acrylic which has good insulation properties at this thickness and above.



Photos taken on a cooler February day with no condensation. Viewing panels might be crystal lenses for magnification but can still benefit from an insulated pane

Renovation Crab tanks



Graphics block view to construction beyond

Landscaping added for beauty, education and screening

Renovation Aquarium



Original photo



Photo sketch

Packing room monitor

Guard rails to block visitors from entering room

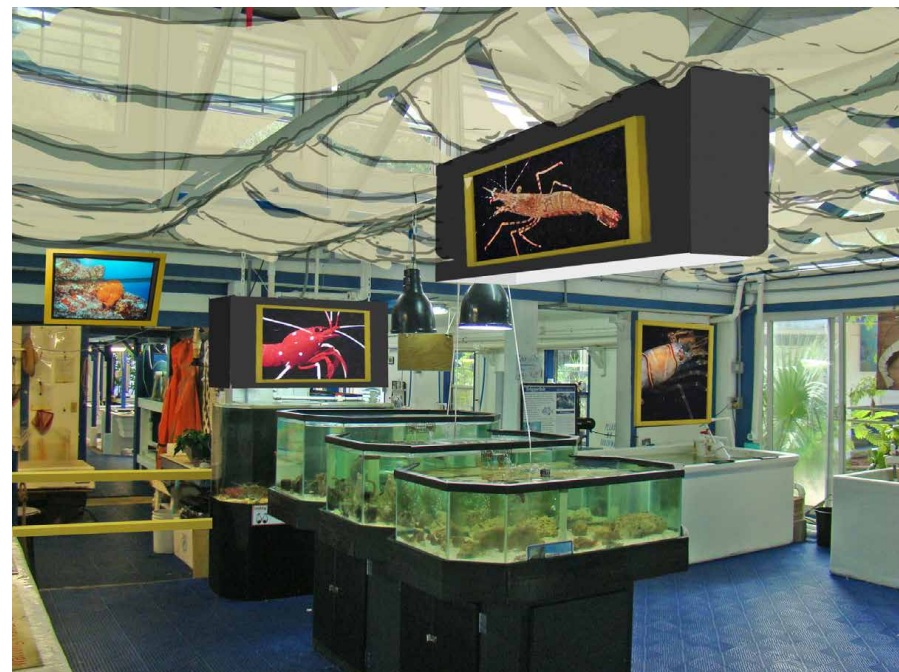
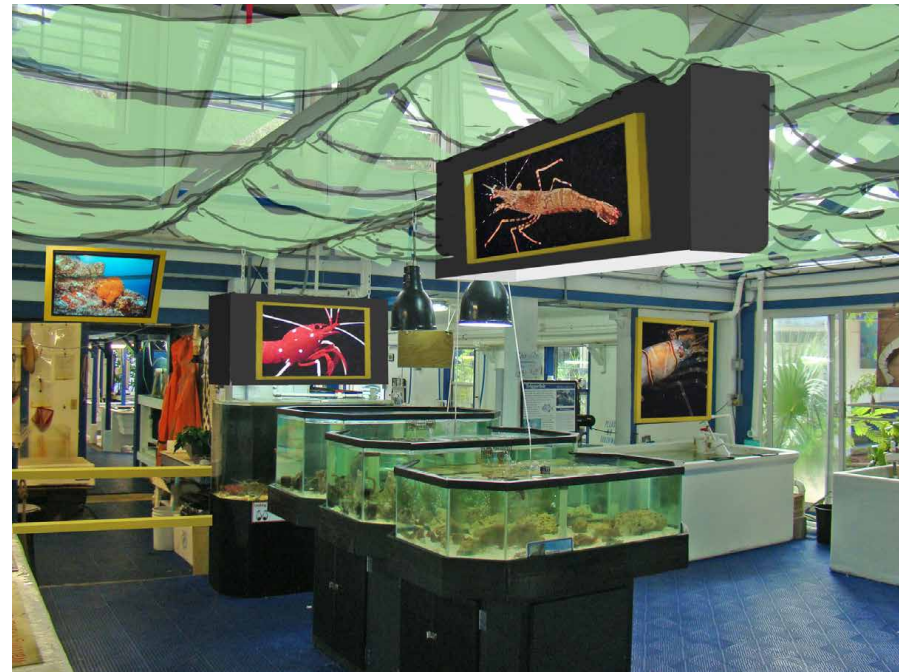
Screen the lighting so that it is not a distraction for visitors

Renovation Aquarium

*Photos from Sea World and
Busch Gardens*



Fabric will diffuse the light entering from the clerestory windows, prevent reflection in the tanks and allow air circulation.



Attachment I Authorisation and Authority

2012 NOT-FOR-PROFIT CORPORATION ANNUAL REPORT

DOCUMENT# 752423

FILED
Jan 19, 2012
Secretary of State

Entity Name: GULF SPECIMEN MARINE LABORATORIES, INC.

Current Principal Place of Business:

222 CLARK DRIVE
PANACEA, FL 32346 US

New Principal Place of Business:

Current Mailing Address:

222 CLARK DRIVE
P.O. BOX 237
PANACEA, FL 32346 US

New Mailing Address:

FEI Number: 59-2021454

FEI Number Applied For ()

FEI Number Not Applicable ()

Certificate of Status Desired ()

Name and Address of Current Registered Agent:

RUDLOE, JACK
222 CLARK DRIVE
PANACEA, FL 32346 US

Name and Address of New Registered Agent:

The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.

SIGNATURE: _____

Electronic Signature of Registered Agent

_____ Date

OFFICERS AND DIRECTORS:

Title: DV
Name: RUDLOE, CYPRESS
Address: 151 CLARK DRIVE
City-St-Zip: PANACEA, FL 32346

Title: P
Name: RUDLOE, JACK J.
Address: 151 CLARK DRIVE
City-St-Zip: PANACEA, FL

Title: D
Name: FRISBY, DAVID
Address: 265 MADISON STREET
City-St-Zip: MONTICELLO, FL 32345

Title: STD
Name: RUDLOE, SKY
Address: 2312 DOZIER DR
City-St-Zip: TALLAHASSEE, FL 32301

I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 617, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.

SIGNATURE: JACK RUDLOE

PRES

01/19/2012

Electronic Signature of Signing Officer or Director

Date

Attachment J Addendum for Workforce Proposals Intern Program



GSML Intern Program

The monies provided by this grant will allow us to expand both our public facilities and our training programs. As a result of this expansion we anticipate that our intern program will also expand. GSML has run an intern program since 2012 with 8-12 interns per semester (4). GSML provides interns with real world work experience in marine education, collecting and aquatic technician skills. Interns are juniors and seniors from FSU, FSU Panama City, FAMU, TCC, Valdosta State, University of South Florida, and Florida Gulf Coast University as well as high school students, court mandated community service individuals and members of the general public who wish to participate. (See attachment C)

General Requirements:

250 hours of onsite supervised work experience (two days per week 9-5)

12 completed academic assignments that are designed to increase knowledge of local habitats, invertebrate organisms, and fish health.

An onsite lab that covers sponge reaggregation, sea urchin embryology, and bioluminescence.

The GSML internships provide real life job skills. Normal job expectations are required. Interns learn accountability, calling in, making up work, doing what is required even when conditions are not optimal, (wet, cold, eaten up by gnats and mosquitos), They learn appropriate interaction with co-workers and supervisors, learn to take responsibility for the work and learn to work with the public. Most of their duties

come from:

Live Specimen Collection

Collection of marine organisms (at least four places and methods: tidal flats and sea grass beds, dockside fouling community, salt marsh seining, scallop dredge and/or shrimp trawl from boat).

Source and pack marine specimens for shipment to colleges, universities, and other aquariums around the country.

Participate in rescue, rehabilitation, and release of injured sea turtles following guidelines established by Florida Fish and Wildlife.

Education and Outreach

- 1) Identify and discuss the over 250 marine organisms found at the aquarium on a regular basis.
- 2) Lead discussions of threats to the local habitats and organisms
- 3) Gain knowledge of local fisheries and history of seafood industry

4) Lead field trips that may include tour of aquarium only, aquarium and dock, or aquarium, dock, and a trip to salt marsh

5) Sea-Mobile Guide

6) Serve as docents helping the aquarium visitors to learn about the animals and habitats exhibited.

Tank Maintenance and Marine Animal Husbandry

Cleaning and maintenance of a wide variety of aquariums from glass, acrylic, and fiberglass. Duties include:

1) siphoning detritus, 2) scrubbing algae off interior walls, 3) cleaning outside glass or Plexiglas, 4) ensuring that water flow and air flow are adequate, 5) regulating lighting, 6) arranging interior décor so organisms are visible but feel protected and secure, 7) using a swimming pool vacuum to clean large tanks, 8) daily inspection and removal of dead or diseased organisms. 9) breakdown and redo tanks as needed.

Supervised work involving maintenance of quarantine system for collected fish and shellfish. Prophylactic treatment of collected organisms before introduction into tanks. Introduction to treatment of diseased or injured fish or shellfish. Maintenance and cleaning of protein skimmers. Use of diatom filters. Check ozonator and ultraviolet light sterilization of water.

Water System Management

Supervised work on water system including: simple PVC plumbing, , mixing of artificial sea salts, back flushing of filtration systems, maintenance of sand filters, protein skimmers, diatom filters, swimming pool filter, and sump.

Daily water quality assessment for salinity, pH, dissolved oxygen, nitrates and ammonia using both electronic probes and chemical test kits.

Advantages

At present the completion of their semester long internship in addition to their work experience; students usually receive up to three semester hours of credit through their college or university, we also provide a Marine Aquarist Technician certificate of completion that details the duties listed above, a family

membership to the GSML for a year and sincere gratitude for all that they bring to the program and for their many hours of hard work. The internship prepares them for jobs with fish and wildlife services, aquariums and science centers, entry level employment with state or federal parks, environmental regulatory agencies such as DEP and EPA.

Several of our interns have gone on to graduate work at some of our best marine science schools (Rosentiel School of Marine and Atmospheric Science, University of Washington, Duke University and, of course, FSU and FAMU). Several of our alumni are now working for Coastal Science Centers around the country, fish and wildlife agencies in Florida and other states and some have gone on to work for politicians, helping to establish policy. Our interns with very few exception, have proven to be exceptional employees. Indeed we have filled several paid positions with former interns,

Gulf Specimen Marine Laboratory and Aquarium will be implementing a Gulf Education and Marketing of Marine-Life Specialist (GEMMS) Certification program designed to provide independent third-party certification of individuals who complete our unique intern/trade program. This certification is not a university based or university style program. This certification is designed to work as a standalone trade. It is based in practical hands on experience. As such, this program can complement a university degree in fields like marine biology but it provides an opportunity for university students to acquire practical skills university simply does not offer. This program is also designed to be accessible to non university individuals as a trade with widespread opportunity for future employment.

Although our certification is novel, components of our certification will meet or exceed three nationally and internationally recognized standards. The Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process, AALSO (Aquatic Animal Life Support System Operators) and the National Project for Excellence in Environmental Education (NAAEE). Meeting and exceeding these three standards will ensure that our certification is immediately recognizable and verifiable by industry and employers. We will also apply to the Florida Department of Education for licensing as an independent certification program in order to comply with the states robust education accountability system.

Needs

These students need an intern center, somewhere they can eat lunch, put a spare set of dry clothes, house a library of field guides and reference books, and be set up with an area to meet with students individually and a conference table and projector to do classes and orientations. The center should house the intern coordinator's office, lockers for the interns to keep their personal belongings, a refrigerator and microwave, a computer to research things, and air conditioning.



“Internship programs are extremely valuable when interviewing potential candidates for employment. When reviewing applications, we look for areas where potential employees have gone the extra mile - something that will separate them from all the other candidates. Internship programs fall under this category. An internship program is where the candidates

can learn the basics of husbandry techniques such as feeding, nutrition , disease assessment, treatment and water quality. The Gulf Specimen Internship program not only includes these basic skills but also includes extras such as boating experience, collecting, and public speaking. These are all valuable experiences for future employment in a public aquarium environment.

As a major asset to this intern program, Jack is a phenomenal educator and author. I have personally observed Jack interact with visitors at Gulf Specimens Marine Laboratory teaching fun facts about each animal. As stated on the back cover of his book, Search for the Great Turtle Mother, " The facility , located in the quiet Florida Panhandle community of Panacea, offers tours of its aquarium to school groups and the public, teaching visitors about hundreds of fascinating creatures and the marine and estuarine habitats where they live." This is a perfect environment for an intern to learn."

Gary Vialetta

Director of Animal Husbandry SeaWorld Orlando

[Letter of Support Sea World.pdf](#)

"The students from the GSML intern program interact with aquarium visitors on a regular basis serving as an explainer/educator while carrying out typical job responsibilities. They do daily maintenance, clean exhibits and back areas, make adjustments to water chemistries in exhibits, treat diseased fish, participate in diet preparation, and feed the animals in the exhibits. I understand that they also learn the ins and outs of filtration and water quality. This is basic knowledge necessary in many aspects of aquarium technology, and would be of great help to anyone going into the fields of recirculating aquaculture, aquaponics, mariculture, fish farming, or aquarium operation.

I would highly recommend this program for anyone beginning in a field related to Aquarium and Marine Technology."

Richard S. Brown

Director Flint River Aquarium

[Letter of Ref Flint River.pdf](#)

Appendix K Addendum for Advertising/Promotion



A. Is the applicant a tourism entity created under s. 288.1226, Florida Statutes?

Yes. GSML has been a member of Visit Florida for over 20 years. See attachment I-Visit Florida

B. Does the applicant advertise and promote tourism and Fresh from Florida? If yes, provide details on how it advertises and promotes tourism and Fresh from Florida. Yes

GSML is a member of “Fresh from Florida” and displays their logo on our aquarium premises and in its advertising program. Working with the State’s Seafood and Marketing, we wrote manuals and created a market for cannonball jellyfish. Moving forward we plan to use the “Fresh from Florida” to create a market for “Dragon’s Tongue”, a tasty marine algae that can be sold live to sushi restaurants and gourmet Asian Markets. See example of how “Fresh from Florida” is displayed <http://www.gulfspecimen.org/specimen/mollusca/>

C. Does the proposed award promote workforce and infrastructure on behalf of the disproportionately affected counties? If yes, describe how workforce infrastructure has been promoted on behalf of the disproportionately affected counties. Yes (If additional space is needed, please attach a Word document with your entire answer.

GSML has become an anchor in Wakulla’s tourist industry, and has given local businesses and restaurants a substantial boost by marketing our aquarium, gift shop and ecotourism programs. We rely on the local community for our workforce and use local contractors and tradesmen in construction.

Over the past decade the number of tourists visiting our facilities, field trips, memberships and special events have grown exponentially as our facilities have upgraded and improved. *See Attachment D

We enhance our community by making our traveling Sea Mobile available to regional schools and festivals. GSML also hosts free during community events such as “Christmas in Panacea”, “Rock the Dock” and Coastal Cleanup. The Sea Mobile brings life from the bays, estuaries and open

waters of Wakulla County into local schools where the live specimens and standards-based curriculum engage students with a unique, hands-on experience in marine science. As part of our environmental outreach program, we take our 20-foot Sea Mobile traveling touch tank system to schools and festivals throughout North Florida, South Georgia and Southern Alabama.

Building out Gulf Specimen Marine Lab's Master Plan into an expanded marine environmental education and entertainment center will increase visitor interest in Wakulla County. In addition to our Master Plan, we plan to have the world's first marine botanical gardens featuring the beautiful, colorful seaweeds which are abundant in the Florida panhandle. They will be used for aquarium display, for food, for beverage production and for research.

GSML plans to help establish the culture, processing and marketing of the locally abundant sea weeds and red algae, *Gracilaria* sp, which is made into a popular "sea moss" drink in the Caribbean and Ireland where it is sold as a health food and a powerful aphrodisiac. We would like to see this drink produced and marketed locally. Dr. Brian LaPointe, of the FAU's Harbor Branch Institute will assist in the construction of algae tumble tanks. Robbins McIntosh, Vice President of CP Foods, Inc. who manages some of the world's largest shrimp farms in Thailand, will consult on the design of the facilities and the development of curricula.

Additionally, GSML promotes the workforce and infrastructure by working closely with Workforce Florida, Career Service, the National Caucus on Black Aging, the Young American Conservation Corps, the Wakulla County Coalition for Youth and Mt. Adam's Institute (putting veterans back to work). Since the lab's conception it has given employment to over a hundred disadvantaged individuals and providing jobs ranging from clerical, janitorial, aquarium maintenance, hurricane clean up, trail blazing and construction. GSML also works closely with the courts and legal system, giving regional offenders the opportunity to work off their required community service hours and has received an award from the Governor's Council on Juvenile Justice. Aquarium field trips are also provided to the Big Brothers/Big Sisters of the Big Bend, the Big Bend Homeless Coalition, the Children's Home Society of Florida, the Lighthouse, the FSU School of Nursing and other organizations for free when funding is not available.



D. Provide a detailed explanation of how the proposed award will connect to a broader economic recovery, diversification, enhancement of the disproportionately affected counties and/or enhancement of a targeted industry. (If additional space is needed, please attach a Word document with your

Relatively speaking 19 new jobs in the tiny town of Panacea is huge and will make a major impact on an impoverished community that desperately needs economic stimulation. Improving our exhibits will increase the number of people who visit the aquarium and the average time per visitor spent in the aquarium. Longer visits will result in tourists having longer stays at local hotels, eating at local restaurants and patronizing shops in Panacea.

Upgrading our facilities and drawing more people to the area will bring new jobs to surrounding businesses. GSML has received hundreds of rave reviews in social, print and other media, it is still known as the “best kept secret in North Florida,” See

https://www.tripadvisor.com/Attraction_Review-g34541-d1853110-Reviews-Gulf_Specimen_Marine_Lab_Aquarium-Panacea_Florida.html#REVIEWS and <https://www.yelp.com/biz/gulf-specimen-marine-laboratories-panacea-2>

The GSML will expand our ecotourism market with tour boats, beach walks and tram rides through our property inholdings on the trails of the St. Marks National Wildlife Refuge and canoeing and kayaking on Alligator Lake.

GSML revenue comes from ecotourism, specimen sales, aquarium memberships, donations, the Sea Mobile, school field trips, gift shop sales, research contracts, grants, and crowd funding drives and events. School field trips conducted on our 23 acres of private inholdings within the St. Mark’s Wildlife Refuge and on the boardwalk across our salt marsh property enables us to demonstrate both fresh water and salt water ecosystems. We highlight marine life from Wakulla, Franklin and Gulf Counties using artwork, graphics, an interactive kiosk and educational videos throughout the GSML facility.

Panacea needs ecotourism. It has the smallest population of Wakulla County. Over the years, it has gone from a boom to a bust economy. Back in the 1920’s it was a tourist attraction, with big hotels and people coming to “take the waters” of the Panacea Mineral Springs and go fishing with local guides. After the depression, the town turned into a thriving fishing community, with nine crab houses and hundreds of seafood workers and fishermen. People caught blue crabs, stone crabs, mullet, shrimp and oysters. The crab industry collapsed from overfishing, nets were banned. The rise of imports and fuel prices put an end to the commercial fishing way of life, until only a tiny remnant remained. The burgeoning real estate market has proven to be unsustainable and is often in conflict with environmental concerns, as forests and wetlands are destroyed in favor of housing development which damages the remaining commercial and recreation fisheries. Although there are forests for sale signs, most of the properties remain unsold largely due to FEMA regulations.

With the exception of Gulf Specimen, all the other attractions like Wakulla Springs and the St. Marks National Wildlife Refuge are located in the eastern part of the county. Wakulla County has two semi-public beaches, Mashas Sands Park and Shell Point are both small and shallow. Most of Wakulla's shoreline is salt marshes, oyster bars, grass and mud flats which are not conducive to swimming and recreation. Hence they are mostly bypassed by tourists, as they head to the popular beaches of Alligator Point, St. George Island and Cape San Blas which lie to the west.

Our existing facilities include over three acres of land with aquarium buildings, gardens, and inventory and display tanks that hold 80,000 gallons of sea water. These live tanks are supported by state-of-the-art sea water systems. GSML also has a 324-foot fixed dock with floating stalls, and a greenhouse used to culture phytoplankton, mysid shrimp and brine shrimp for aquarium food, both in house and for sale.

We own three boats, ranging from 16 to 26 feet, and three trucks. All are used for aquaculture, specimen collection and education. Our staff of eight paid Employees are assisted by numerous volunteers, and interns from FSU, FAMU and TCC.

Funding for Gulf Specimen's Master Plan was produced by the former vice president of Ripley's Aquariums USA and Canada will enable us to draw even more tourists to the area Expanding GSML's existing ecotourism program will be a boom to region, as well as Wakulla County. It will augment programs at Florida State University's Marine laboratory and TCC's Wakulla Environmental Institute. When people come down to the beaches of Franklin and Gulf Counties, having a unique world class nature center in Panacea will encourage them to extend their stays and explore the region. It will give them an additional place to visit and something to do. An upgraded attraction will also encourage them to eat seafood, and buy salt water products from local fish markets as well as eat in restaurants. Improving the exhibits will increase the time that people spend in the aquarium, encouraging them to stay longer, and eat at local restaurants.

Working with local businesses, plans are currently underway to overcome the lack of highway presence by branding Rock Landing road business community as "Fish Town." It will include a new oyster processing facility and a souvenir shop, the Rock Landing Marina, Mad Anthony's Restaurant, Gulf Specimen aquarium and Wakulla County's Commercial docking facilities.

With increased funding, we will be able to upgrade our outreach programs, increase our staff and expand our Sea Mobile program which brings more visitors that help boost the economy. Our goal is to make a strong connection between habitats, ecosystems, the shrimp, crabs and oysters that people love, the dinner plate, and the economy in a compelling, dynamic and unforgettable way.



First lady Anne Scott looks at a sea urchin in the Sea Mobile

E. Provide a detailed description of the quantitative evidence demonstrating how the proposed will promote: Economic recovery, Economic Diversification, Enhancement of the disproportionately affected counties, Enhancement of a Targeted Industry.

GSML continues to have a profound influence on the economy and sociology of Panacea over the past fifty years, and has remained a guiding force in protecting the environment. Residents have been exposed to visiting scientists, artists and writers that read Jack and Anne Rudloe's books, and came to visit. Working with Sachs Media of Tallahassee, we plan to expand our advertising and outreach programs which will help the disproportionately affected counties.

2. Additional Information

A. Describe the advertising and promotion mediums and locations where the advertising and promotion occur (If additional space is needed, please attach a Word document with your entire answer.)

Gulf Specimen uses a wide spectrum of advertising methods, which range from social media to highway advertising signs. Our advertising is nationwide however North Florida, Georgia and Alabama is targeted most heavily. Examples of advertising mediums are:

Brochures and Flyers (Aquarium, Specimen Sales, Group Tours)

- Semi-annual distribution (via in person delivery and mailings) to schools, daycares, and summer camps advertising Sea Mobile and Group Tours. 600-700 locations targeted.
- Annual mailing to universities and aquariums to market for specimen sales. 2400 locations targeted.
- Distribute at outreach events to advertise for the aquarium and the Sea Mobile. Average of 60 bookings per year.
- Monthly distribution to adjacent counties to advertise for public aquarium. 200- 250 locations are targeted across multiple counties to advertise for aquarium.
- Distributed at sea turtle releases to inform the public about our facility.
- 2000 brochures are sent to Florida Suncoast Tourism Promotions in June to be distributed throughout the year.

Social Media (Facebook, Twitter, and Instagram)

- Multiple platforms of social media are used to market for all aspects of the aquarium.
- Sea turtle release are advertised and promoted.
- Sea Mobile bookings and availability are promoted multiple times per year.
- Specimen sales are promoted multiple times per year.
- Promotion of special events. (Sharks and Chablis, Aquatic Adventures Summer Camp, Eco Tours, and other special events).
- New projects and exhibits are shared.

Constant Contact

- Weekly emails are sent informing specimen sales customers about the animals that we have available.
- Sea turtle release information is sent to all members.
- All special event information is sent to all members.
- All new projects and exhibits are shared with members.

Phone

- Calls are made multiple times per year to obtain more bookings for our outreach programs, the Sea Mobile and table displays.

Radio/TV

- Multiple radio ads are played. (Oyster Radio, WFSU Radio, some TV public service.
- Commercials, local news

Sea Mobile

- The Gulf Specimen Marine Lab Sea Mobile marine life educational traveling exhibit is a mobile aquarium complete with state of the art filtration system and able to house a wide variety of live marine life so that we can bring the aquarium to your school, festival, birthday party, or other special event. It holds 450 gallons of saltwater aquariums including 5 touch tanks with starfish, sea urchins, conchs, crabs, sponges and a variety of other interesting and colorful sea life from the Gulf of Mexico that are safe for children to pick up and handle. Also, 7 acrylic aquariums filled with octopus, stone crab, file fish, gorgonians, shrimp, and a variety of fish and invertebrates from the Gulf of Mexico. The Sea Mobile also has 2 Light microscopes with video camera adapters hooked to 2 LCD 46 inch flat screen televisions that allow visitors to see the intricate details of a sponge or tiny creatures such as amphipods swimming across the screen. There are also 2 Blue ray players hooked to the televisions so we can also play informational videos. Gulf Specimen Marine Lab has worked with school teachers to design lesson plans that meet federal and state standards, are formatted to specific grade levels, and teach children of varying ages about sea life, marine biology, and the conservation of our marine resources. Lesson plan topics include: sea turtles and their food webs, marine invertebrates major phylums, and more.
- <http://www.gulfspecimen.org/sea-mobile/>

Websites

- www.visitflorida.com
- www.visitwakulla.com
- www.visittallahassee.com
- www.apalacheebay.org
- www.aaa.com/travelguides

Other advertising

- Road signs

- Billboards (rented occasionally)
- 850 Magazine
- Tallahassee Magazine
- National Geographic
- Florida Environmental Outreach Magazine
- New York Times
- Tallahassee Democrat

?

B. Detail the current status of the advertising and promotion that will be supported by the proposed award and provide a detailed description of when and how the proposed award will be implemented. (If additional space is needed, please attach a Word document with your entire answer.) See Attachment O- Media Proposal

As you can see from the list provided in Question 2,A. The GSML has an extensive ongoing advertising and marketing efforts. With additional funding the GSML will be able to expand our advertising efforts and hire a local firm to implement a 6 month targeted marketing campaign to draw in new visitors, raise donations and increase memberships.

C. Provide any additional information or attachments to be considered for this proposal. (If additional space is needed, please attach a Word document with your entire answer.)

See Visit Florida Promotional video of GSML

https://www.youtube.com/watch?v=LMy4_cE4YaU



[Who is Gulf Specimen.pdf](#)



Jack Rudloe is the poet of Florida's waters and wetlands. *The Wilderness Coast* is a marvelous gathering of marine adventures exploring the shallows and estuaries of Florida's northwest Gulf Coast. Anyone who loves life in its bewildering and fascinating forms will treasure this book." —James Dickey

Shrimp: The Endless Quest for Pink Gold is a deep and expert look not only at an important human food source but also of the fragile complexity of the ecosystem in which it is created. —E. O. Wilson



[Click here](#) for links to full articles. [Click here](#) for books, book previews and a full bibliography.

We had been involved in endless controversies over the years to slow down the conversion of our wilderness coast into condominiums and trailer parks. The swamp represented 14 acres where the concrete, steel and asphalt could not follow.

— Jack & Anne Rudloe, "Why We Sank Our Money Into a Swamp"

INNOVATING WETLANDS EDUCATION



Aquarium, Living Dock & Marsh Tours

"We consider the vital role of marshes as nursery habitat and look at how tides control the way marshes grow." - Gulf Specimen Marine Lab's Aquarium Brochure



55,000 Gallons

"Unlike most public aquariums, we specialize in invertebrates and other small living treasures of the North Florida coast."



Videos

"Your willingness to nurture our students' curiosity about nature and helping them become good stewards of the environment has had positive impact on their views about the natural environment." - Jackie High, Principal, Riversink Elementary School, Wakulla County FL



INNOVATING WETLANDS EDUCATION



"Five large touch-tanks containing safe to handle colorful starfish, conchs, sea urchins, sponges, hermit crabs and other creatures provide the ultimate hands-on experience."

- Sea Mobile Field Trip Brochure



"This is not 'extra stuff.' ... It is critical to impart to our children ways they can help out now to avoid problems in the future. Our students want to be proactive, not reactive. They are realizing that the world they will inherit will need help."

**Pam Bridges, 5th Grade Science
Seminole Elementary, Donaldson GA**

Gulf Specimen Marine Lab's SeaMobile



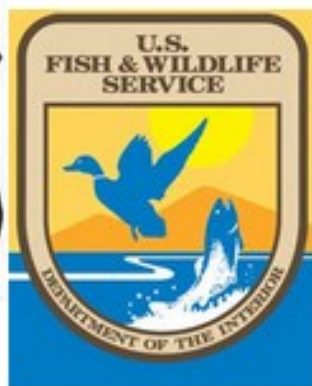
WATCH THE SEAMOBILE IN ACTION

Attachment L Partners

Our Partners

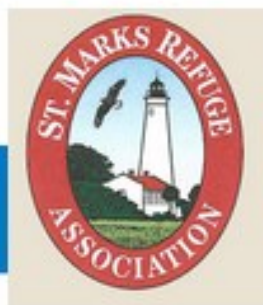


**Apalachicola
National Forest**



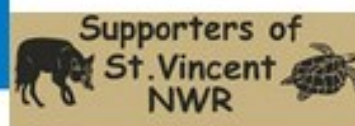
**National Wildlife
Refuge System**

St. Marks



**National Wildlife
Refuge System**

St. Vincent Island



**Edward Ball Wakulla
Springs State Park**



Wakulla Springs State Park



**Ochlockonee River
State Park**



**St. Joseph Peninsula
State Park**



**Dr. Julian G. Bruce
St. George Island State Park**



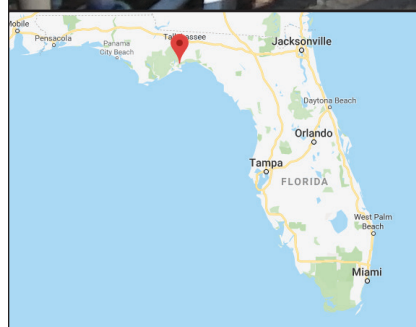
GSTC on Facebook
facebook.com/GeorgiaSeaTurtleCenter



Attachment M Turtle Foundation Article June 2018



Jack Rudloe
Co-Founder and President,
Gulf Specimen Marine Laboratory and Aquarium



Who is Gulf Specimen Marine Laboratory and Aquarium? It is not just an aquarium, nor is it just a marine lab, nor a tropical fish shipping plant, nor strictly a sea turtle rehabilitation facility. There is no other aquarium or marine laboratory like it anywhere in the world. It is a tiny, unique facility located in the quiet backwater town of Panacea on the Gulf of Mexico in the Florida panhandle.

School buses arrive daily from north Florida, south Georgia and Alabama; tour buses come from south and central Florida; all bringing hundreds of happy excited kids who stream in to the touch tanks to pick up horseshoe crabs and starfish. They watch our interns and volunteers feed sharks, sea turtles and moray eels. Nothing is more energizing than the laughter of children as they pick up a scallop and watch it open and close its valves, or see a nurse shark snap up a fish. One teacher told us, “Gulf Specimen is the only place where my students don’t use their cell phones for anything but taking pictures.”

They watch our staff busily gathering, boxing and shipping crabs, starfish, urchins and algae to schools, universities and biomedical institutions, and learn about their importance to science. We tell them how we helped to discover anticancer drugs and provided red beard sponges and toadfish that were sent up in the space shuttle. With phones ringing incessantly as scientists and educators order urchins for embryology, and fiddler crabs, sponges and tunicates for their classes, it looks like chaos.

But it’s not. It takes a lot to keep the place running. The staff has to assess water quality to make sure the fish are happy and safe for children to handle. They check the gauges on the pumps, the ultra violet sterilization and ozone units, tweak the protein skimmers to make sure they’re working properly and back flush the sand filters. Our collectors gather specimens with our small boats by diving, trawling and dredging. We grow barnacles and sea squirts off our “Living Dock” and use a lift net to gather jellyfish, squid and anchovies. We also have a very popular and growing summer camp program.

Gulf Specimen is a state licensed sea turtle rehabilitation center. Calls for stranded or hooked sea turtles that require trips to the local veterinarian for care are increasing yearly. During the hard freeze this year, our resources were strained when thousands of turtles washed up along the Florida panhandle. In the course of two days, nearly fifty young green turtles and Kemp's ridleys were brought into our lab to warm up and get veterinary care. Donations from sea turtle lovers helped to offset some of the expenses. When the waters warmed, hundreds of well-wishers came to St. George Island and cheered as they watched the turtles crawl back into the sea.



It was a glorious thing to do, we love turtles. I have written two books about them, and over the years my late wife Anne Rudloe and I published both scientific and popular articles about them. But caring for them is expensive. Gulf Specimen is not part of the money pipeline that flows into schools and universities. No “line item funding” for us: if anything, we survive on the drips and leaks of the funding pipeline. Our employees are mostly paid in sunsets and the opportunity to wade over freezing mud flats to rescue a frozen turtle or stranded dolphin.

Considering that GSML started in a shack in a remote fishing village with a population of 350, we have come a long way over the past half century. Much has been done. We have added new buildings, including the Mother Ocean building which Jimmy Buffett and others helped fund. We now have a new sea turtle hospital section with quarantine tanks. The aquarium abounds with exhibits and artwork, some from Florida’s renowned artist Christopher Still, who said that Gulf Specimen piqued his interest in sea life when he was eleven and first saw sea squirts squirt.

Large prints of sea creatures from the famous artist Walter Anderson, who lived on Horne Island in Mississippi and drew every creature he ever saw, adorn the walls of our teaching pavilion. Life-like fiberglass models of sharks, fish and sea turtles, and collections of preserved specimens are on display. Through generous donations of our supporters, we have become a popular environmental education center with nearly 20,000 visitors each year. Philanthropists have funded our traveling SeaMobile, with its touch tanks filled with live sea creatures, which enables us to take the sea to classrooms and festivals. Donors have also helped us rebuild and recover from four hurricanes.



Gulf Specimen Co-Founder and President Jack Rudloe and his staff ready some Kemp's Ridley sea turtles for release.

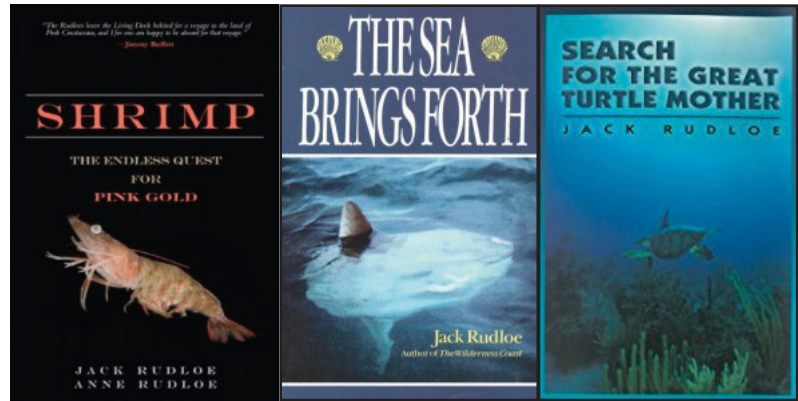
So the question is where do we go from here?

We begin with a master plan. Joe Choromanski, the former vice president of Ripley's Aquariums, has designed one for us to expand and modernize our facilities and still retain our old-fashioned Florida roadside attraction appeal.

Upgrading our sea water system, will enable us to keep more fish and invertebrates to further entertain and educate our growing number of visitors. We also plan a new classroom and auditorium that will display the works of National Geographic's famous photographer, Joel Sartore, who has taken hundreds of pictures of ma-

rine life at Gulf Specimen for his Photo-Ark project. Visitors will be able to see the 8,000 creatures he's photographed, including those taken at Gulf Specimen. There will also be a new display highlighting the books and articles written by co-founders, Jack and Anne Rudloe, as well as correspondence from John Steinbeck and other renowned authors.

To accomplish all of this, we need a new collecting vessel that will take us farther out into the Gulf to get a greater diversity of marine animals from deeper



waters and to res-

cue distressed turtles at sea. This larger vessel is also needed to go far offshore to trap octopuses. Visitors tell us that when those in our touch tanks wrap their tentacles and sucker disks around their fingers, it's a life changing experience. It's even more fun when we give octopuses a choice box with crabs representing the opposing teams, and watch them successfully pick the winners of the Super Bowl. But it all comes to an end when the octopuses mate and lay eggs and die. They have a short life cycle of only one year, so we have to collect new ones.

We have been here for over fifty years and hope to be here for another fifty. Generations of kids have come and gone, and now bring their kids and grandkids to Gulf Specimen. There has always been one overriding rule, and that is to "have fun with it."



Visit www.gulfspecimen.org to learn more and plan your visit!



Attachment N Awards

Local & National Recognition For Rudloes' Conservation Efforts



Anne Rudloe,
12/24/1947 to 4/27/2012

"Protecting the earth gives meaning and wholeness and a sense that you are contributing to a greater good. This earth should not be allowed to disappear. Now it is your turn."

Anne Rudloe, Co-Founder of Gulf Specimen Marine Lab, in a speech upon receiving the 50th Annual Chevron/Texaco Environmental Award in 2005.



Gulf Specimen Gets National EPA Award

Jack and Anne Rudloe, owners of Gulf Specimen Marine Lab in Panama, recently learned that the lab has received national recognition as an award winner in the U.S. Environmental Protection Agency's Gulf of Mexico Program.

The Rudloes were notified that Gulf Specimen Marine Lab is the third place winner of the Gulf Guardian Award for 2003 in the Youth and Education category. The award will be presented at the Southern States

tions, government, and partnership efforts.

Gulf Specimen Marine Lab has spent more than 40 years protecting the gulf coast through education and activism. Many of their education campaigns have focused on creating awareness of the importance of healthy estuaries and coastal salt marshes. The lab has made a point of focusing on opportunities for children to experience biology hands-

on through marsh field trips and special "touch tanks."

Jack and Anne Rudloe have published eight books and have had numerous articles printed in major national magazines dealing with protecting the Gulf from pollution. They also have years of experience and have conducted extensive research in sea turtle rehabilitation.

"Our oceans and coasts are

priceless resources," said Jimmy Palmer, U.S. Environmental Protection Agency Regional Administrator in Atlanta. "Coastal and marine waters provide some of the most diverse and biologically productive habitats on the planet," he added. "This year's Gulf Guardian Award winners are doing their part to keep these valuable resources healthy and productive."



[GSML named ChevronTexaco Conservationist of the Year 2004](#)



Jack Rudloe, President & Founder of Gulf Specimen Marine Laboratory, receiving the 2003 Gulf Guardian Award for Youth Education from US EPA Region 4 Administrator Jimmy Palmer, and US EPA Region 6 Administrator Richard E. Greene at the Southern States Environmental Conference in Biloxi, Mississippi.

American Association of
University Women

2009

Outstanding Community Women
Awards Luncheon

2009

AAUW Outstanding Community Women

Anne Rudloe, Ph.D.



Dr. Rudloe lives in Panama, Florida where she and her husband Jack run the Gulf Specimen Marine Laboratory. She is the Managing Director of the Lab where she has led its transformation into an award winning non-profit environmental center and public aquarium.

She is the author of 18 scientific research publications in the fields of animal behavior, marine ecology and endangered

Gulf Specimen Receives Environmental Award

The Wakulla County Chamber of Commerce awarded the first annual Environmental Stewardship Award on Monday, Sept. 26, to Gulf Specimen Marine Laboratories, Inc. The award was accepted by Jack Rudloe, vice president, and Anne Rudloe, president.

ment and Wakulla Medical Center.

The criteria used for selection included: use of environmentally sensitive building materials and methods; groundwater protection efforts; limiting use of chemicals and/or pesticides; use of alternative energy sources; and educational component; and



Mary Ellen Davis With Jack And Anne Rudloe



Tribute: Anne

Activist/Educator

Anne Rudloe's courage and unwavering commitment to the environment, her family, the many students that found enthusiasm for preserving vital wetlands due to her guidance and instruction, is unmatched. Her legacy lives in literary work, scientific research and the educational center she helped found and directed until her death in 2012.



[A Memorial to Anne Rudloe](#)



"We slog through marshes, pull beach seines, snorkel in sea grass meadows, hike across barrier islands, go down the watershed of an undeveloped estuary, and discover the rare, endemic wildflowers blooming in the globally endangered longleaf pine forests that grow behind the salt marshes,' she wrote in the 2002 spring issue of FSU's marine lab newsletter. 'The professor of record—me—is often upstaged by the real teachers of this class—the land and sea themselves.'"

- Anne Rudloe quoted by Elizabeth Bettendorf in "A Place, A Purpose, A Panacea,"
[Florida State University Research in Review Summer 2009](#) (link to full article)



Still in the Fight



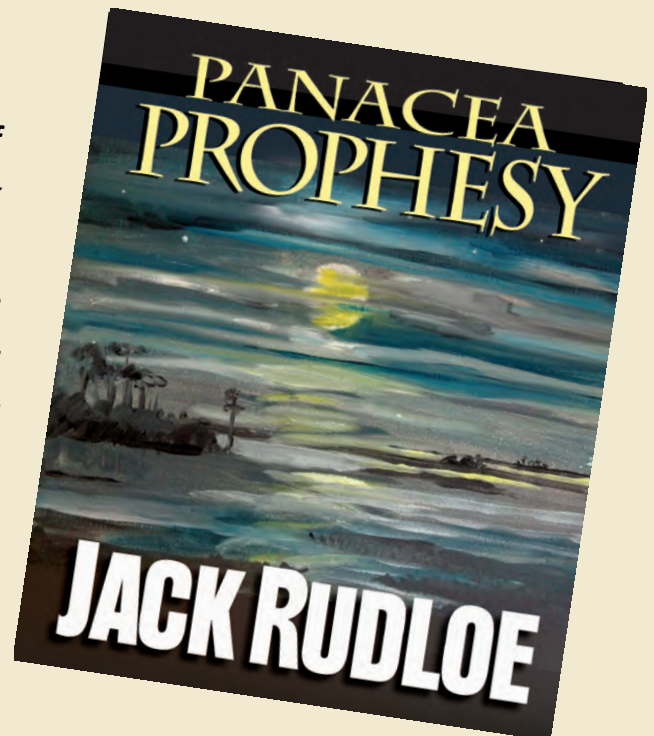
Read the full article
and other letters @
[Save Our Wetlands](#)

*"To a mullet foraging among the marsh
grass on an incoming tide, there is no
such thing as 'mean high water.'"*

- Jack Rudloe, "Why Save Wetlands" 1/26/13

***"Laden with the author's customary blend of
humor and unapologetic candor, the book
chronicles Rudloe's capers on behalf of his be-
loved coastal wilderness. Expected release
Summer 2014, Panacea Prophecy whispers
with the ghosts of dredged marshland begging
us this time to take heed."***

- Preprint Book Summary



Rudloe Reach		
Vehicle	Time Span	People Reached*
Gulf Specimen Aquarium Visitors	1980 - 2013	350,000
SeaMobile Audience	2010 - 2013	175,000
Rudloe Books	1968 - 2010	100,000
Lecture Appearances	1966 - 2014	25,000
Network/Cable TV News Appearances	1976 - 2011	20 million
Total		20,650,000*

Appendix O Gulf Education and Marketing for Marine Life Specialist Certification = GEMMS Certification

Rationale:

Gulf Specimen Marine Laboratory and Aquarium will be implementing a *Gulf Education and Marketing of Marine-Life Specialist* (GEMMS) Certification program designed to provide independent third-party certification of individuals who complete our unique intern/trade program.

This program is entirely new, bold and innovative. No such program currently exists anywhere in the world. Nonetheless, there is a strong market demand for the skill set this certification provides throughout the aquarium and aquaculture community. We are providing a bridging and entirely practical program that incorporates real skills that can at present only be acquired by work experience.

This certification is not a university based or university style program. This certification is designed to work as a standalone trade. It is based in practical hands on experience. As such, this program can complement a university degree in fields like marine biology but it provides an opportunity for university students to acquire practical skills university simply does not offer. This program is also designed to be accessible to non university individuals as a trade with widespread opportunity for future employment.

Although our certification is novel, components of our certification will meet or exceed three nationally and internationally recognised standards. The Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) Unified Supplier Reference Process, AALSO (Aquatic Animal Life Support System Operators) and the National Project for Excellence in Environmental Education (NAAEE). Meeting and exceeding these three standards will ensure that our certification is immediately recognisable and verifiable by industry and employers. We will also apply to the Florida Department of Education for licensing as an independent certification program in order to comply with the states robust education accountability system.

A GEMMS certification will ensure that an individual can handle all practical aspects of identifying, gathering, handling, maintaining, and shipping of marine life

for both aquaculture and wild caught specimens as well as being equipped to interact successfully with the public in promoting tourism and environmental education as part of the proper care and use of Gulf of Mexico coastal marine life.

We are qualified to do this certification because Gulf Specimen Marine Laboratory and Aquarium is a world renowned combination of marine life environmental education centre, aquarium and successful specimen marketing business. With over fifty years of experience we have proven our expertise and success in this market. We have accomplished this with little in the way of formal government or academic support. Over the years, we have also trained many individuals in our unique model. Our volunteers, interns and employees find employment in other environmental education centres, tourism, aquariums, aquaculture and in government. We already produce well trained and versatile individuals who are ready to enter the job market as specialists in marine life marketing, tourism and education, especially where specific to the Gulf Coast. (See Figure 1) There is no formal technical college, university or association that provides this unique combination of practical technical skills combined with marketing tourism and educational skills that allows for fullest possible utilization of marine life. (See Appendix 1 and 2.)

The value of our model is already well established. Our current business model provides us with a steady supply of volunteer labour in the form of interns from academic institutes, public schools, the general public and individuals doing community service as part of their rehabilitation in the criminal justice system. These individuals form the backbone of our business. A letter of recommendation from GSML is a virtual guarantee of employment because of our reputation for training with a combination of practical hands on skills, a strong emphasis on sustainable and environmentally sound principals, and quality interactions with the public. However, our current model does not generate income for us, nor has it been standardized to provide uniform qualifications to our trainees. Certification will change that.

Figure 1: Our current model:

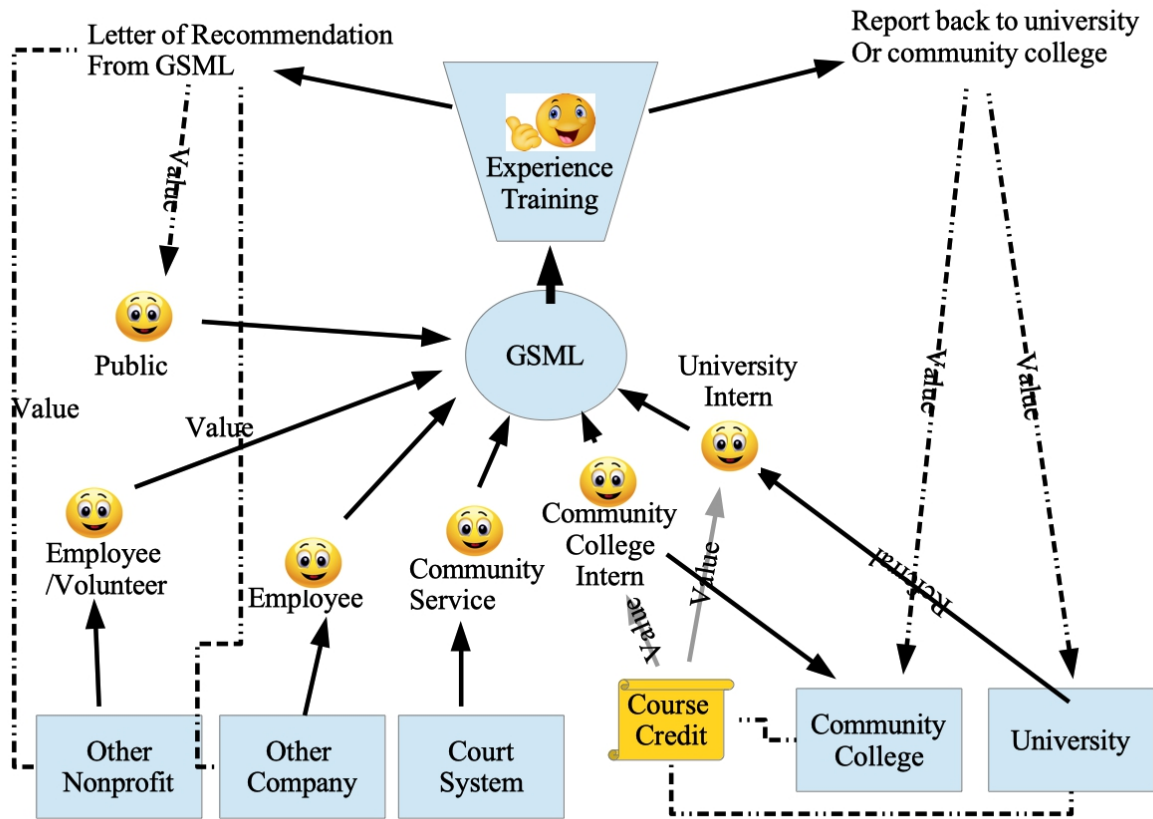
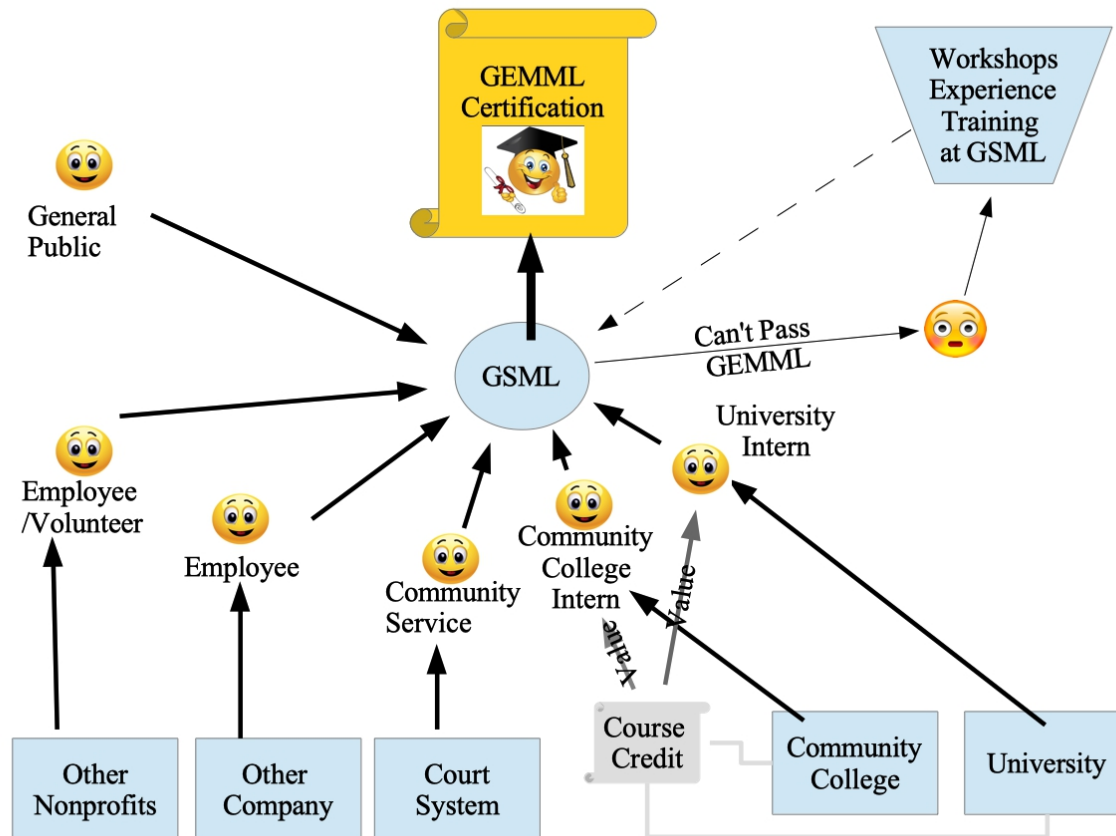


Figure 2: Our model with Gulf Education and Marketing for Marine Life Specialist Certification = GEMMS Certification



We are improving our current proven model with one that ends with a certification process. Candidates in our current program are already tested for their general knowledge in all our component areas. We simply intend to formalize this process with certification. Such formal certification will ensure every individual who completes our program will have the same set of skills. Those who do not master our skill set or who are missing components in training will be immediately identified for remedial training. Furthermore, our new certification program can also be readily combined with outside academic and business training to enhance an individual's skills and employability in another program because the skills we certify will also be independently verifiable. (See Figure 2)

GSML currently provides this training service to the community without charge. This new formal certification model will improve our business by generating income for this service in addition to standardisation and independent verification. We can then use this new income stream to expand our business model and enlarge our certification program as demand grows.

Determining who to certify:

The first critical step in developing a certification examination is deciding what knowledge, skills and abilities should be assessed to determine whether a candidate has the qualifications necessary to become certified. From our fifty plus years of experience we know the kind of person who will benefit from our training. Such a person should enjoy a work environment that is often outdoors and where conditions can change rapidly requiring a high degree of adaptability. No two work days are ever the same. Interest in and love of animals as well as willingness to interact with the public is also essential. No formal educational standard such as a post-secondary degree will be required as we have not found any direct correlation between a specific degree that predicts success. Some previous formal training in biology and mathematics at the high school level is beneficial but not essential.

The certification examination candidate

The certificate examination candidate will have 250 hours of onsite supervised work experience, have completed twelve academic style assignments that are designed to increase knowledge of local habitats, invertebrate organisms, and fish health. The candidate will have worked in an onsite lab learning sponge reaggregation, basic sea urchin embryology, and bioluminescence. The candidate will have acquired skills and knowledge of aquarium water system maintenance that meets the *Aquatic Animal Life Support System Operators* certification standard. Students will also be competent and knowledgeable in environmental education to the standards of the *National Project for Excellence in Environmental Education (NAAEE) core competencies* with a knowledge base specific to the Gulf of Mexico. (See Appendix 3)

Job task analysis and objective domain

Candidates who meet our certification standards will have the following skills set. They will be able to handle all aspects of water quality maintenance such as pH, salinity, and nitrogen waste products, maintenance and repair of aquatic life support system components such pumps and filters, knowledge of the basic safe boating operation, collection, preparation, and delivery of marine organisms especially invertebrates, marine life display design, the ability to interact with the public and school groups, have a broad knowledge of Gulf species and environmental and sustainability issues related to the sea food and aqua culture industry and an ability to lead off site field trips and conduct group activities appropriate for both education and tourism.

Examination Process

Prior to examination students will have the opportunity to take two mock exams with content similar to, but not the same as, the actual test. The examination process itself will be conducted in a separate off-site location and it will be supervised by at least

two external examiners who hold professional degrees (teacher, lawyer, engineer, university professor) who have no personal connection to the student and who can attest that the exam was administered in a fair and independent manner. These same individuals will mark the exams and report back to GSML on the results. Only those candidates who can complete the independent examination process will be certified. We will require that candidates who do not pass the exam take remedial steps to fill in the gaps in their knowledge and then be re-examined at a later date not less than ten days later.

Recertification:

Certification will be considered good for five years at which time certificate holders can opt for recertification by retaking the exam. We will also offer recertification workshops to review material and update requirements prior to re-examination.

Additional Benefits of a Formal Certification Program

The most important result of this program will be that with aquaculture rapidly expanding in Florida, we will be preparing the local workforce to be ready to immediately take advantage of the new local employment opportunities the expanding aquaculture industry will provide.

Benefits to Graduates or our Program

Our staff are already members and have been certified by and will intend to comply with *Aquatic Animal Life Support System Operators* (AALSO). This organization is a partnership between industry and manufacturers of aquarium supplies and aquarium operators of all sizes that provides a two level internationally recognised certification standard, Level One Life Support Operator and Level Two Water Quality Technician. AALSO provides, study material and exams. Exams are completed at yearly their conferences and workshops. AALSO certification is the standard recognised by aquariums worldwide and requests for employment in the field often require AALSO certification either before hiring or as part of on the job training. The certification is also utilized by vendors and manufacturers internationally. Our certification will indicate our graduates meet this specific and measurable standard. Any individual who passes our certification will also be able to easily pass the AALSO examination if they choose to attend the yearly conference.

Benefits of Partnership Opportunities with Vocational, Secondary and Post-Secondary Institutions:

We are proposing a program with a heavy emphasis on practical technical work skills, our primary goal is to produce work ready technicians with direct, hands on experience and skills. Nonetheless, in our current model, we have interns who earn academic credit while working as volunteers with us. We therefore foresee continuing our partnerships with vocational, secondary and post-secondary schools

where our practical certification will be an excellent complement to their formal academic training programs.

Benefits of certification for business in Wakulla and area.

There are many small businesses in our region that already benefit from our facility. We frequently offer informal advice and training and we benefit immensely from the support of local businesses. A formal certification program would allow local businesses to more readily access our experience and knowledge by having their employees take all or part of our certification training program. For example, a restaurant owner could benefit from increased understanding of the ecology and life cycle of marine life and education and outreach to tourists. Oyster aquaculture can benefit from our Marine Animal Husbandry and Water System Management and safe boating components as a complement to their own specialised knowledge. Businesses can hire graduates of our program knowing they have successfully completed a program of practical work experience and have a well-defined skill set.

Benefits to Volunteers

We see our certification as a direct entry mechanism to allow members of the general public to be certified in a meaningful and direct way that enhances their usefulness as volunteers and potential employees. Aquariums all over the Gulf, especially those involved in marine life rescue and rehabilitation, have many individuals who want to work in the aquarium not their primary career choice but as volunteers and/or hobbyists. Training these eager volunteers takes time and resources because volunteers lack practical skills. Thus, volunteers are often an underutilized potential resource. Our certification will give volunteers the training and experience they need to be useful to other aquariums and rescues and free up resources currently used training them. Volunteers and hobbyists will also be able to choose to do only those components directly relevant to them. We foresee a future where potential volunteers to outside aquariums and rescue organisations will be referred to us for certification that provides general preparation for work as volunteers in their facility.

Benefits to Individuals Doing Court Mandated Community Service

GSML has long provided opportunities for individuals who have come in conflict with the criminal justice system to complete community service orders within our facility. For many of them, their experience in GSML has been life changing. They have acquired life skills and successfully reintegrated into society and ceased to offend. By having a formal certification program, we will be able to better monitor their community service contribution and distinguish those who are ready to rebuild their lives with gainful employment. We will also have provided a formal certification that such individuals can use to easily prove they are indeed ready for employment.

Benefits to the Community

We see individuals from all over the state and beyond traveling to Wakulla to visit GSML as tourists. We foresee expanding this tourist industry with those who wish to take our workshops and training courses. We are including specific components directly relevant to our community, such as “*Gain knowledge of local fisheries and history of seafood industry including local restaurants & menus as well as demonstrating knowledge of the habitats and species commonly utilized in the seafood industry.*” We will be improving the overall standard of education and training for all members of our community and beyond even if they do not intend to become specialists or volunteers working directly in the field.

Future Directions for our Certification Program

Once we have implemented our certification program we foresee opportunities to create additional specific certifications for the community that include subsets of our full program. These additional certifications would grow out of our GEMMS certification program.

Examples include certification in;

Sustainable Seafood for Restaurants.

Gulf Coast Specific Environmental Continuing Education for Teachers.

Maintaining Water Quality for Aquariums and Aquaculture.

Cleaning and Repairing Water Pumps and Water Systems Plumbing.

Identifying and Managing Marine Fouling Organisms.

Appendix 1: Specific Requirements for full GEMMS Certification:

1. Provide 250 hours of onsite supervised work experience (minimum of two days per week 9-5).
 - A. This 250 hours of onsite work will initially only be available at GSML. As our program expands we will certify other facilities as being appropriate to provide work credit for all or part of this practical work experience.
 - B. 12 completed academic style assignments that are designed to increase knowledge of local habitats, invertebrate organisms, and fish health. (This portion will initially be available only through GSML but as our program expands we will certify other facilities as being appropriate to provide specialized assignments pertinent to their facility and GSML will view and approve the assignments.)
 - C. Work in our on-site lab that covering sponge reaggregation, basic sea urchin embryology, and bioluminescence.

Detailed Core Competencies of Gulf Education and Marketing for Marine Life Certification

Component One: Marketing of Live Specimen Collection

- A. Proper collection of marine organisms from the following environments:
 1. tidal flats
 2. sea grass beds
 3. dockside fouling community
 4. salt marsh seining
 5. scallop dredge and/or shrimp trawl from boat
- B. How to prepare marine specimens for successful shipment to customers consistent with species requirements and shipping modalities.

Gulf Specimen Marine Laboratory is part of The Association of Zoos and Aquariums (AZA) Taxon Advisory Group (Aquatic Invertebrate TAG, Freshwater Fishes TAG, and Marine Fishes TAG) which are developing a method to evaluate non-AZA facilities and commercial animal suppliers for compliance with AZA standards. We are in the first group of organizations undergoing this certification for compliance standard. Our program training conforms to these requirements.

C. Understanding rescue, rehabilitation, and release of an injured marine animal (e.g.: sea turtles) and the pertinent guidelines established by Federal, State and local Fish and Wildlife agencies.

D. Establishment and Maintenance of Invertebrates collection

E. Establishment and Maintenance of Gulf Estuarine Fish collection from the Gulf

F. Boating safety component: All students will be required to pass the [Official Florida Boating Safety Course](#).

Component Two: Education and Outreach

- A. Identify and discuss a minimum of 250 common marine organisms
- B. Demonstrate an ability to lead discussions of threats to the local habitats and organisms
- C. Exhibit knowledge of local fisheries and history of seafood industry including local restaurants & menus as well as demonstrating knowledge of the habitats and species commonly utilized in the seafood industry
- D. Lead field trips that may include tour of aquarium only, aquarium and dock, or aquarium, dock, and a trip to salt marsh
- E. Act as a guide on a field trip held at off site or at another facility such as local parks, and public docks
- F. Serve as docents helping the aquarium visitors to learn about the animals and habitats exhibited.
- G. Demonstrate specific knowledge of GSML invertebrates collection.
- H. Demonstrate Specific knowledge of GSML Estuarine Fish collection.

We will ensure our graduates comply with the requirements of the North American Association for Environmental Education Core Competencies with Gulf of Mexico specific topics and examples. (See Appendix 3)

Component Three: Marine Tank Maintenance and Marine Animal Husbandry

Cleaning and maintenance of a wide variety of aquariums from glass, acrylic, and fiberglass. Duties include:

siphoning detritus,

- Identifying biofilms and controlling fouling organisms in aquarium displays
- Proper maintenance of acrylic versus glass surfaces

- Understanding the importance of air and water flow in marine animal husbandry
- Proper application of lighting, light spectrum, and species specific diurnal cycles.
- How to achieve behavioural and psychological well-being of organisms through interior décor and display design
- Types and usage of various large and small aquarium maintenance equipment
- Learning the rationale behind visual monitoring and inspection.
- When and how to breakdown and redo tanks
- Understanding and maintaining quarantine system for collected fish and shellfish. When and how to use prophylactic treatment of collected organisms during quarantine
- Identification, care and treatment of diseased or injured fish or shellfish.
- Use and theory of protein skimmers.
- Use and theory of diatom filters.
- Use and theory of ozonator
- Use and theory of ultraviolet light sterilization of water.
- Maintaining invertebrates in collection (Example Octopus and ctenophores)
- Estuarine Fish collection from the Gulf

Component Four: Water System Management

Supervised work on water systems including:

- Introduction to basic PVC plumbing
- Artificial sea salts and their proper uses in marine animal husbandry
- Understanding filtration systems that require “back flushing” and how they work.
- Proper maintenance and use of sand filters,
- Proper maintenance and use of protein skimmers,
- Application of diatom filters in marine husbandry
- When and how swimming pool filters can be useful in marine husbandry
- Function and maintenance of aquarium sumps
- Importance of salinity, pH, dissolved oxygen in marine animal husbandry

- The animal waste product cycle of ammonia to nitrogen and how to prevent waste build up in aquarium systems
- advantages and disadvantages of electronic probes and chemical test kits.

Component Three and Four certification: Our current standards are already in compliance with *AALSO Field Guide (Aquatic Animal Life Support System Operators)* AALSO (Aquatic Animal Life Support System Operators) is a 501 c6 non-profit organization focusing on the education and training of aquatic life support operators in hundreds of facilities around the world. AALSO creates a pathway for members to learn about the latest technology in the industry and acts as a forum for members to connect and discuss the care of aquatic animals in captivity. (See Appendix 4)

As noted in our proposal (page 167) graduates of our current intern program are now employed in fish and wildlife services (both in Florida, in other states and federally), aquariums and science centers, entry level employment with state or federal parks, and environmental regulatory agencies such as DEP and EPA. They have also gone on to work for politicians, helping to establish policy. In response to the comment that there is little detail of labor market demand we would like to add the following information. There is no formal training program for this skill set. We examined several employment opportunity databases seeking employees with skill sets matching those we have designed in our GEMML program and that do not require a university degree. All of these position do require the kind of experience and training offered by our certification program. These alternate job titles include but are not limited to the following table. This table was prepared using a Florida only search and so these are jobs available at the time we did this search.

(<https://www.indeed.com/jobs?q=Aquarium&l=florida> search February 3, 2019)

Job Title with descriptions matching GEMML certification	University Requirement	Practical Experience or Training Requirement
Exhibits Technician	No	Yes
Aquarium Technician	No	Yes
Aquarium Maintenance Technician	No	Yes
Aquarium Service Technician	No	Yes
Biological Science Technician	No	Yes
Water Quality Technician	No	Yes
Fish and Wildlife Technician	No	Yes
Packing Technician	No	Yes
Aquarium and Pond Service Technician	No	Yes
Pond Maintenance Foreman	No	Yes
Water Treatment Mechanical Technician	No	Yes
Water Quality and Life Support Manager	No	Yes
Animal Collections Safety Technician	No	Yes
HVAC Technician	No	Yes
Fish Tank Maintenance Technician	No	Yes
Grounds Irrigation Technician	No	Yes

SeasSummerEdSpecialist MDA	University preferred but not required	Yes
----------------------------	---------------------------------------	-----

Potential Impact of GEMML on Aquaculture:

The aquaculture industry in Florida is in its earliest stages. It is currently focused on oysters.⁽¹⁾ One of the biggest barriers to the establishment of a booming aquaculture industry worldwide is a lack of trained labor that is so acute the industry is forced to import workers from other countries. (66,000 in the USA) Meanwhile, the pan handle of Florida has widespread unemployment and poverty. The creation of small and family owned operations is not going fill this growing labor shortage. Aquaculture needs trained labor and there is no industry recognized training program in the USA that specifically aims to meet that need.⁽²⁾ As an example of this, Newfoundland Canada has a booming aquaculture industry yet there is currently an eleven percent shortage of labor for aquaculture technicians in Newfoundland Canada⁽³⁾ Canada is setting up a new four month aquaculture technician training program to meet the need for a trained labor force in British Columbia. ***New certifications are being developed driven by the new industry.***⁽⁴⁾ Furthermore, expansion beyond oyster aquaculture is going to require trained labor already exposed to multiple other potential sources of aquaculture beyond oysters.⁽⁵⁾ Gulf Specimen Marine Laboratory is already a proven specialist in the use and marketing of diverse species beyond oysters. There is simply no equivalent in Florida, or the USA to our proposed Gulf Education and Marketing for Marine Life Specialist Certification (GEMML). We foresee multiple job opportunities for graduates of the GEMML certification as aquaculture expands and grows in the panhandle. GEMML certification is practical hands training on with graduates coming out of the program already knowing real practical knowledge such as how prepare a specimen for shipping, how to start a boat motor, or how fix a broken pipe. Labor shortage is one of the factors holding the aquaculture industry in Florida back. Our bold and innovative certification is aimed directly at fixing the shortage of practical hands on labor, trained right here in Florida. Our graduates will not just fill a need, they will create opportunities for the industry to grow.

Jobs in the Florida Aquarium Industry

There are currently one hundred and fifty four aquariums that Gulf Specimen Marine Laboratory supplies specimens to. Of those seventeen (11%) are located in Florida. There are twenty four aquariums in the state who are members of *Visit Florida* ⁽⁶⁾, three of which are located in the pan handle. All of these aquaria require employees and there is currently no formal aquarist technician training program for working in these aquariums. This is why participation in our present informal intern program and a letter of recommendation from Gulf Specimen Marine Laboratory is so popular. Practical experience is a virtual guarantee of employment in the aquarium industry.

References

- 7) <https://www.aquaculturenorthamerica.com/shellfish/oyster-farmers-find-strength-in-numbers-2002>
- 8) <https://www.aquaculturenorthamerica.com/news/guest-workers-fill-key-role-in-seafood-industry-1490>
- 9) <https://www.aquaculturenorthamerica.com/news/funding-to-boost-nls-aquaculture-labor-market-2060>
- 10) <https://www.aquaculturenorthamerica.com/showcase/demand-for-aquaculture-technicians-prompts-new-certificate-program-2064>
- 11) <https://www.aquaculturenorthamerica.com/profiles/rebranding-integrated-multi-trophic-aquaculture-into-3d-ocean-farming-inspires-attracts-followers-beyond-industry-borders-2038>
- 12) <https://www.visitflorida.com/en-us/things-to-do/attractions/25-aquariums-around-florida-for-families.html>

Appendix 1: Example One Current Intern Programs at GSML

Gulf Specimen Marine Laboratory and Aquarium FSU Directed Individual Study (DIS) Aquarist Internship

Internship Coordinator: Jessica Woodall

Phone: Cell: 706-975-9614 (you may call or text)
Lab: 850-984-5297
Email: woodallj@gulfspecimen.org

Course Description and Goals

The DIS Aquarist Internship is an on the job learning experience. In keeping with the GSML&A mission interns will facilitate learning about our world ocean by sharing the living marine organisms of our local waters with visitors to the aquarium, research scientists, teachers, and aquarists ordering specimens.

Our goal is to give students the full experience of a regular position at GSML&A. We expect that the internship be taken just as seriously as a full-time job in your career field. This internship seeks to introduce students to a variety of skills and knowledge which apply to the three main branches of operation at GSML. The three main branches of GSML are biological supply, marine life educational programs and sea turtle rehabilitation.

Students will gain:

- General knowledge of local marine species,
- Techniques for collecting and maintaining biological specimens for research and education
- Knowledge of research related to specimens obtained through GSML&A
- General boating experience
- Aquatic marine life husbandry skills, feeding and nutrition, disease assessment and treatment
- Water quality monitoring skills
- Public speaking experience
- Experience conducting education programs, both interacting with the public visitation & school groups
- Recovery and handling of sick or injured sea turtles and sea turtle rehabilitation procedures

In short, interns should leave with an array of skills that add to their academic accomplishments and will make them more marketable in their chosen field. Those who get the most out of a DIS internship at GSML&A are those who are self-motivated. The lab staff do our best to make sure interns take away as much as possible from their experience. That being said, the best way to truly get the most out of your time here is to be willing to look up information at home, ask lots of questions, take full advantage of materials provided, get as involved as possible and go the extra mile.

What to Expect Each Semester: Internships vary slightly with the time of year.

Fall Internships

Fall semester usually starts at the end of August and runs until the end of December. Fall internships at GSML are usually very involved with filling orders for the biological supply and collection of marine life. During this semester there are moderate numbers of aquarium tours in November and October.

Spring Internships

Spring semester usually starts in early January and runs until the end of April. Spring

internships at GSML are usually very involved with both filling orders for the biological supply, collection of marine life and conducting the marine life educational tours.

Summer Internships

Usually summer semester starts mid-May and runs to the end of July. Summer internships at GSML are usually very involved with conducting marine life education tours with a moderate amount of orders for the biological specimens.

Student Assignments Calendar:

Materials for and details of each assignment are located on the student flash drive. Students will submit the required assessments to me by the dates given below, they can be emailed to me at the address above. Assignments can be completed in advance and submitted early at any time. Complete assignment descriptions are given in the file "Assignment Descriptions" on your flash drive. Each assignment must be submitted by midnight on the day that it is due.

Due Dates

Jan. 6, 2019	Orientation	
Jan. 13, 2019	Assignment 1 –	Flashcards
Jan. 20, 2019	Assignment 2 –	Aquarium Tour Outline
Jan. 27, 2019	Assignment 3--	Dock Tour Outline
Feb. 3, 2019	Assignment 4--	Seaside Naturalist Chapters 1, 2, &15
Feb. 10, 2019	Assignment 5--	Fish Health Videos and Quizzes
Feb 17, 2019	Assignment 6--	Labs-Date to be determined
Feb. 24, 2019	Assignment 7--	Seaside Naturalist Chapters 3,4,5,&6
Sponges, Cnidaria		
Mar. 3, 2019	Assignment 8--	Seaside Naturalist Chapter 8 Worms
Mar. 10, 2019	Assignment 9--	Seaside Naturalist Chapter 9 Mollusks
Mar. 18, 2019	SPRING BREAK SPRING BREAK SPRING BREAK	
Mar. 24, 2019	Assignment 10-	Seaside Naturalist Chapter 10 Arthropods
Mar. 31, 2019	Assignment 11	Seaside Naturalist Chapter 12 Echinoderms
Apr. 7, 2019	Assignment 12	Seaside Naturalist Chapter 14 Fish
Apr. 14, 2019	No Assignment	
Apr. 19, 2017	Last Day of Internship	

Attendance Policy:

The attendance policies are fully explained in the Attendance Policy Agreement. You will receive and sign this on the day of orientation.

Materials Required for Course:

The Seaside Naturalist: Deborah A. Coulombe- Copies will be for sale for \$10 at orientation.

Internship Flashdrive-Provided by Gulf Specimen Marine Lab

These training materials are provided to help expand your knowledge base. They are required and should be returned the last week of the internship.

Appendix 2: Example Two Current Intern Programs at GSML

Gulf Specimen Marine Laboratory and Aquarium TCC Directed Individual Study (DIS) Aquarist Internship

Internship Coordinator: Leslie Breland

Phone: Cell: 386-209-7240 (you may call or text)
Home: 850-713-0173
Lab: 850-984-5297

Email: brelandl@gulfspecimen.org

Course Description and Goals

The DIS Aquarist Internship is an on the job learning experience. In keeping with the GSML&A mission interns will facilitate learning about our world ocean by sharing the living marine organisms of our local waters with visitors to the aquarium, and research scientists, teachers and aquarists ordering specimens.

Our goal is to give students the full experience of a regular position at GSML&A. We expect that the internship be taken just as seriously as a full-time job in your career field. This internship seeks to introduce students to a variety of skills and knowledge which apply to the three main branches of operation at GSML. The three main branches of GSML are biological supply, marine life educational programs and sea turtle rehabilitation.

Students will gain:

- General knowledge of local marine species,
- Techniques for collecting and maintaining biological specimens for research and education
- Knowledge of research related to specimens obtained through GSML&A
- General boating experience
- Aquatic marine life husbandry skills, feeding and nutrition, disease assessment and treatment
- Water quality monitoring skills
- Public speaking experience
- Experience conducting education programs, both interacting with the public visitation & school groups
- Recovery and handling of sick or injured sea turtles and sea turtle rehabilitation procedures

In short, interns should leave with an array of skills that add to their academic accomplishments and will make them more marketable in their chosen field. Those who get the most out of a DIS internship at GSML&A are those who are self-motivated. The lab staff do our best to make sure interns take away as much as possible from their experience. That being said, the best way to truly get the most out of your time here is to be willing to look up information at home, ask lots of questions, take full advantage of materials provided, get as involved as possible and go the extra mile.

What to Expect Each Semester: Internships vary slightly with the time of year.

Fall Internships

Fall semester usually starts at the end of August and runs until the end of December. Fall internships at GSML are usually very involved with filling orders for the biological supply and collection of marine life. During this semester there are moderate numbers of aquarium tours in November and October.

Spring Internships

Spring semester usually starts in early January and runs until the end of April. Spring internships at GSML are usually very involved with both filling orders for the biological supply, collection of marine life and conducting the marine life educational tours.

Summer Internships

Usually summer semester starts mid-May and runs to the end of July. Summer internships at GSML are usually very involved with conducting marine life education tours with a moderate amount of orders for the biological specimens.

Student Assignments Calendar:

Materials for and details of each assignment are located on the student flash drive. Students will submit the required assessments to me by the dates given below, they can be emailed to me at the address above. Assignments can be completed in advance and submitted early at any time.

Due Dates

- Aug 28:-- Orientation: 9-12 at GSML&A, 222 Clark, Panacea, FL 32346
Sep 4: Assignment 1: ID Flashcards, common name of aquarium tour organisms.
Sep 11: Assignment 2: TCC Assignment 2 Estuaries:
Sep 18: Assignment 3: TCC Assignment 3 Seagrass
Sep 25: Assignment 4: TCC Assignment 4 Oyster Reef
Oct 2: Assignment 5: TCC Assignment 5 Salt Marsh
Oct 9: Optional : Sunday Lab: Demonstrations of common labs performed using GSML&A specimens:
 1. Cellular reaggregation of sponges
 2. Sea urchin egg development
 3. Bioluminescence
Oct 16: Assignment 6 :TCC Assignment 6 Fouling Community
Nov 23-26 Thanksgiving Holiday Do not report to work
Dec 5-9 Finals, Do Not report to work

: Attendance Policy:

The attendance policies are fully explained in the Attendance Policy Agreement. You will receive and sign this on the day of orientation.

Training Materials Provided:

The Seaside Naturalist: Deborah A. Coulombe Internship Flashdrive

These training materials are provided to help expand your knowledge base. They are required and should be returned the last week of the internship.

Appendix 3: National Project for Excellence in Environmental Education (NAAEE)

The National Project for Excellence in Environmental Education (NAAEE) core competencies was established in 2006 and is currently in use for the states of Kentucky, Texas and Utah and is being developed for use in South Carolina. We intend to partner with NAAEE certification to create a Florida specific program that aligns with our own certification. While there are several formal environmental educator programs in Florida associated with universities and technical colleges, no equivalent to NAAEE (which allows certification of formal educators, technical and volunteer staff) currently exists in Florida. This certification can thus be translated into job opportunities for those outside the formal academic stream while still being of value to those within it. Our goal is to simply formalize the already excellent record Gulf Specimen enjoys. The NAAEE core competencies are made of six themes.

Theme 1: Environmental Literacy

- 1.1 Questioning and Analysis Skills
- 1.2 Knowledge of Environmental Processes and Systems
- 1.3 Skills for Understanding and Addressing Environmental Issues
- 1.4 Personal and Civic Responsibility

Theme 2. Foundations of Environmental Education

- 2.1 Fundamental Characteristics & Goals of Environmental Education
- 2.2 How Environmental Education is Implemented
- 2.3 The Evolution of the Field

Theme 3: Professional Responsibilities of the Environmental Educator

- 3.1 Exemplary Environmental Education Practice
- 3.2 Emphasis on Education, Not Advocacy
- 3.3 Ongoing Learning and Professional Development

Theme 4: Planning and Implementing EE

- 4.1 Knowledge of Learners
- 4.2 Knowledge of Instructional Methodologies
- 4.3 Planning for Instruction
- 4.4 Knowledge of Environmental Education Materials and Resources
- 4.5 Technologies that Assist Learning
- 4.6 Settings for Instruction
- 4.7 Curriculum Planning

Theme 5. Fostering Learning

- 5.1 A Climate for Learning About and Exploring the Environment
- 5.2 An Inclusive and Collaborative Learning Environment
- 5.3 Flexible and Responsive Instruction

Theme 6: Assessment and Evaluation

6.1 Learner Outcomes

6.2 Assessment That is Part of Instruction

6.3 Improving Instruction

6.4 Evaluating Programs

For further information on the NAAEE please see:

<https://naaee.org/eeopro/resources/certification-based-individuals>

Appendix 4:

Core Components of AALSO are taught in 18 sections.

Section 1: Diversity Found in Aquatic Exhibits

Section 2: Safety

Section 3: Laboratory Equipment

Section 4: Quality Assurance and Assessment

Section 5: Water Quality Theory and Testing

Section 6: Laboratory Chemistry and Specialized Chemical Additions

Section 7: Pumps and Motors

Section 8: Valves

Section 9: Filtration

Section 10: Disinfection and Sterilization

Section 11: Cathodic Protection

Section 12: Heat Exchangers

Section 13: Automation and Control System

Section 14: New Construction

Section 15: LSS Operational Standards

Section 16: Applied Mathematics

Section 17: Applied Mathematics for Water Quality Technicians

Section 18: Applied Mathematics for Life Support Operators

Attachment P

Bryostatin

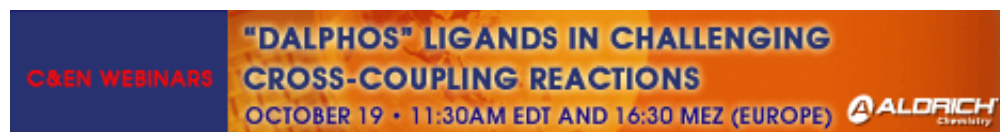
[Chemical & Engineering News](#)

Serving the chemical, life sciences and laboratory worlds

[Cover Story](#)

[Home](#) » [October 24, 2011 Issue](#) » [Cover Story](#) » The Bryostatins' Tale

Advertisement



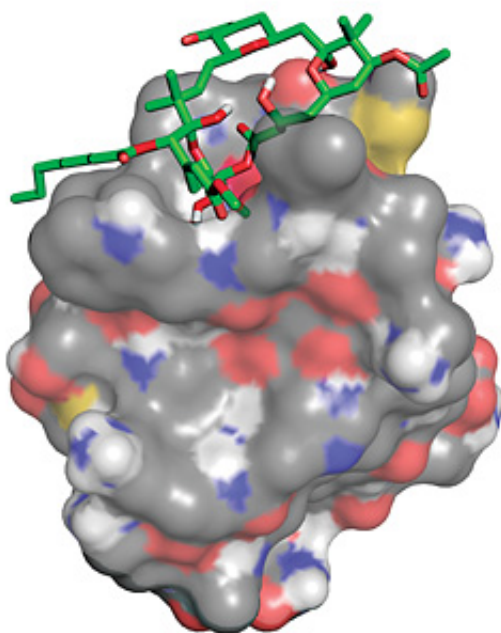
[Advertise Here](#)

October 24, 2011
Volume 89, Number 43
pp. 10 - 17

The Bryostatins' Tale

With the promise of treating cancer, Alzheimer's, and HIV, this family of marine natural products continues to intrigue scientists more than four decades after its discovery

[Bethany Halford](#)



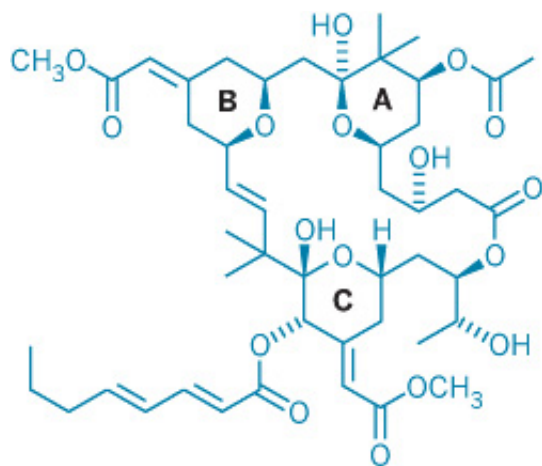
Adam Lesser & Brian Loy

BRYOSTATIN BOUND A hypothetical model, based on computational studies, of bryostatin 1 binding to PKC.

One June day in 1968 marine biologist Jack Rudloe went down to collect specimens from the docks at his local marina on the northern Florida coast of the Gulf of Mexico. As the man behind [Gulf Specimen Co.](#), Rudloe was used to catching some of the Gulf's more interesting creatures—electric rays, bonnethead sharks, and live jellyfish—for aquariums and research centers throughout the country. But on this day, his mission was simpler: Gather some marine organisms that were abundant and easy to collect (inexpensive, in other words) and send them to Jonathan L. Hartwell's anticancer drug discovery group at the [National Cancer Institute](#) (NCI).

Among the dozen organisms Rudloe collected “shotgun style” that day, was a small brownish spray that looked like seaweed. Despite its appearance, the material was not a plant but rather a colony of the bryozoan *Bugula neritina*, tiny filter-feeding critters, each about a millimeter long that clump together in a branching structure. *B. neritina* is, in fact, a pest that fouls floating docks and boats in waters worldwide.

Rudloe put a few handfuls of the bryozoan through a meat grinder, packed it in isopropyl alcohol, and sent it to Frederick, Md. “It was just sheer luck,” he says, that he had picked an organism armed with molecules that could fight cancer, Alzheimer's disease, and HIV.



Bryostatin 1

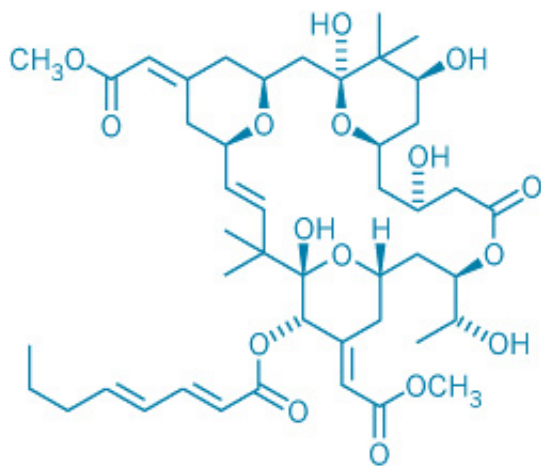
Those compounds are the bryostatins, a family of 20 macrolide lactones, 18 of which have been structurally characterized.

Since they were first plucked from obscurity more than 40 years ago, the compounds have had a colorful history. They were hailed as key compounds in the fight against cancer, but over the years, bryostatin 1, the most-studied member of the family, failed to impress. In more than three dozen clinical trials to fight various forms of the disease, it gave mostly mediocre results, both on its own and in combinations with other cancer-fighting drugs.

The compounds have also fallen out of favor as drug candidates for a more practical reason: Harvesting them from the naturally occurring bryozoan is impractical, and their long chemical syntheses were too unwieldy for drugmakers.

Recently, however, the cloud that was hanging over the bryostatins has begun to lift. Animal tests show that bryostatin 1 enhances memory and could be used to treat Alzheimer's disease and strokes. And some preliminary studies show it could help eradicate HIV. What's more, chemists have dramatically whittled down the number of steps it takes to make these molecules. This year, three total syntheses of bryostatin natural products were published, with the shortest being just 36 steps. Finally, as chemists have found a way make bryostatins faster, there's been a push to make analogs of these compounds so that scientists might get a better handle on how they operate biologically and make simpler molecules that would be more practical drug candidates.

[George R. \(Bob\) Pettit](#), a natural products expert and chemistry professor at Arizona State University, was one of the people driving research to find cancer-fighting agents from marine organisms back when Rudloe scooped those first handfuls of *B. neritina*. In the early 1970s Pettit began collecting bryozoans from the Gulf of California, in Mexico, and the Sagami Gulf, in Japan. But it was extracts from a sample of *B. neritina* taken from the California coast that most interested Pettit and the folks at NCI.



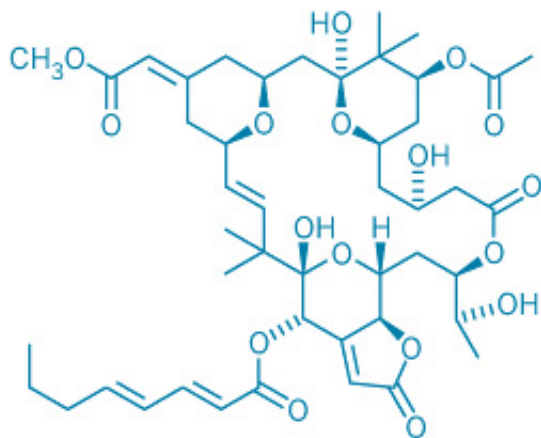
Bryostatin 2

Pettit's group spent most of the late 1970s trying to isolate the compounds responsible for the antineoplastic activity in bryozoan extracts. By 1981, Cherry L. Herald, a scientist working in Pettit's lab, had isolated the first milligram of what would be known as bryostatin 1 from that California collection of *B. neritina*. "I dashed it off to the National Cancer Institute and the activity was tremendous," Pettit recalls. "It was clear we had to determine the structure."

Using 500 kg of *B. neritina*, Pettit's research team isolated 120 mg of bryostatin 1. They crystallized the material and determined the compound's structure, which they reported in 1982 (*J. Am. Chem. Soc.*, DOI: [10.1021/ja00388a092](https://doi.org/10.1021/ja00388a092)). "We were blessed," Pettit says of the ease with which they crystallized the compound.

The structures of 17 other bryostatins would follow (extracts from Rudloe's samples became known as bryostatins 4 through 8). But it was bryostatin 1 that NCI began to focus on as a potential drug. In 1991 the institute undertook a massive isolation of bryostatin 1 from *B. neritina* off the California coast, collecting some 14 tons of the animal, which Pettit recalls shipping to NCI in 120 55-gal drums.

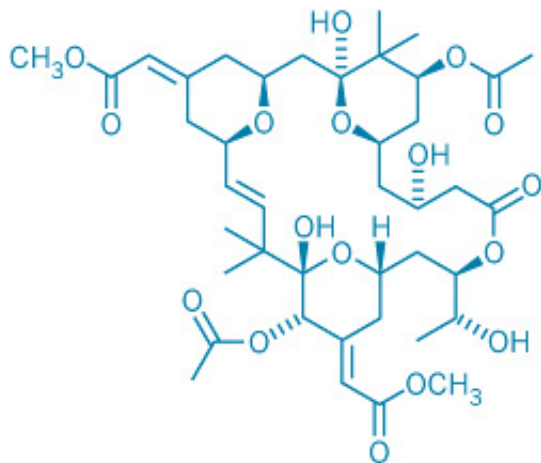
From those 14 tons, researchers isolated 18 g of bryostatin 1 (*J. Nat. Prod.*, DOI: [10.1021/np50077a004](https://doi.org/10.1021/np50077a004)). That's enough to fill a typical salt shaker up just a quarter of an inch, Pettit estimates. Nevertheless, because bryostatin 1 is so potent, those 18 g have been enough to supply all the clinical trials using the compound.

**Bryostatin 3**

Bryostatin 1 works by modulating the activities of a family of enzymes known as protein kinase C, or PKCs. Once activated, these enzymes phosphorylate certain proteins and play an important role in intracellular signaling cascades. PKCs first attracted the attention of biologists because they are the target of phorbol esters, the archetypal tumor promoters.

But while phorbol esters make tumors grow like crazy, bryostatin 1 suppresses tumor growth—even though they both bind to the same part of PKCs. It's a phenomenon that still puzzles biologists. "Of the known activators of PKC, bryostatin 1 is the only known agent that is a functional antagonist of most phorbol ester functions," says [Gary E. Keck](#), a chemistry professor at the University of Utah who has been studying the bryostatins for the past decade.

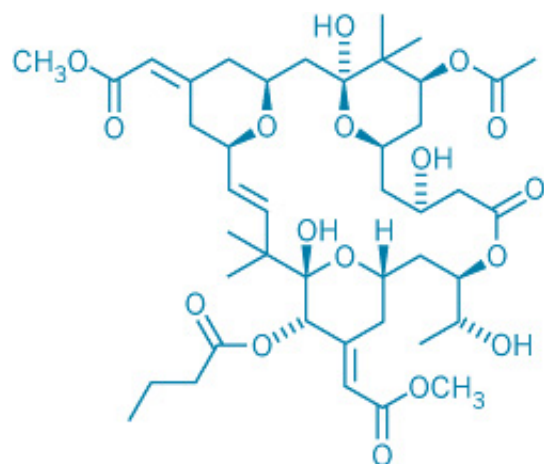
In fact, a number of natural products activate PKCs. Like bryostatin 1, they bind to a region of the enzymes known as the C1 domain. When a small molecule fills this C1 cleft, a PKC enzyme opens to receive its substrates. The binding also makes the C1 region hydrophobic, enabling PKC to move from the cytosol, where it resides in the absence of activation, to a membrane. That membrane could be the cell membrane, the nuclear membrane, or membranes of other cell organelles. Once stuck to the membrane, PKC finds its protein targets and phosphorylates them, setting off the signaling cascade.

**Bryostatin 7**

PKC-activated proteins are involved in some of the most important cellular functions, Keck points out. They make cells grow. They make cells morph into different kinds of cells. And they are involved in apoptosis, or programmed cell death. "The most critical processes of the cell turn out to be heavily regulated by this family of enzymes," Keck notes. "That's why bryostatin 1 can have such a wide range of biological effects. It's not like a lot of agents that target one specific site in an enzyme and inhibit its activity. This is very different."

Despite promising results as a cancer treatment in animal studies, bryostatin 1 has stalled in Phase II clinical trials. It has failed to show significant activity against tumors either on its own or in combination with other chemotherapeutic agents. "The bryostatins still haven't quite found the right niche," says [Peter M. Blumberg](#), chief of the Molecular Mechanisms of

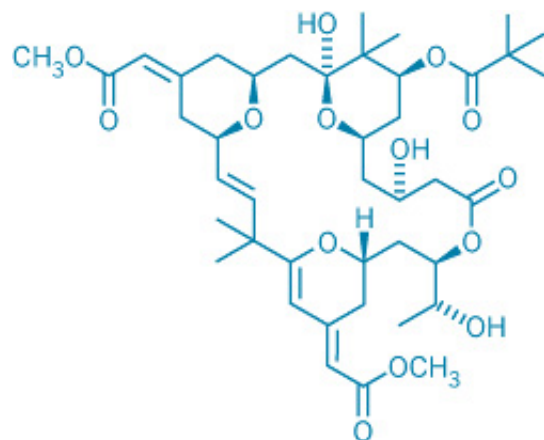
Although its status as a cancer-fighting agent may have taken a hit, bryostatin 1 has started to gain some traction in treating other diseases, particularly in illnesses associated with memory loss, such as Alzheimer's disease and strokes.



Researchers led by [Daniel Alkon](#), scientific director and professor at Blanchette Rockefeller Neurosciences Institute at West Virginia University, were trying to work out how memories are stored on the molecular level when they discovered that PKC plays a critical role in the process. “It’s a very powerful regulator of molecular switches that send signals, especially at the most important junctions in the brain called synaptic junctions—the connections in the brain between neurons,” he says. “We discovered when we form memories we actually induce the formation of new synapses, and that’s regulated by protein kinase C and a whole host of other molecular players in the orchestra that protein kinase C regulates.”

“We found that PKC activators are remarkably effective in animal models of Alzheimer’s disease in addressing virtually all of the aspects of Alzheimer’s disease,” Alkon says.

These compounds “enhance memory. They correct memory deficits. They restore lost synapses and prevent the loss of synapses. They prevent the death of neurons. They prevent the amyloid plaques. And they prevent the neurofibrillary tangles. All of those are hallmarks of Alzheimer’s disease,” Alkon continues. “There’s no one therapy except activators of protein kinase C that does that.” These findings, he argues, suggest a new way of looking at Alzheimer’s disease.



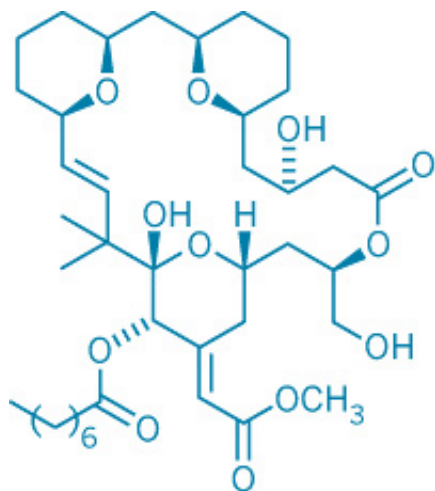
Bryostatin 16

Animal tests with bryostatin 1 have also shown that it restores memory after strokes and traumatic brain injuries. “Essentially what it’s doing is building new connections in the brain and preventing the death of neurons,” Alkon says. “It also has the potential of enhancing memory in normal patients or aging patients or depressed patients. We believe that there is a tremendous potential here.”

Alkon recently received approval to begin a Phase II clinical trial using bryostatin 1 to treat Alzheimer’s. He wants to partner with a private-sector company before moving forward, however.

Bryostatin 1’s ability to activate PKC has also recently gotten attention for treating another disease—HIV. Patients with HIV who take the antiviral drug cocktails still retain latent reservoirs of the virus in their cells. That’s why the cocktails don’t cure the disease but merely treat it. Once a patient goes off the therapy the virus reawakens.

But PKC “can activate transcription factors that can rouse slumbering HIV proviruses,” according to [Warner C. Greene](#), who directs virology and immunology research at the J. David Gladstone Institutes in San Francisco. “So bryostatin 1 is a drug that’s under active investigation for an eradication treatment,” he says, although he’s quick to point out that such therapy is still in the early stages. No animal testing has been done with bryostatin 1 and HIV, Greene notes.

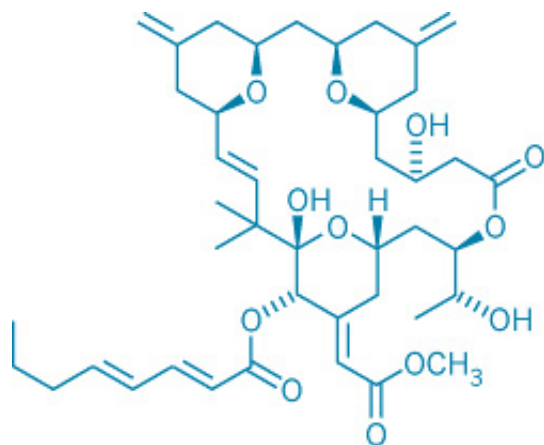


Picolog

Even if clinical tests prove the medicinal potential of bryostatins, treatments based on the compounds will have to grapple with supply. In the late 1990s, the now-defunct company CalBioMarine Technologies tried aquaculture, growing *B. neritina* on what [Dominick Mendola](#), the company’s former president, describes as a giant “undersea box kite” off the California coast. Although they succeeded in growing the bryozoan, the company eventually went under as postponed clinical trials demolished demand for the bryostatin 1 it was ready to supply, and the firm was unable to secure venture capital funding in the early 2000s to stay afloat.

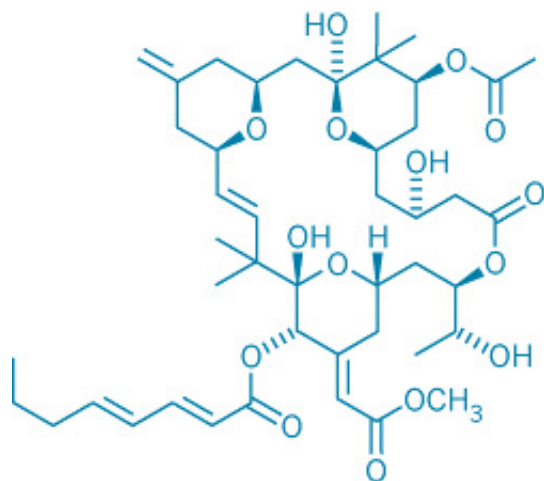
The bryostatins, current research suggests, don’t actually come directly from *B. neritina*, but rather from a bacterial symbiont that lives within the bryozoan. The compound appears to protect the organism’s larvae from being eaten by predators. Scientists have tried to isolate the symbiont so that they might create bryostatins in a petri dish.

To date, however, no one has been able to culture the bacterium. “It may be missing some capabilities it needs to live outside of its host,” says [Margo G. Haygood](#), a professor at Oregon Health & Science University who has been studying how the symbiont makes the bryostatin skeleton. She adds that, despite efforts, no one has been able to transfer enough of the symbiont’s biosynthetic machinery into another organism, such as *Escherichia coli*, to make the bryostatin skeleton.

**Merle 23**

And that has left the bryostatins' fate in the hands of chemists. With their complex skeleton and multiple stereocenters, the bryostatins are a trophy for any synthetic organic chemist up to the challenge. Until recently, however, total syntheses of bryostatin natural products weighed in at more than 70 steps—too unwieldy to make large amounts of the molecules.

In 2008, Stanford University chemists [Barry M. Trost](#) and Guangbin Dong reported the synthesis of bryostatin 16 in only 42 steps (*Nature*, DOI: [10.1038/nature07543](#)). And there's been a flurry of activity in the field in 2011. A team led by the University of Utah's Keck and graduate student Yam B. Poudel reported the first total synthesis of bryostatin 1—the one that's been used in all the clinical trials—in 58 steps (*J. Am. Chem. Soc.*, DOI: [10.1021/ja110198y](#)). [Paul A. Wender](#) and graduate student Adam J. Schrier, also at Stanford, prepared bryostatin 9 in 43 steps (*J. Am. Chem. Soc.*, DOI: [10.1021/ja203034k](#)). And [Michael J. Krische](#) and coworkers at the University of Texas, Austin, set a new record for making the molecules when they prepared bryostatin 7 in just 36 steps (*J. Am. Chem. Soc.*, DOI: [10.1021/ja205673e](#)).

**Merle 28**

The recent syntheses are also highly convergent, with the longest linear sequence clocking in at 31 steps for Keck's synthesis, 28 for Trost's, 25 for Wender's, and just 20 for Krische's. And each shows off a different use of chemistry. Trost takes advantage of a palladium-catalyzed union of two alkynes to create the bryostatins' macrocyclic structure. Keck makes use of a pyran annulation method to unite the A-ring and C-ring subunits with simultaneous formation of the B-ring. Wender uses a similar macrocyclization strategy, employing the Prins reaction to wed an aldehyde with a hydroxyallylsilane. Krische uses Keck's assembly strategy but decreases the number of steps to make each fragment by employing hydrogenative carbon-carbon bond formation. Each strategy gives chemists flexibility to make a range of analogs.

"In natural product synthesis, I feel that it's really important to select targets that represent authentic unmet challenges in terms of the chemistry and biology," Krische says. "With sufficient resources, it's pretty clear that one can complete the

total synthesis of nearly any natural product. So I think now it's incumbent upon synthetic organic chemists not only to make the target but to focus on how the target is made," with an eye toward flexibility, he says. "It's important to select natural products where the synthesis of the target is not an end point but a beginning."

Bryostatin time line

1968

First samples of *Bugula neritina* screened for anticancer activity

1976

A compound that would come to be known as bryostatin 1 identified for the first time in extracts from *B. neritina* collected from the California coast

1982

Structure of bryostatin 1 reported

1990

First total synthesis of bryostatin 7 in 79 steps by Satoru Masamune and coworkers at Massachusetts Institute of Technology

1991

18 g of bryostatin 1 extracted from 14 tons of *B. neritina* collected off the California coast

1998

First total synthesis of bryostatin 2 in 72 steps by David A. Evans and coworkers at Harvard University

2000

First total synthesis of bryostatin 3 in 88 steps by Shigeru Nishiyama, Shosuke Yamamura, and coworkers at Japan's Keio University

2008

First total synthesis of bryostatin 16 in 42 steps by Barry M. Trost and Guangbin Dong of Stanford University

2011

First total synthesis of bryostatin 1 in 58 steps by Gary E. Keck and coworkers of the University of Utah

First total synthesis of bryostatin 9 in 43 steps by Paul A. Wender and Adam J. Schrier of Stanford University

Total synthesis of bryostatin 7 in 36 steps by Michael J. Krische and coworkers at the University of Texas, Austin

To that end, Krische says, his group is now aiming to use the synthetic methods they developed to make analogs of bryostatin in as few as 12 steps. He's in good company in the bryostatin analog game. Wender has been making simplified versions of the bryostatins for 25 years, and Keck has been creating bryostatin analogs for the better part of the past decade.

"We need to understand collectively as a community that natural products are not made in nature to do what we ask of them. Bryostatin is not made in *B. neritina* for the purposes of addressing HIV or cancer or Alzheimer's," Wender says. "The natural product traditionally has been often perceived as being the drug, when in fact an emerging emphasis is that it's a tremendous lead. And if we could learn what nature is teaching us in this lead, we could then, using modern science, translate that into molecules that would be more effective than what nature has produced."

More than 100 bryostatin analogs—dubbed bryologs—have come out of Wender's research group over the years. "We've been trying to understand the lesson of bryostatin and then to use what we have learned to come up with agents that are superior to the natural product," he says.

For example, they have learned that an alkoxy group at a certain position in the bryostatin backbone is critical. They've determined the structure of the C-ring and its surrounding functional groups are also important, as that's the portion of the molecule thought to bind to PKC. Finally, they've figured out how to simplify bryostatin's A- and B-rings, so the analogs maintain the same shape as the bryostatins but are easier to make.

Wender points to the analog from his lab known as "picolog" as one of the most promising. It can be made in fewer than 30 steps. It's 100 times more potent than bryostatin 1 in some in vitro anticancer tests, and it's shown promise in treating mice with leukemia.

While Wender sees potential new therapies from bryostatin analogs, Keck is more restrained. "Any talk of drugs based on bryostatin at this juncture is really premature because we don't know yet what kinds of structures you need to elicit a particular kind of response," he says. "What we're doing is making a toolbox of compounds that vary in structure, and then going in and finding out in great and gory detail what those compounds do biologically. The goal is to link specific structural features with specific biological responses."

The analogs made in Keck's lab are known as Merle compounds, named after country music legend Merle Haggard, of whom Keck is a friend and "probably the world's greatest fan." Keck says his collaborator, NCI's Blumberg, told him he needed succinct identifiers for his analogs that wouldn't change from publication to publication. "I said, 'I know just the thing. We'll give them Merle numbers because nothing lifts my spirit like a Merle number,'" Keck recalls.

Keck believes the substitution around bryostatin 1's A-ring is critical. His group, in collaboration with NCI's Blumberg, compared analogs that were simplified around either both the A- and B-rings (Merle 23) or just the B-ring (Merle 28). Those that were simplified around the A-ring did not behave like bryostatin but instead behaved like the tumor-promoting phorbol esters. "This was a big surprise because these things look very much like bryostatin. They look nothing like phorbol esters, and yet to the cell, well, I guess the cell does not have ChemDraw," Keck says.

"This year, three total syntheses of bryostatin natural products were published, with the shortest being just 36 steps."

"There's a great opportunity to make important findings in biology just from looking at analogs that people are making," Keck adds. "If nothing else, there's a great deal to be learned about the fundamental biology that's relevant to cancer, Alzheimer's disease, and other diseases through this kind of research."

So will one of the bryostatins or their analogs ever become a drug? It's tough to say. "In my view there are two key things in advancing a natural product into drug development," says Guy T. Carter, a consultant with natural products discovery consulting firm [Carter-Bernan Consulting](#). "One is making enough material to start with, and the other is the ability to make a broad range of analogs in sufficient quantities in order to address whatever issues you encounter as you go through the development process," such as problems with solubility, permeability, or metabolic stability.

Having a synthesis that lends itself to modifications makes the bryostatins attractive, but "it's still going to be a hard sell," Carter says. "I think the dogma in big pharma has always been that we don't do total synthesis. It's just not practical." Still, he notes that some companies are challenging that dogma. He points to [Eisai](#)'s drug Halaven, which is an analog of a natural product made via a 62-step synthesis.

"The goal is to link specific structural features with specific biological responses."

For the bryostatins ever to make it to patients will require a tremendous devotion of resources and a strong willingness on the part of those in charge to stick with such a project, Carter notes. "That bit of wisdom that's required to see it through to the end product is something that is in short supply," he says. "It's much easier to say 'no' to something like that than to say 'this is something special and therefore we need to devote the resources to make it happen.' Pursuit of challenging targets like the bryostatins, while risky, has great potential for creating major breakthroughs in medicine and eventually profits for the company."

John A. Lowe, a medicinal chemistry expert with the consulting firm [JL3Pharma](#), doesn't see pharma executives running

out to make bryostatin analogs just yet, but notes: “It certainly is intriguing how much more approachable the bryostatins or their analogs are when you start talking about potential commercialization. It’s now competitive with the other things that are going on, and I don’t believe anybody believed that would be the case 20 years ago when the structures were elucidated. That in itself is pretty impressive.” ■

More On This Story

- [Pioneer: Undersea Treasure Hunter](#)
- [Drug Development: Taking The Long Route](#)

Chemical & Engineering News

ISSN 0009-2347

Copyright © 2011 American Chemical Society

Advertisement



Advertisement




Attachment Q

Google Scholar References to GSML

Sort by relevance
Sort by date

 [Create alert](#)

★  Cited by 32 Related articles All 4 versions

☆ 99 Cited by 28 Related articles All 3 versions


☆ 99



☆ 99 Cited by 14 Related articles All 4 versions

★ 55 Cited by 34 Related articles All 4 versions

★ 99 Cited by 47 Related articles

☆ Cited by 12 Related articles All 13 versions

★  Cited by 11 [Related articles](#) [All 6 versions](#)

☆  Cited by 8 [Related articles](#) [All 2 versions](#) 

☆ 55 Related articles

[\[HTML\] usda.gov](#)

[PDF] embryogenesisexplained....

Sort by relevance
Sort by date

 [Create alert](#)

☆ 99 Related articles All 3 versions 99

★ 59 Cited by 65 Related articles All 6 versions

★ 99 Cited by 85 Related articles All 7 versions

☆ 99 Related articles

☆ 55 Cited by 6 Related articles All 4 versions

★ 55 Cited by 36 Related articles 20

☆ 99

☆ 59 Cited by 2 Related articles

☆ 99 Related articles

☆ Related articles

[PDF] tennessee.edu

Any time
Since 2018
Since 2017
Since 2014
Custom range...

Sort by relevance
Sort by date

☒ Include patents
☒ Include citations

☒ Create alert

Intrinsic fluorometric determination of the stable state of aggregation in hemoglobins

RE Hirsch, RC San George, RL Nagel - Analytical biochemistry, 1985 - Elsevier

... Hemoglobin purity was deter- (Gilford 240 or Cary 17) using extinction coef- mined by SDS-gels and cellulose-acetate gels ... Live N. ponderosa clams were received from Perkin-Elmer 650- 10s recording spectropho- the **Gulf Specimen Company**, Panacea, Flor- tometer at 25 °C ...

★ Cited by 17 Related articles All 5 versions

Biodiversity hotspot: the Florida panhandle

RJ Blaustein - BioScience, 2008 - BioOne

... out that no area of its size in the United States or Canada has more species of frogs (27) or snakes (42 ... Marine biologist Anne Rudloe, managing director of the **Gulf Specimen Marine Laboratory** in Panacea, Florida, says the Florida Panhandle has one of the most biologically ...

☆ Cited by 19 Related articles All 8 versions

Coelomic myoepithelial cells of amphioxus and their possible significance in renal function

GE Tyson, RE Bulger - Transactions of the American Microscopical Society, 1978 - JSTOR

... AND METHODS Specimens of the lancelet Branchiostoma floridae were obtained from a commercial supplier (**Gulf Specimen Company**, Inc., Panacea ... Ultrathin sections were cut with glass or diamond knives, stained consecutively with uranyl acetate (aqueous) and lead ...

☆ Cited by 5 Related articles All 3 versions

Activities of uricase, xanthine oxidase, and xanthine dehydrogenase in the hepatopancreas of aquatic and terrestrial crabs

FH Lallier, PJ Walsh - Journal of Crustacean Biology, 1991 - academic.oup.com

... fw)) and stone crabs (Menippe mercenaria Say; 3 38, 8 99, 88-264 g fw) were purchased from the **Gulf Specimen Company**, Panacea, Florida. Crabs were maintained in aquaria with running seawater (23-26°C, 36%) and fed 3 times a week with frozen shrimp or squid until 24 ...

★ Cited by 28 Related articles All 4 versions

Developmental Changes in the Level of Vitellinimmunoreactive Proteins in Hemolymph and Tissues of the Blue Crab *Callinectes Sapidus*: Relation to Vitellogenesis

CY Lee, HR Umphrey... - Journal of Crustacean ..., 1996 - academic.oup.com

... MATERIALS AND METHODS Animal.s.-Egg-bearing C.sapidu.s were purchased from **Gulf Specimen Marine Laboratories**, Inc., Pana- cea, Florida ... peroxidase activity was depleted by incubating tissue sections with 0.3% hy- drogen peroxide for 30 min or 0.6% hydrogen perox ...

☆ Cited by 14 Related articles All 7 versions

Development of tail muscle acetylcholinesterase in ascidian embryos lacking mitochondrial localization and segregation

JR Whittaker - The Biological Bulletin, 1979 - journals.uchicago.edu

... histospecific muscle acetylcholinesterase (Whittaker, 1979) . This species does not localize mitochondria or segregate them into the muscle lineage cells. MATERIALS AND METHODS ... from the **Gulf Specimen Company**, Panacea, Florida. These three species do not ...

★ Cited by 31 Related articles All 3 versions

Acetylcholinesterase development in extra cells caused by changing the distribution of myoplasm in ascidian embryos

JR Whittaker - Development, 1980 - dev.biologists.org

... Embryos Styelaplicata (Lesueur) of the Florida Gulf was obtained during two breeding seasons (November through April) from the **Gulf Specimen Company**, Panacea, Florida ... Few of the eggs obtained in this way are fertile (1 % or less); best results were obtained if eggs were ...

★ Cited by 93 Related articles All 6 versions

Distal Retinal Pigment of the Fiddler Crab, *Uca pugilator*: Release of the Dark-Adapting Hormone by Methionine Enkephalin and FMRFamide

GK KULKARNI, M FINGERMAN - Pigment cell research, 1987 - Wiley Online Library

... to determine whether the action of these neuropeptides on the distal retinal pigment cells was a direct one or indirect, by stimulating release of DAH. MATERIALS AND METHODS Male fiddler crabs, *Uca pugilator*, were obtained from the **Gulf Specimen Company** (Panacea, FL ...

★ Cited by 34 Related articles All 3 versions

Photoreceptor cells dissociated from the compound lateral eye of the horseshoe crab, *Limulus polyphemus*, I: Structure and ultrastructure

RN Jinks, WJB Hanna, GH Renninger... - Visual ..., 1993 - cambridge.org

... Methods Animals Mature male and female horseshoe crabs, *Limulus polyphemus*, averaging 20 cm across the carapace were obtained from either the Marine Biological Laboratories (Woods Hole, MA) or the **Gulf Specimen Marine Laboratories** (Panacea, FL) ...

☆ Cited by 13 Related articles All 4 versions

GENETIC VARIATION IN THE HORSESHOE CRAB (*LIMULUS POLYPHEMUS*), A PHYLOGENETIC "RELIC"

RK Selander, SY Yang, RC Lewontin, WE Johnson - Evolution, 1970 - Wiley Online Library

... e~ .2 !!!!!) from Panacea, Florida, on the coast of the Gulf of Mexico, 20 miles south of Talla- hassee (**Gulf Specimen Company**, Panacea, Florida ... Each enzyme or other protein in *Limulus* was run (electro- phoresed) on the same type of gel employed for the corresponding protein ...

★ Cited by 253 Related articles All 5 versions

[PDF] bioone.org

[PDF] oup.com

[PDF] biologists.org

[PDF] wiley.com

Richard

Secure | https://scholar.google.ca/scholar?start=70&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"Gul...

AppsWoSGoogle ScholarWikipediaGbooksGHangoutGImageUMLDDJournalsNetsetSyncOther Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 8 of about 488 results (0.05 sec)

My profileMy library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

include patents

include citations

Create alert

Expression of crustacean (*Callinectes sapidus*) molt-inhibiting hormone in *Escherichia coli*: characterization of the recombinant peptide and assessment of its effects ...

T Nakatsuji, DW Han, MJ Jablonsky, SR Harville...

Molecular and cellular ..., 2006 - Elsevier

... 2. Materials and methods. 2.1. Animals. Blue crabs (*C. sapidus*) were purchased from **Gulf Specimen Marine Laboratories**, Inc. (Panacea, FL, USA), or obtained from local suppliers. Crabs were maintained in compartmented ...

Cited by 23

Related articles

All 5 versions

The membrane form of guanylate cyclase

DL Garbers, DG Lowe, LJ Dangott...

Cold Spring Harbor ..., 1988 - symposium.cshlp.org

... EXPERIMENTAL PROCEDURES Materials. *A. punctulata* sea urchins were obtained from **Gulf Specimen Company**, Inc. (Panacea, Florida) or from the Marine Biological Laboratory (Woods Hole, Massachusetts). Restriction ...

Cited by 11

Related articles

All 4 versions

Molecular cloning of a putative receptor guanylyl cyclase from Y-organs of the blue crab, *Callinectes sapidus*

J Zheng, CY Lee, RD Watson - General and comparative endocrinology, 2006 - Elsevier

... 2. Methods. 2.1. Experimental animals. Blue crabs, *C. sapidus*, were purchased from local markets or from **Gulf Specimen Marine Laboratories**, Inc. (Panacea, FL). Crabs were maintained in compartmented tanks containing artificial ...

Cited by 20

Related articles

All 8 versions

A fine structure study of the anthocodium in *Renilla m ller*i. Evidence for the existence of a bioluminescent organelle, the luminelle.

BO Spurlock, MJ Cormier - The Journal of cell biology, 1975 - jcb.rupress.org

... MATERIALS AND METHODS *Renilla m ller*i obtained from **Gulf Specimen Company**, Inc., Panacea, Fla. were maintained at room tempera- ture in aquaria with circulating artificial sea water (Instant Ocean) ... The feeding and/or reproductive polyps are called autozooids ...

Cited by 34

Related articles

All 4 versions

Spike Firing Pattern of Output Neurons of the *Limulus* Circadian Clock

JS Liu, CL Passaglia - Journal of biological rhythms, 2011 - journals.sagepub.com

... Male horseshoe crabs (*Limulus polyphemus*, 20-25 cm across carapace) were purchased from the Marine Bio- logical Laboratory (Woods Hole, MA) or **Gulf Specimen Marine Laboratory** (Panacea, FL) and kept under a 12-h/12-h light-dark cycle at 20  C in artificial seawater ...

Cited by 5

Related articles

All 5 versions

Expression of arginine kinase enzymatic activity and mRNA in gills of the euryhaline crabs *Carcinus maenas* and *Callinectes sapidus*

S Kotlyar, D Weihrauch, RS Paulsen... - Journal of Experimental ..., 2000 - jeb.biologists.org

... Laboratory, Salsbury Cove, Maine, USA. Blue crabs (*Callinectes sapidus*) were obtained from the Waukegan (Illinois, USA) Oriental Food Store or from **Gulf Specimen Marine Laboratory**, Panacea, Florida, USA. Crabs were kept at 15 ...

Cited by 55

Related articles

All 6 versions

Seasonal variation in the toxicity of sediment-associated contaminants in Corpus Christi Bay, TX

TJ Wauhob, M Nipper, E Billiot - Marine pollution bulletin, 2007 - Elsevier

... biota. *A. punctulata* was obtained from **Gulf Specimen Company**, Inc., Panacea, FL, or Marine Biological Laboratory, Woods Hole, MA. Organisms were maintained in recirculating tanks with filtered sea water at 30   1 ppt salinity ...

Cited by 11

Related articles

All 6 versions

Myofiber death plays a role in determining fiber type composition in the claw closer muscles of the snapping shrimp, *Alpheus heterochelis*

MM Quigley, D Mellon Jr - Journal of Experimental Zoology, 1986 - Wiley Online Library

... MATERIALS AND METHODS Snapping shrimp were obtained from **Gulf Specimen Company**, Panacea, Florida and were maintained in a large artificial seawa- ter system. Claw transformation was initi- ated by removing the snapper claw from animals 1 or 2 days after molting ...

Cited by 13

Related articles

All 2 versions

[CITATION] dOid: 10.1242/jeb.028621 Identification of SYWKQCAFNAVSCFamide: a broadly conserved crustacean C-type allatostatin-like peptide with both ...

CR Cashman12, EA Stemmler... - Journal of Experimental ..., 2009 - University Press

Related articles

Molecular cloning, expression, and tissue distribution of crustacean molt-inhibiting hormone

RD Watson, KJ Lee, Q Shihong, L Ming... - American ..., 2001 - academic.oup.com

... MATERIALS AND METHODS. Animals. *Callinectes sapidus* were purchased from local fishermen in Weeks Bay, AL or Wilmington, NC, or from **Gulf Specimen Marine Laboratories**, Inc. (Panacea, FL). They were maintained in ...

Cited by 33

Related articles

All 6 versions

[PDF] rupress.org

[PDF] usf.edu

[PDF] biologists.org

[HTML] oup.com

< Goooooooooooooole >

Previous3456789101112Next

HelpPrivacyTerms

Richard

Secure | https://scholar.google.ca/scholar?start=90&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"Gul...

AppsWoSGoogle ScholarWikipediaGbooksGHangoutGImageUMLDDJournalsNetsetSyncOther Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 10 of about 488 results (0.04 sec)

My profileMy library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

Create alert

[CITATION] Marine Hermit Crabs

P Giwojna - 1978 - Tfh Publications Incorporated

Cited by 4Related articles

Influence of hypoxia on cardiac functions in the grass shrimp (Palaemonetes pugio Holthuis)

SL Harper, C Reiber - Comparative Biochemistry and Physiology Part A ..., 1999 - Elsevier

... As f H decreased a concomitant increase in V S was observed, thus V b was maintained at or near normoxic levels ... 2. Materials and methods. Grass shrimp (P. pugio) were obtained from Gulf Specimen Marine Laboratories Inc ...

Cited by 34Related articlesAll 2 versions

Ribosomal RNA Synthesis in Sea Urchin Embryos: Differential Rates of Accumulation in Chemically-induced Animalized and Vegetalized Larvae: (animalization ...

AF O'Melia - Development, growth & differentiation, 1983 - Wiley Online Library

... MATERIALS AND METHODS Culturing of sea urchin embryos Fertile adult sea urchins were obtained from the Gulf Specimen Company, Panacea, Fla. (Arbacia punctulata and Lytechinus variegatus) or were collected by the Department of Marine Resources, Marine Biological ...

Cited by 4Related articlesAll 3 versions

The purple pigment aplysioviolin in sea hare ink deters predatory blue crabs through their chemical senses

M Kamio, TV Grimes, MH Hutchins, R van Dam... - Animal Behaviour, 2010 - Elsevier

... Mature male blue crabs, Callinectes sapidus, with carapace length of 10–12 cm were obtained from Gulf Specimen Marine Lab (Panacea, FL, USA) or commercial fisherman in St Augustine, Florida, maintained in our laboratory in aquaria with recirculating, filtered and aerated ...

Cited by 31Related articlesAll 6 versions

Molecular cloning of a cDNA encoding a crustacean hyperglycemic hormone from eyestalk ganglia of the blue crab, Callinectes sapidus

CY Choi, J Zheng, RD Watson - General and comparative endocrinology, 2006 - Elsevier

... 2. Methods. 2.1. Experimental animals. Blue crabs, C. sapidus, were purchased from local markets or from Gulf Specimen Marine Laboratories, Inc. (Panacea, FL). Crabs were maintained in compartmented tanks containing artificial ...

Cited by 21Related articlesAll 5 versions

Larval settlement and metamorphosis of sabellariid polychaetes, with special reference to Phragmatopoma lapidosa, a reef-building species, and Sabellaria ...

JR Pawlik - Bulletin of Marine Science, 1988 - ingentaconnect.com

... 1986; 1988). Specimens of S. floridensis were obtained, in individual or paired tubes on bivalve shells or sand dollar tests, from the Gulf Specimen Company, Panacea, Florida, May 1985 and June 1986. Cross-fertilization experiments ...

Cited by 61Related articlesAll 3 versions

Entry behavior of the crab Pinnotheres maculatus Say

A Eidemiller - Quarterly Journal of the Florida Academy of Sciences, 1969 - JSTOR

... The crab then enters the hard crab stage or sexual stage in which they again show the modifications associated with a free ... using A. i. concentricus Say infected with invasive stage and adult females of P. maculatus Say shipped from the Gulf Specimen Company of Panacea ...

Cited by 7Related articles

Optimization of Solvent Composition for Extraction of Multi-Polarity Molecules

TJ Manning - Separation science and technology, 2006 - Taylor & Francis

... Adapting the D/V model developed here in which the solvent composition can be matched to certain protein sub- components and bend or fold it in a predictable ... Jack Rudloe of the Gulf Specimen Marine Lab is acknowledged for donating the Bugula neritina used in this work ...

Cited by 3Related articlesAll 5 versions

Comparing Diets of Kemp's Ridley Sea Turtles (Lepidochelys kempii) in Mangrove Estuaries of Southwest Florida

JR Schmid, AD Tucker - Journal of Herpetology, 2018 - journalofherpetology.org

... resulting in disproportionate use of both prey items. Mottled Purse Crabs are typically collected with trawls or dredges (Williams, 1984; J. Rudloe, Gulf Specimen Marine Laboratories, pers. comm.), but these gear types may not ...

Related articlesAll 3 versions

Symbiosis within a symbiosis: Intracellular bacteria within the endosymbiotic protistNephromyces

MB Saffo - Marine Biology, 1990 - Springer

... Nephromyces-infected M. ocellentalis was collected (by Gulf Specimen Marine Laboratory) from the Gulf Coast of Florida ... M CaC12 -2 H2O , postfixed in 1% OsO 4 in 0.2 M sodium cacodylate, dehydrated in ethanol, and embedded in Spurr's resin (Polysciences) or epoxy resin ...

Cited by 15Related articlesAll 6 versions

[PDF] wiley.com

[PDF] researchgate.net

[PDF] journalofherpetology.org

[PDF] researchgate.net

<Goooooooooogle>

Previous567891011121314Next

HelpPrivacyTerms

Richard

Secure | https://scholar.google.ca/scholar?start=110&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"Gu...

Apps WoS Google Scholar Wikipedia Gbooks GHangout GImage UML DD Journals Netset Sync Other Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 12 of about 488 results (0.06 sec)

My profile My library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

☒ Create alert

The structure and physical properties of invertebrate and primitive vertebrate arteries.

IG Davison, GM Wright, ME DeMont - Journal of Experimental ..., 1995 - jeb.biologists.org

... animal by influencing pressure-wave propagation characteristics and possibly by increasing the pulsatility of blood flow or by allowing ... S.D.; obtained locally), the horseshoe crab Limulus polyphemus L. (N=3; mass 0.766±0.188kg; **Gulf Specimen Marine Lab**, Panacea, Florida ...

☆ 99 Cited by 55 Related articles All 7 versions

Polyonyx gibbesi (Decapoda: Anomura: Porcellanidae) and Pinnixa chaetoptera (Decapoda: Brachyura: Pinnotheridae), two crab commensals in tubes of the ...

F Sandford - Crustacean Research, 2006 - jstage.jst.go.jp

... All tubes containing both species had either one or two adult Pinnixa and a small Polyonyx (CW < 3.5 mm, 9 tubes) or a single adult Polyonyx and a small Pinnixa (CW < 3 mm, 1 tube) ... Initially, all tubes were presumed or confirmed to contain a resident M /F pair of Pinnixa ...

☆ 99 Cited by 1 Related articles All 2 versions

Two new actions of sea nettle (Chrysaora quinquecirrha) nematocyst venom: studies on the mechanism of actions on complement activation and on the central ...

T Ishikawa, I Vucenik, A Shamsuddin, F Niculescu... - Toxicon, 2004 - Elsevier

... mention that in vitro, the sublytic C5b-9 induced either protection from apoptosis (Soane et al., 1999), or pro-apoptotic ... to three centimeter, mixed sex specimens of rainbow killifish (Adina xenica) were purchased in 2002–2003 from **Gulf Specimen Marine Laboratory** in Pensacola ...

☆ 99 Cited by 29 Related articles All 8 versions

Molecular phylogeny of the brachyuran crab superfamily Majoidea indicates close congruence with trees based on larval morphology

KM Hultgren, JJ Stachowicz - Molecular Phylogenetics and Evolution, 2008 - Elsevier

... Mithracidae. OR = Oregoniidae, PI = Pisidae, TY = Tychidae ... EU682776, —, —, Metoporphaphis calcarata, **Gulf Specimen Marine Lab**, USA, Metoporphaphis calcarata, Inachidae, Inachidae, EU682777, EU682830, EU682881, TE, Complete, Species ...

☆ 99 Cited by 45 Related articles All 9 versions

[PDF] TRICLOSAN STIMULATES THE ACTIVITY OF THE MOLT-ING ENZYME N-ACETYL-B-GLUCOSAMINIDASE IN THE EPIDERMIS OF THE FIDDLER CRAB ...

A Hagen, E Zou - FEB-FRESENIUS ENVIRONMENTAL BULLETIN, 2017 - researchgate.net

... When the animal enters premolt stage, this inhibition of Y-or- gan activity by the MIH stops and ecdysteroidogen- esis in the ... Female fiddler crabs, Uca pugilator, were pur- chased from **Gulf Specimen Marine Laboratories** (Panacea, FL) and stored in artificial seawater made with ...

☆ 99 Related articles All 2 versions

Inorganic Constituents in Fresh and Processed Cannonball Jellyfish (Stomolophus meleagris)

YHP Hsieh, F Leong, KW Barnes - Journal of agricultural and food ..., 1996 - ACS Publications

... For over a millennium, salt and alum have been used as components of curing solutions or as solids for the dehydration of ... Cannonball jellyfish were caught in the Gulf of Mexico near Panacea, FL, and were processed at the **Gulf Specimen Marine Laboratory** (Panacea, FL ...

☆ 99 Cited by 25 Related articles All 4 versions

Discovery of a diatom that oozes oil

V Vinayak, R Gordon, S Gautam... - Advanced Science ..., 2014 - ingentaconnect.com

... of Applied Sciences, Dr. HS Gour University (Central University), Sagar, Madhya Pradesh, India 2Embryogenesis Center, **Gulf Specimen Marine Laboratory**, 222 Clark ... when diatoms are put under stress conditions (low nutrients, high temperature, low sil- ica, high or low light, etc ...

☆ 99 Cited by 7 Related articles

Effects of Experimental Manipulation of pH and Salinity on Cd 2+ Uptake by the Sponge Microciona prolifera and on Sponge Cell Aggregation Induced byCa 2+ and ...

RB Philp - Archives of environmental contamination and ..., 2001 - Springer

... Joseph Bay (eastern Florida panhandle) by the staff of **Gulf Specimen Marine Laboratory**, using swim fins and snorkels ... appear to play a major role in the uptake of Ca2 or Cd2 ... Mr. Colin Bradley for performing metal assays; to the staff of **Gulf Specimen Marine Laboratories** and to ...

☆ 99 Cited by 10 Related articles All 12 versions

Molt Staging in the Fiddler Crab Uca Pugilator

DA Vigh, M Fingerman - Journal of Crustacean Biology, 1985 - academic.oup.com

... MATERIAL AND METHODS Live Uca pugilator were obtained from the **Gulf Specimen Company**, Panacea, Florida, and main- tained at 23°C under a light and dark regime of 12 h each ... This is the shortest stage in the molt cycle, usually occurring in 1 h or less (Fig ...

★ 99 Cited by 46 Related articles All 6 versions

[CITATION] Gulf Coast Soundings: People & Policy in the Mississippi Shrimp Industry

J Rudloe - 1998 - JSTOR

☆ 99

< Googooooooooooooole >

Previous 7 8 9 10 11 12 13 14 15 16 Next

Richard

← → ↺

Secure | https://scholar.google.ca/scholar?start=130&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

🔍 ☆ ⋮

Apps WoS Google Scholar W Wikipedia G Gbooks GHangout G GImage UML DD Journals Netset Sync » Other Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

🔍

Articles

Page 14 of about 488 results (0.07 sec)

My profile My library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

☒ Create alert

THE EFFECTS OF TEMPERATURE AND SALINITY ON LARVAL GROWTH OF THE HORSESHOE CRAB *LIMULUS POLYPHEMUS*

R Laughlin - The Biological Bulletin, 1983 - journals.uchicago.edu

... AND METHODS The eggs used in this experiment were collected in June, 1979 near Panacea, Florida (USA) by the **Gulf Specimen Company** and shipped to ... put into IS%ofor the first 24 h. The embryos were exposed to factorial combinations oftemperature (20, 25, 30, or 35Å°C ...

★ Cited by 56 Related articles All 5 versions

in Nature

L Swan, R Gordon, J Seckbach - Springer

... Editors Liz Swan Longmont, CO, USA Joseph Seckbach Hebrew University of Jerusalem Jerusalem, Israel Richard Gordon **Gulf Specimen Marine Laboratory** Panacea, FL ... All rights are reserved by the Publisher, whether the whole or part of the material is concerned, speci ...

☆ Related articles

BRIEF INTRODUCTION TO THE SCIENCE OF ALGAL FUELS: PHYCOLOGY, GEOLOGY, BIOPHOTONICS, GENOMICS, AND NANOTECHNOLOGY

J Seckbach, R Gordon - Cellular Origin, Life in Extreme Habitats and ... - Springer

... will produce cheap, plen- tiful biofuels, biodiesel, or ethanol, but ... Center, The Hebrew University of Jerusalem, **Gulf Specimen, Marine Laboratories**, Jerusalem, Israel ... of Jerusalem Embryogenesis Center, Jerusalem, Israel **Gulf Specimen Marine Laboratory**, Panacea, Florida ...

☆ Related articles

Intracellular actions of 5-hydroxytryptamine on the bivalve myocardium. I. Adenylate and guanylate cyclases

WJ Higgins - Journal of Experimental Zoology, 1974 - Wiley Online Library

... Noetia ponderosa, Atrina serrata, and Bur- satella leachi were purchased from the **Gulf Specimen Company** of Panacea, Florida ... ACh caused no measurable changes in cyclic AMP levels either in particulate fractions or in the whole heart ...

★ Cited by 49 Related articles All 3 versions

[PDF] Buddha-Life there was before earth: Scientists Agree

SHJ Sugunasiri - 2013 - academia.edu

... I quote directly: "There comes a time, Vāseññha, when, somehow (or sooner or later), after the lapse of a very long period of time, this world 1 Gordon is a Geneticist of **Gulf Specimen Marine Laboratory** in Florida and Sharov is with the National Institute on Aging in Baltimore ...

☆ Related articles All 2 versions

1987

D Igelsrud - The American Biology Teacher, 1988 - JSTOR

... There are probably other tissues that work as well or better ... When I returned home, I discovered that my former colleagues at the Uni- versity of Calgary had excellent results using Lytechinus from **Gulf Specimen Company** in their summer school course ...

☆ All 4 versions

[PDF] Life there was... before Earth—Scientists agree with the Buddha

SHJ Sugunasiri - 2013 - lankaweb.com

... Wickramasinghe & Trevors, 2013). 1 Gordon is a Geneticist of **Gulf Specimen Marine Laboratory** in Florida and Sharov is with the National Institute on Aging in Baltimore. 1 ... when, somehow (or sooner or later), after the lapse of a very long period of time, this world contracts ...

☆ Cited by 1 Related articles All 2 versions

Mycobacterium poriferae sp. nov., a scotochromogenic, rapidly growing species isolated from a marine sponge

PJ Padgitt, SE Moshier - International Journal of ..., 1987 - ijs.microbiologyresearch.org

... Living specimens of the marine sponge H. bowerbanki, known commonly as the "crumb-of-bread sponge," were obtained from **Gulf Specimen Company** (Panacea, Fla.) ... to inoculate by loop slants of Middlebrook 7-H-11 medium (1). Slants were incubated either in air or 5% CO2 ...

★ Cited by 25 Related articles All 3 versions

[PDF] Population dynamics and epibiont associations of hermit crabs (Crustacea: Decapoda: Paguroidea) on Dog Island, Florida

F Sandford - Memoirs of Museum Victoria, 2003 - museumsvictoria.com.au

... 1997). Hermit-crab sponges typically colonise a living or dead gastropod shell, although other substrates (eg other mollusc shells, inanimate objects such as floating docks or wharf pilings) are used (Sandford and Brown, 1997) ...

☆ Cited by 18 Related articles All 2 versions

Comparison of chemosensory activation of antennular grooming behaviour in five species of decapods

PC Daniel, M Shineman, M Fischetti - Marine and freshwater research, 2001 - CSIRO

... Tomlinson Commercial Fisheries, San Diego, California; H. americanus (90–100 mm CL) from local sources; and C. sapidus (120–140 mm carapace width) from **Gulf Specimen Marine Laboratories**, Inc., Panacea ... Specimens were fed scallop, shrimp, squid, or fish daily ad libitum ...

☆ Cited by 15 Related articles All 5 versions

< Goooooooooooooole >

Previous 9 10 11 12 13 14 15 16 17 18 Next

Help

Privacy

Terms

Richard

← → ↺

Secure | https://scholar.google.ca/scholar?start=150&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

Apps WoS Google Scholar Wikipedia Gbooks GHangout GImage UML DD Journals Netset Sync » Other Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 16 of about 488 results (0.05 sec)

My profile My library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

Create alert

[PDF] in Nature

A Fresh - 2012 - academia.edu

... Richard Gordon **Gulf Specimen Marine Laboratory** Panacea, FL, USA ... All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on ...

☆ Related articles

[PDF] academia.edu

The influence of reproductive state on cardiac parameters and hypoxia tolerance in the Grass Shrimp, Palaemonetes pugio

JA Guadagnoli, LA Jones, CL Reiber - Functional Ecology, 2005 - Wiley Online Library

... Palaemonetes pugio (Grass Shrimp) were purchased from **Gulf Specimen Marine Laboratories** Inc ... Females were then exposed to an experimental oxygen condition (Po 2 = 100, 75, 50 or 15 mm Hg O 2) for 1 h and cardiac changes were recorded for a further 2 min ...

☆ Cited by 10 Related articles All 5 versions

[PDF] wiley.com

DevoWorm: differentiation waves and computation in C. elegans embryogenesis

B Alicea, S McGrew, R Gordon, S Larson, T Warrington... - bioRxiv, 2014 - biorxiv.org

... 1 Orthogonal Research, Champaign, IL USA, 2 New Light Industries, Ltd, Spokane, WA USA, 3 Embryogenesis Center, **Gulf Specimen Marine Laboratory**, Panacea, FL USA, 4 ... each cell plays a specific functional role which does not change in the adult form or from individual to ...

☆ Cited by 6 Related articles All 6 versions

[PDF] biorxiv.org

Assessment of the pressure–volume relationship of the single ventricle of the grass shrimp, Palaemonetes pugio

JA Guadagnoli, K Tobita, CL Reiber - Journal of Experimental ..., 2007 - jeb.biologists.org

Skip to main content. Advertisement. Main menu. Home; Articles: Accepted manuscripts; Issue in progress; Latest complete issue; Issue archive; Archive by article type; Special issues; Subject collections; Interviews; Alerts. About us ...

☆ Cited by 11 Related articles All 6 versions

[PDF] biologists.org

Habitat Preferences, Movement, Size Frequency Patterns and Reproductive Seasonality of the Lesser Electric Ray, Narcine brasiliensis

A Rudlow - Gulf of Mexico Science, 1989 - aquila.usm.edu

... Anne Rudloe **Gulf Specimen Marine Laboratory** P. O. Box 237 Panacea, Florida 32346 ... 8km H • TALLAHASSEE + N Figure 1. Sampling sites for electric rays, March 1985- March 1987. impede the fish, or cause infection or necrosis and <1% tag loss was ob- served ...

☆ Related articles

[PDF] usm.edu

Localization of ecdysteroids in the eyestalk ganglia of the fiddler crab, Uca pugilator, during anecdysis and proecdysis

PM Hopkins - Journal of Experimental Zoology, 1988 - Wiley Online Library

... AND METHODS Animals Male specimens of the fiddler crab, Uca pugilator, were obtained throughout the year from the **Gulf Specimen Company** of Panacea ... tractions of whole ganglia, individual ganglia, hy- podermis (plus cuticle) or whole walking legs were in methanol ...

★ Cited by 11 Related articles All 2 versions

[HTML] pnas.org

[HTML] Nephromyces, a beneficial apicomplexan symbiont in marine animals

MB Saffo, AM McCoy, C Rieken... - Proceedings of the ..., 2010 - National Acad Sciences

... Studies to date have documented Nephromyces in every adult individual of every Molgula species surveyed, regardless of population, geographical location, environmental conditions, season, or year of collection; Nephromyces was also found in all adult hosts examined in at ...

☆ Cited by 23 Related articles All 13 versions

[HTML] pnas.org

Cadmium content of the marine sponge Microciona prolifera, other sponges, water and sediment from the eastern Florida panhandle: possible effects on Microciona ...

RB Philp - Comparative Biochemistry and Physiology Part C ..., 1999 - Elsevier

... 1, Site A, Study area 1) by the staff of **Gulf Specimen Marine Laboratory** using swim fins and snorkels at depths of 1–2 m. This is a long, narrow, shallow bay with a north–south orientation and a narrow mouth pointing toward ... 1, Study area 2) using a small basket or bucket dredge ...

☆ Cited by 34 Related articles All 6 versions

[PDF] biogomx.net

[PDF] Phoronida of the Gulf of Mexico

S Santagata - biogomx.net

... Some of the more widely observed adult specimens were provided to me by the **Gulf Specimen Marine Laboratory** and were collected near Panacea ... Further sampling will be required to determine whether P. psammophila or another undescribed species similar to it also occurs ...

☆ Related articles All 2 versions

[PDF] biogomx.net

UV radiation influences covering behaviour in the urchin Lytechinus variegatus

JE Sigg, KM Lloyd-Knight, JG Boal - Journal of the Marine Biological ..., 2007 - cambridge.org

... (ii) does radiation affect the numbers, area, or mass of shells used in covering ... MATERIALS AND METHODS Subjects Twelve Lytechinus variegatus(Lamarck, 1816) were purchased from **Gulf Specimen Marine Laboratories** (Panacea, Florida) ...

☆ Cited by 16 Related articles All 4 versions

[PDF] semanticscholar.org

< Goooooooooooooogle >

Previous 11 12 13 14 15 16 17 18 19 20 Next

Help Privacy Terms

Secure

https://scholar.google.ca/scholar?start=180&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

Apps

WoS

Google Scholar

Wikipedia

Gbooks

GHangout

GImage

UML

DD

Journals

Netset

Sync

»

Other Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 19 of about 488 results (0.07 sec)

My profile

My library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

☒ Create alert

COMPARISON OF THE PIGMENTARY EFFECTOR TROPINS IN THE EYESTALKS AND ABDOMINAL NERVE CORD OF THE PRAWN *PALAEEMONETES VULGARIS*

M Fingerman, CK Bartell - The Biological Bulletin, 1973 - journals.uchicago.edu

... question of whether red pigment dispersion in the prawn and melanin dispersion in the fiddler crab are caused by the same or different substances from the prawn ... The fiddler crabs, *Uca* /â€gulator,were provided by the **Gulf Specimen Company** of Panacea, Florida ...

★ Cited by 9 Related articles All 2 versions

The Mitochondrial Genome of *Phoronis architecta*—Comparisons Demonstrate that Phoronids Are Lophotrochozoan Protostomes

KG Helfenbein, JL Boore - Molecular biology and evolution, 2004 - academic.oup.com

... DNA Isolation, PCR Amplifications, and DNA Sequencing. Specimens of *P. architecta* were purchased from **Gulf Specimen Laboratories**, Inc ... It is possible that this region contains sequences that are recalcitrant to amplification or that it is larger than expected. Sequence Analysis ...

☆ Cited by 69 Related articles All 19 versions

Lumisomes, the cellular site of bioluminescence in coelenterates

JM Anderson, MJ Cormier - Journal of Biological Chemistry, 1973 - ASBMB

... ob- served in many coelenterates in vivo. We propose that these subcellular bioluminescent particles or organelles described here be referred to as lumisomes. METHODS *Renilla muelleri* were obtained from **Gulf Specimen Company**, Inc., Panacea, Fla ...

★ Cited by 78 Related articles All 5 versions

[BOOK] The Once and Future Turing

SB Cooper, A Hodges - 2016 - books.google.com

... this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate ... uk Richard Gordon, Embryogenesis Center, **Gulf Specimen Marine Laboratory**, Panacea FL 32346, USA, and CS Mott Center for Human Growth & Development ...

☆ Cited by 4 Related articles All 4 versions

Mollusk shell acidic proteins: in search of individual functions

BA Gottliv, L Addadi, S Weiner - ChemBioChem, 2003 - Wiley Online Library

... One of the most remarkable attributes of the mineralized tissues formed by many different phyla is that they contain a most unusual assemblage of proteins and glycoproteins that are very acidic.1 Most of the unusually acidic proteins found in aragonite- or calcite-containing ...

☆ Cited by 269 Related articles All 10 versions

Coelenterazine-binding protein of *Renilla muelleri*: cDNA cloning, overexpression, and characterization as a substrate of luciferase

MS Titushin, SV Markova, LA Frank... - Photochemical & ..., 2008 - pubs.rsc.org

... other reagents were purchased from Sigma-Aldrich, unless otherwise stated, were of analytical reagent grade or better and used as received. Molecular biology. Live specimens of the soft coral *R. muelleri* were purchased from **Gulf Specimen Marine Laboratories** with overnight ...

☆ Cited by 37 Related articles All 4 versions

Comparative larval energetics of an ophiuroid and an echinoid echinoderm

EAG Whitehill, AL Moran - Invertebrate Biology, 2012 - Wiley Online Library

... were taken 7 d after the larvae reached the pluteus stage; after this point, there were insufficient larvae remaining to take respiration measurements or biochemical samples. *Arbacia punctulata*. Adults of *A. punctulata* were obtained from **Gulf Specimen Marine Lab** (Panacea, FL ...

☆ Cited by 12 Related articles All 8 versions

Ecdysteroid titers and Y-organ activity during late anecdysis and proecdysis in the fiddler crab, *Uca pugilator*

PM Hopkins - General and comparative endocrinology, 1986 - Elsevier

... Male specimens of the fiddler crab, *U. pu-* gillator, were obtained throughout the year from the **Gulf Specimen Company** of Panacea, Florida ... is the period immedi- ately following eyestalk removal during which ecdy- steroid levels are low, and is characterized by little or no growth ...

★ Cited by 51 Related articles All 5 versions

Comparative punting kinematics and pelvic fin musculature of benthic batoids

LJ Macesic, SM Kajjura - Journal of Morphology, 2010 - Wiley Online Library

... Although most studies have focused on this movement through the water column (Lindsey, 1978; Alexander, 2006), many aquatic vertebrates also use forms of benthic locomotion either as a supplementary or primary mode of transportation ...

☆ Cited by 40 Related articles All 7 versions

[CITATION] definitions-Tunicate report a problem

M Webster

☆ Related articles

<

Gooooooooooooole

>

Previous

14 15 16 17 18 19 20 21 22 23

Next

Help

Privacy


Terms

Sort by relevance
Sort by date

 Create alert

TP Swain - Molecular Ecology, 2010 - Wiley Online Library

... Two fundamental symbiosis-based trophic types are recognized among Zoanthidea (Cnidaria, Anthozoa): fixed carbon is either obtained directly from zooxanthellae photosymbionts or from environmental sources through feeding with the assistance of host-invertebrate ...

☆  Cited by 27 Related articles All 5 versions

S Hayer, S Köhnk, CD Schubart, S Boretius... - Arthropod structure & ..., 2017 - Elsevier

... *P. mediterranea* was collected at Sapelo Island (Georgia, USA) or purchased from the **Gulf Specimen Marine Lab** (gulfspecimen.org), USA, in 2009. Generally, three specimens of 1. nucleus and two specimens of *P. mediterranea* were investigated ...

☆ 99 Cited by 1 Related articles All 10 versions

Y Meng, E Zou - Comparative Biochemistry and Physiology Part C ..., 2009 - Elsevier


... 2005) proposed that this disturbance to the Y-organ-ecdysteroid axis can be caused by disruption of ecdysteroid signaling in the epidermis and/or alterations in ... Female fiddler crabs, *U. pugilator*, were purchased from the **Gulf Specimen Marine Laboratories** (Panacea, FL, USA) ...

☆ 99 Cited by 15 Related articles All 5 versions

[PDF] nih.gov

RJ Jones, EA Roe, RE Dyster - Epidemiology & Infection, 1975 - cambridge.org


... carapace obtained by Dr TB Brogan (The Welsh National School of Medicine) from Gulf Specimen Company, Inc., Panacea, Florida were kept in tanks containing sea-water by Mr P. Deme, at the Zoology Department ... of material under test (plasma or solutions of endotoxin) ...

★  Cited by 9 Related articles All 6 versions

[HTML] oup.com

TD Swain, JL Wulff - Biological Journal of the Linnean Society, 2007 - academic.oup.com



... fish predation on a host sponge (West, 1976) but does not deter feeding by spongivorous seastars (Wulff, 1995) or deter nonspongivorous ... USA (31°36'N, 80°47'W). Additional specimens were sampled from the live collections at **Gulf Specimen Marine Laboratory** in Panama ...

☆  Cited by 38 Related articles All 9 versions

[PDF] rupress.org

J Nolte, JE Brown - The Journal of general physiology, 1970 - jgp.rupress.org

... (d) In median ocelli, the curve for visible-sensitive cells peaks at 525 nm and is approximately the same whether the ocelli are from normal or white-eyed animals ... 2, B and C). or by using lateral eyes from white-eyed animals (Fig. ...

  Cited by 33 [Related articles](#) [All 4 versions](#)

HR Spivey - Bulletin of Marine Science, 1979 - ingentaconnect.com


... Previous to this finding *B. reticulatus* was collected during the years 1972 to 1974 from pilings (surface to 14 m) or oil producing platforms ... **ACKNOWLEDGMENTS** I thank J. Rudloe of Gulf Specimen Company, Panacea, Florida, for specimens of *Megaasma gracile gracilius* ...

★ 55 Cited by 15 Related articles

[PDF] physiology.org
Free from Publisher

AJ Esbaugh, PJ Walsh - American Journal of Physiology-Regulatory 2009 - physiology.org

[Login to your account.](#) [Institutional Login.](#) [Sign In / Register.](#) [PHYSIOLOGY.ORG Home:](#)
[Journals:](#) [AJP-Cell;](#) [AJP-Endo;](#) [AJP-GI;](#) [AJP-Heart;](#) [AJP-Lung;](#) [AJP-Regu;](#) [AJP-Renal;](#)
[AJP \(1898-1976\);](#) [J Appl Physiol;](#) [J Neurophysiol;](#) [Physiol ...](#)

☆  Cited by 16 Related articles All 9 versions

SB Whittemore, B Hoglin, MA Green... - Journal of 2015 - Wiley Online Library

... Animals. Twenty-four ghost crabs *Ocypode quadrata* Fabricius ranging in mass from 2.5 to 65 g were obtained from **Gulf Specimen Marine Laboratories, Inc.** ... Here, the input lever lengths were the distances from the insertion of the apodemes (extensor or flexor) onto the proximal ...

☆ 59 Related articles All 3 versions

JT Payne - 2010 - search.proquest.com

... (b) Are the larvae found in different penaeid species the same **or** different cestode species ... dispute, as it is generally unknown whether larval forms bearing the same name really occupy homologous positions in the life cycles, **or** whether morphologically different ...

☆ 99 Cited by 2 Related articles

Richard

Secure | https://scholar.google.ca/scholar?start=240&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

AppsWoSGoogle ScholarWikipediaGbooksGHangoutGImageUMLDDJournalsNetsetSyncOther Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 25 of about 488 results (0.09 sec)

My profileMy library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

Create alert

Recognition of dominance in the big-clawed snapping shrimp (Alpheus heterochaelis Say 1818) part II: analysis of signal modality

M Obermeier, B Schmitz - Marine and Freshwater Behaviour and ..., 2003 - Taylor & Francis

... To test whether chemical rather than hydrodynamic or visual signals are used, we compared the behaviour of intact snapping shrimp and those lacking the lateral antennular filaments, and ...

Adult snapping shrimp were obtained from the Gulf Specimen Company in March 2001 ...

★ Cited by 18 Related articles All 2 versions

Forming nacreous layer of the shells of the bivalves Atrina rigida and Pinctada margaritifera: an environmental-and cryo-scanning electron microscopy study

F Nudelman, E Shimoni, E Klein, M Rousseau... - Journal of structural ..., 2008 - Elsevier

... rigida) specimens were caught alive on the east coast of Florida and were immediately frozen in liquid nitrogen by Gulf Specimen Marine Laboratories Inc (Panacea ..., from the shell of A. rigida and fixed ones from the shell of P. margaritifera were subjected to chitinase or protease ...

★ Cited by 94 Related articles All 17 versions

Torsion in the asteroid ray

PL O'neill - Journal of morphology, 1990 - Wiley Online Library

... How do starfish manage to twist their rays with- out breaking them or loading the body wall with extremely high shear stresses ... MATERIALS AND METHODS The starfish Echinaster spinulosus was ob- tained from the Gulf Specimen Company (Pana- cea, FL) ...

★ Cited by 4 Related articles All 4 versions

A phylogenetic study of the renin-angiotensin system

JP Capelli, LG Wesson Jr, GE Aponte - American Journal of ..., 1970 - physiology.org

... dence of an important role in electrolyte homeostasis, either directly or through control of mineralocorticoid pro ... thys) or in the glomerular kidneys of the sole or cod. Both thys) or in the glomerular kidneys of the sole or cod. Both classes of these, however, are marine fish ...

★ Cited by 87 Related articles All 4 versions

[HTML] Genomes of Strongylocentrotus franciscanus and Lytechinus variegatus: are there any genomic explanations for the two order of magnitude difference in the ...

PV Sergiev, AA Artemov, EB Prokhortchouk... - Aging (Albany ..., 2016 - ncbi.nlm.nih.gov

... sea urchins, S. franciscanus were purchased from Marinus Scientific LLC, while green sea urchins, L. variegatus were purchased from Gulf Specimen Marine Labs ... If two or more contigs contained conflicting amino acids in a particular position, the amino acid was chosen from ...

★ Cited by 7 Related articles All 7 versions

Evolutionary changes in the olfactory projection neuron pathways of eumalacostracan crustaceans

JM Sullivan, BS Beltz - Journal of Comparative Neurology, 2004 - Wiley Online Library

... obtained from Carolina Biological Supply Company (Burlington, NC), pink shrimp Penaeus duorarum from Gulf Specimen Marine Laboratories (Panacea, FL ... geometrically organized, whereas the hemiellipsoid body is a hemispherical complex of layered or glomerular neuropil ...

★ Cited by 44 Related articles All 11 versions

Guidelines for the care and use of fish in research

LJ DeTolla, S Srinivas, BR Whitaker, C Andrews... - ILAR ..., 1995 - academic.oup.com

Any vertebrate research performed or sponsored by the US government is covered by the US Government Principles for the Utilization and Care of Vertebrate An.

★ Cited by 76 Related articles All 9 versions

Microanatomy of the ventral cord ganglia of the horseshoe crab, Limulus polyphemus (L.)

CR Bursey - Zeitschrift für Zellforschung und Mikroskopische ..., 1973 - Springer

... and Methods The horseshoe crabs, Limulu8 polyphemus (L.), used in this investigation were obtained from the Gulf Specimen Company, Panacea, Florida ... are often seen in sheet-like mussels partially surrounding encapsulated nerve cells and their fibers or lodged within the ...

★ Cited by 3 Related articles All 4 versions

Active bleb formation is abated in Lytechinus variegatus red spherule coelomocytes after disruption of acto-myosin contractility

L D'ANDREA-WINSLOW, AK Novitski - Integrative zoology, 2008 - Wiley Online Library

... mechanism of red spherule bleb motility may become an important key indicator of how pollutants and/or increases in ... Non-gravid, adult Lytechinus variegatus were pur- chased from Gulf Specimen Marine Laboratories (Panacea, FL, USA) and maintained in running saltwater ...

★ Cited by 5 Related articles All 4 versions

[PDF] A new approach to course-based research using a hermit crab-hydrozoan symbiosis. CourseSource

T Galush, C Mazur, S Cotner - 2017 - researchgate.net

... student project was different, but ultimately focused on answering a question related to Hydractinia, hermit crabs, or, ideally, the ... We ordered the colonized shells from Gulf Specimen Marine Laboratories (Panacea, FL) two to three weeks in advance and had them delivered on ...

★ Related articles

[PDF] archives-ouvertes.fr

[HTML] nih.gov

[PDF] welllesley.edu

[PDF] psu.edu

[PDF] wiley.com

[PDF] researchgate.net

< Goooooooooooooogle >

Previous 20 21 22 23 24 25 26 27 28 29 Next

Help Privacy Terms

Sort by relevance
Sort by date

☒ Include patents
☒ Include citations

 Create alert


JB Swaney, IM Klotz - Archives of biochemistry and biophysics, 1971 - Elsevier

... Oxygen binding experiments revealed a high affinity for oxygen, an unusually large Bohr effect, and little or no interaction among the heme groups in ... Erythrocytes were isolated from the marine worm, *Cirratormia grandis*, procured by the Gulf Specimen Company, Panama, Fla. ...

★ 59 Cited by 71 Related articles All 3 versions

R. Hinegardner, DE Rosen - *The American Naturalist*, 1972 - journals.uchicago.edu

... It has been shown in a previous paper (Hinegardner 1968) that highly specialized fishes tend to have less DNA per cell than the more generalized, or less evolved, fishes of the same phyletic grouping. ... METHODS Blood cells or sperm were assayed. ...

☆  Cited by 482 Related articles All 3 versions

DM Maynard, MR Dando - Phil. Trans. R. Soc. 1974 - rstb.royalsocietypublishing.org

... Maine lobsters were obtained alive from local fish suppliers in Ann Arbor, and living blue crabs were purchased from the **Gulf Specimen Company**, Panacea, Florida, or the Marine Biological Laboratory, Woods Hole, Mass., USA General form of the foregut

★ Cited by 276 Related articles All 5 versions

[PDF] researchgate.net

F Nudelman, HH Chen, HA Goldberg, S Weiner... - Faraday 2007 - pubs.rsc.org

... shells of the bivalve *Atrina rigida* from the east coast of Florida were purchased from **Gulf Specimen Marine Laboratories** Inc. (Panacea, FL, USA) and were stored dry at 4 °C. Fragments of the outer calcitic prismatic layer were either broken from the shell edge or broken and ...

☆ 99 Cited by 163 Related articles All 10 versions

D Guerra, K Bouvet, S Breton - Molecular phylogenetics and evolution. 2018 - Elsevier

... Given the extremely ancient age of the phylum, radiated during the early Cambrian or maybe even before (Ponder and Lindberg, 2008), most of the phylogenetic signal ... A specimen of *C. apiculata* from Gulf of Mexico was provided by **Gulf Specimen Marine Laboratories, Inc.** ...

☆ 77 Cited by 1 Related articles All 3 versions

F Nudelman, BA Gottliv, L Addadi, S Weiner - Journal of structural biology, 2006 - Elsevier

... Fresh shells of the bivalve *A. rigida* from the east coast of Florida were purchased from **Gulf Specimen Marine Laboratories** (Panacea, FL, USA) and were ... in Milli-Q water for 10 min and demineralized either by sodium ethylene diamine tetraacetic acid (EDTA, Merck) or by cation ...

☆ 99 Cited by 240 Related articles All 8 versions

DM Conley, J Mallatt - Canadian journal of zoology, 1988 - NRC Research Press

... of CO₂ to H⁺ and HCO₃⁻, or vice versa, and it occurs typically in the cell types that excrete H⁺, HCO₃⁻, or OH⁻ (Maren ... The teleosts and sharks came from pet shops, from Pacific Bio-Marine Laboratories (Venice, California), and from **Gulf Specimen Company** (Panacea, Florida) ...

★ Cited by 54 Related articles All 2 versions

[PDF] brown.edu

EL Brainerd, SN Patek - Copela, 1998 - JSTOR

... A hard carapace covering all **or** part of the body has evolved at least four times within the tetraodontiforms (Fig. 2; Tyler and Bannikov, 1992) ... Video recordings.-For video recordings of C starts, we positioned a camera above an inflat- able wading pool **or** a large aquarium ...

☆ 99 Cited by 97 Related articles All 5 versions

DJ Coughlin, M Akhtar - Journal of Experimental Zoology Part A, 2015 - Wiley Online Library

... Sheepshead, *Archosargus probatocephalus*, were obtained from the **Gulf Specimen Marine Laboratory**, Panama, FL, and kept in re-circulating aquaria at 20°C. They were ... pink muscle is labeled with both X and Y, it is not significantly different from either the red or white muscle ...

☆ 77 Cited by 1 Related articles All 5 versions

[PDF] fwgna.org

JD Robinson, RT Dillon - Bulletin of Marine Science, 2008 - Ingentaconnect.com

... We speculate that the introduction may have been mediated by oyster or hard clam aquaculture ...
Our reference population of *N* = 30 *U. tampaensis* (TAMP) was supplied by the **Gulf Specimen Marine Lab** from Fiddler's point, in Apalachee Bay, panacea, Florida (30.036°N ...



☆ Cited by 4 Related articles All 5 versions

Sort by relevance
Sort by date

 [Create alert](#)

RA Shroat-Lewis - 2007 - libres.uncg.edu


... aerated, and kept at room temperature (~ 24°C). Foam "coral" branches provided by the **Gulf Specimen Marine Laboratories** were used as substrate in the aquarium ... run: (1) presence of sediment; (2) salinity; (3) temperature; and/or (4) speed of rotation ...

☆  Cited by 3 [Related articles](#) [All 2 versions](#) 

[PDF] uncg.edu

JL Jackson, DR Webster, S Rahman... - Limnology and ..., 2007 - Wiley Online Library


... Behavior trials—Blue crabs were purchased from **Gulf Specimen Marine Laboratory**, Panama, Florida, USA, and collected from Wassaw Sound, Georgia, USA, and ... Within this time period, crabs either moved across the test section and missed or found the odorant source, or ...

☆  Cited by 61 Related articles All 11 versions

[PDF] wiley.com

CA Tsu, CS Craik - Journal of Biological Chemistry, 1996 - ASBMB

... Live fiddler crabs (*U. pugnator*) were obtained from **Gulf Specimen Marine Laboratory** (Panacea, FL) ... Either an EcoRI fragment containing the entire FC1 cDNA or a 200-bp pair EcoRI-NheI fragment of the 5' end of the cDNA were used as templates ...

☆  Cited by 26 Related articles All 9 versions

[PDF] jbc.org

AR Hardy, RA Merz - Invertebrate Biology, 2013 - Wiley Online Library

... of *Mellita quinquesperforata* ranging 48.5–87.0 mm (mean=62.9 mm) in diameter were purchased from **Gulf Specimen Marine Labs**, Panama, FL ... $n=30$) were positioned so that the posterior margin of the test was pointing directly upstream, perpendicular, or downstream relative ...

☆ 99 Related articles All 4 versions

Z Cheng, GS Wasserman - Biological cybernetics, 1996 - Springer

... codes would change with intensity and/or adaptation state. The stimulating ... chief ganglion. Mature, imulus with clear lateral eyes were obtained by air express from the **Gulf Specimen Company** in Panama, Florida. They were ...

☆ 99 Cited by 12 Related articles All 16 versions

R Gordon, BJ Poulin - The Science of Algal Fuels, 2012 - Springer

... Nevertheless, with many oil fields empirically already past their peak production, the concept of "peak oil" may be a reality "within the next decade or so" (Sorrell et al., 2012), though it would seem that we face a broad peak and a slow decline. What about all that carbon dioxide ...

☆ 77 Cited by 2 Related articles

[PDF] wiley.com

CT Amemiya, SJ Prohaska, A Hill-Force... - ... Zoology Part B ... 2008 - Wiley Online Library

... in their genomic context, relationships with regard to co-linearity of physical arrangement and expression patterns during embryonic and larval development are not known or can only ... Adult amphioxus specimens were purchased from **Gulf Specimen Marine Lab** (Panacea, FL ...

☆ 77 Cited by 57 Related articles All 14 versions

[PDF] semanticscholar.org

WH Fahrenbach - Proc. R. Soc. Lond. B. 1985 - rsob.royalsocietypublishing.org

... AND METHODS Animals were obtained from the Marine Biological Laboratory, Woods Hole, Massachusetts, and from the **Gulf Specimen Company**, Panama, Florida ... The need for very long and flawless serial sections required renewed attention to, or modification of, every step ...

☆ 99 Cited by 46 Related articles All 8 versions

[PDF] peerj.com

BJ Alicea, R Gordon - PeerJ Preprints, 2018 - peerj.com

... 2, Richard Gordon^{3,4} 1 OpenWorm Foundation, Boston, MA USA 2 bradly.alicea@outlook.com
3 **Gulf Specimen Marine Laboratory** and Aquarium ... Regulative development should demonstrate
spatial "smearing" or deviations from the compartmentalization of the mosaic process ...

☆ Cited by 1 Related articles All 4 versions

[HTML] plos.org

H Chang, BJ Kim, YS Kim, SS Suarez, M Wu - PloS one, 2013 - journals.plos.org

... Sea urchins *Arbacia punctulata* were purchased from **Gulf Specimen Marine Laboratory** (Panacea, FL) and kept in an ASW tank (salinity 33–36 ppt and ... Briefly, a 3% (w/v) agarose solution was made by dissolving agarose (Fisher Scientific, NH) in ASW or BSA-free mouse ...

☆ Cited by 23 Related articles All 15 versions

"Gulf Specimen Company" OR

Richard

Secure

https://scholar.google.ca/scholar?start=350&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

Apps

WoS

Google Scholar

Wikipedia

Gbooks

GHangout

Glimage

UML

DD

Journals

Netset

Sync

»

Other Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 36 of about 488 results (0.10 sec)

My profile

My library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

include patents

include citations

Create alert

[PDF] Distributed to more than 20 countries.

R Dickinson - seabean.com

... Also the customs form for New Zealand asks if you are carrying any seeds or nuts and the US one doesn't ... He is the founder and director of the Sea Life Museum and the **Gulf Specimen Company** in Panacea, Florida, conducting biological research using specimens he has been ...

Related articles

All 3 versions

[PDF] seabean.com

The modality of the dominance signal in snapping shrimp (*Alpheus heterochaelis*) and the corresponding setal types on the antennules

M Obermeier, B Schmitz - Marine and Freshwater Behaviour and ..., 2004 - Taylor & Francis

... Three of these types are simple non-setuled setae, which may represent three different setal types or different developmental stages of ... Big-clawed snapping shrimp (*A. heterochaelis*) were obtained from the **Gulf Specimen Company** in March 2001 after being caught in mud flats ...

Cited by 13

Related articles

All 2 versions

[PDF] The Grass Shrimp, Palaemonetes, Pugio: Hypoxic Influences on Embryonic Development

CC Javier - 2014 - digitalscholarship.unlv.edu

... contraction. The central nervous system conducts action potentials to the dorsal cardiac ganglion, allowing excitatory or inhibitory response by the cardiac myocytes. Mammalian hearts are similarly controlled by an intrinsic nodal conduction system and ...

Related articles

All 4 versions

The visual fields of American horseshoe crabs: Two different eye shapes in *Limulus polyphemus*

WW Weiner, SC Chamberlain - Visual neuroscience, 1994 - cambridge.org

... obtained from the Marine Biological Laboratory (Woods Hole, MA), and animals collected in the Gulf of Mex- ico, from the **Gulf Specimen Company** (Panacea, FL ... the optic axis of the camera perpendicular to the midplane and the edge of the frame parallel to horizontal; or (3) the ...

Cited by 14

Related articles

All 4 versions

Evolution of linear mitochondrial genomes in medusozoan cnidarians

E Kayal, B Bentlage, AG Collins, M Kayal... - Genome biology and ..., 2011 - academic.oup.com

Abstract. In nearly all animals, mitochondrial DNA (mtDNA) consists of a single circular molecule that encodes several subunits of the protein complexes involv.

Cited by 100

Related articles

All 15 versions

Life before earth

AA Sharov, R Gordon - arXiv preprint arXiv:1304.3381, 2013 - arxiv.org

... Richard Gordon, Ph.D. Theoretical Biologist, Embryogenesis Center **Gulf Specimen Marine Laboratory**, PO Box 237, 222 Clark Drive Panacea FL 32346 USA ... Function can be defined as a reproducible sequence of actions of organisms that satisfies specific needs or helps to ...

Cited by 19

Related articles

All 11 versions

Evolution of isozyme loci and their differential tissue expression

SE Fisher, GS Whitt - Journal of molecular evolution, 1978 - Springer

... coupled with immunoprecipitation is a sensitive technique for assessing the physical homologies of paralogous (or orthologous) isozymes (Markert ... suppliers were: The Aquarist, Champaign, IL.; Lee's Fishes of the World, Schaumburg, IL.; **Gulf Specimen Company**, Panacea, FL ...

Cited by 86

Related articles

All 5 versions

Genomics reveal ancient forms of stanniocalcin in amphioxus and tunicate

GJ Roch, NM Sherwood - Integrative and comparative biology, 2010 - academic.oup.com

Abstract. Stanniocalcin (STC) is present throughout vertebrates, including humans, but a structure for STC has not been identified in animals that evolved befo.

Cited by 8

Related articles

All 5 versions

RXR isoforms and endogenous retinoids in the fiddler crab, *Uca pugnator*

PM Hopkins, D Durica, T Washington - ... and Physiology Part A: Molecular & ..., 2008 - Elsevier

... Ponasterone A (PA), however, at concentrations of 1uM (or higher) did stimulate transactivation and reporter gene activity in UpEcR/UpRXR(33)(Wu et al., 2004) ... 2.1. Materials, animals, and chemicals. Crabs were purchased from **Gulf Specimen Company** (Panacea, Florida) ...

Cited by 46

Related articles

All 6 versions

The morphology and evolution of the ventral gill arch skeleton in batoid fishes (Chondrichthyes: Batoidea)

T MIYAKE, JD MCEACHRAN - Zoological Journal of the ..., 1991 - Wiley Online Library

... fishes. Torpedo and possibly the Jurassic Belemnoball.r and Spathobatis possess the generalized or typical chondrichthyan ventral gill arch structure in which the hypobranchials form a X-shaped pattern ... Fig. 4E: cbl or pseuh?) ...

Cited by 39

Related articles

All 4 versions

[PDF] oup.com

< Gooooooooooooole >

Previous

31 32 33 34 35 36 37 38 39 40

Next

Help

Privacy

Terms

Richard

← → ↺ 🔒 Secure | https://scholar.google.ca/scholar?start=360&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G... 🔍 ☆ ⋮

📱 Apps 📺 WoS 📖 Google Scholar 📖 Wikipedia 📖 Gbooks 🗣️ GHangout 📷 GImage 🔄 UML 🏠 DD 📁 Journals 📄 Netset 🔄 Sync » 📁 Other Bookmarks

☰ Google Scholar 🔍 "Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim" 👤

📌 Articles Page 37 of about 488 results (0.11 sec) 🎓 My profile ★ My library 🔔

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

📧 Create alert

Ultraviolet radiation and echinoderms: past, present and future perspectives [PDF] researchgate.net

[M Lamare](#), [D Burritt](#), K Lister - *Advances in marine biology*, 2011 - Elsevier

... When repair is not sufficient, damage can result in impaired embryonic and larval development, slower growth or eventually mortality of individuals ... (2007). *Lytechinus variegatus*, Covering, Adults, **Gulf Specimen Marine Laboratories**, Panacea, Florida, USA (Lab), Sigg et al ...

☆ 📄 Cited by 13 Related articles All 5 versions

[BOOK] Functional morphology of aquatic substrate-based locomotion in walking batfishes (Lophiiformes; Ogcocephalidae)

C Rade - 2013 - [search.proquest.com](#)

... The arrector dorsalis originates on the medial or dorsal surface of the pectoral or pelvic girdle and will also insert on the marginal fin ray (Diogo, 2007; Nelson, 2006) ... Study animals Batfishes were obtained from **Gulf Specimen Marine Lab** in Panacea, Florida and included ...

☆ 📄 Related articles

A waterborne chemical cue from Gulf toadfish, *Opsanus beta*, prompts pulsatile urea excretion in conspecifics

J Fulton, [CMR LeMoine](#), [C Bucking](#), [KV Brix](#)... - *Physiology & ...*, 2017 - Elsevier

... The potential for heat-treated or solid-phase extracted PC-SW as well as certain individual substances, specifically urea ... conducted at the University of Ottawa, Gulf toadfish, *Opsanus beta* (Goode and Bean), were purchased from **Gulf Specimen Marine Laboratory** (Panacea, FL ...

☆ 📄 Cited by 2 Related articles All 6 versions

Evidence for transcriptional regulation of the urea transporter in the gill of the Gulf toadfish, *Opsanus beta*

TM Rodela, [AJ Esbaugh](#), [MD McDonald](#)... - ... and *Physiology Part B ...*, 2011 - Elsevier

... For Series II, toadfish were obtained from **Gulf Specimen Marine Lab** in Panacea, FL, USA and housed at the University of Ottawa, Ottawa, ON, Canada. All experiments were conducted under either a protocol approved by the University of Miami IACUC or a protocol (#BL-206 ...

☆ 📄 Cited by 17 Related articles All 7 versions

[HTML] Did shell-crushing crabs trigger an escalatory arms race in the aftermath of a Late Neogene regional mass extinction event? An experimental test [HTML] sciencedirect.com

[LB Whitenack](#), [GS Herbert](#) - *Palaeogeography, palaeoclimatology ...*, 2015 - Elsevier

... adina hybrids (carapace width = 84.0–96.3 mm), hereafter simply referred to as Menippe, were obtained from **Gulf Specimen Marine Laboratories** (Panacea, Florida ... of Mexico (24° 29.87' N, 81° 90.11' W). None of the specimens chosen had any shell breakage or repair from ...

☆ 📄 Cited by 8 Related articles All 9 versions

Chemico-structural degradation of Carboniferous lingulid shells

[M Cusack](#), A Williams - *Phil. Trans. R. Soc. Lond. B*, 1996 - [rstb.royalsocietypublishing.org](#)

... Japan, collected by A.N.; and Glottidz'a pyramidata (Stimpson) from sandbars in Florida, USA, purchased from the **Gulf Specimen Company** Inc ... preferably with adherent matrix) and valves surfaces were cleaned of most extraneous particles by an air jet or exceptionally by brief ...

☆ 📄 Cited by 18 Related articles All 5 versions

Lactate dehydrogenase (LDH) gene duplication during chordate evolution: the cDNA sequence of the LDH of the tunicate *Styela plicata*.

DW Stock, JM Quattro, GS Whitt... - *Molecular biology and ...*, 1997 - [academic.oup.com](#)

... Materials and Methods RNA Extraction Adult specimens of the tunicate *Styelu plicata* were obtained from **Gulf Specimen Company** (Panacea, Fla.) ... Reverse Transcription Total RNA was reverse transcribed with MMLV re- verse transcriptase and either random hexamers or a dT ...

★ 📄 Cited by 32 Related articles All 6 versions

Toxicological and chemical assessment of ordnance compounds in marine sediments and porewaters

M Nipper, RS Carr, JM Biedenbach, RL Hooten... - *Marine pollution ...*, 2002 - Elsevier

... Test jars were prepared 24 h prior to test initiation, by addition of 200 ml of spiked or control sediment, followed by 700 ml of seawater at 30 ppt salinity ... *Arbacia punctulata* urchins used in this study were obtained from **Gulf Specimen Company**, Inc., Panacea, FL ...

☆ 📄 Cited by 51 Related articles All 8 versions

Flow structure and transport characteristics of feeding and exchange currents generated by upside-down *Cassiopea* jellyfish [PDF] biologists.org

[A Santhanakrishnan](#), M Dollinger... - *Journal of ...*, 2012 - [jeb.biologists.org](#)

Skip to main content. Advertisement.

☆ 📄 Cited by 16 Related articles All 10 versions

[PDF] Divergent mechanisms regulate conserved cardiopharyngeal development and gene expression in distantly related ascidians [PDF] elifesciences.org

[A Stolfi](#), [EK Lowe](#), [C Racioppi](#), [F Ristoratore](#), [CT Brown](#)... - *Elife*, 2014 - [cdn.elifesciences.org](#)

... Panacea, Florida, USA (**Gulf Specimen Marine Lab**). Genomic DNA was sheared using an M220 Focused- 165 ultrasonicator (Covaris, Woburn, MA) ... beads (300-400 bp fragments), or Sage Science (Beverly, MA) Pippin Prep (650-750 bp and 875-975 bp 169 fragments) ...

☆ 📄 Cited by 38 Related articles All 11 versions 🔗

🔍 Goooooooooooooogle 🔍

Previous 32 33 34 35 36 37 38 39 40 41 Next

Help

Privacy

Terms

Richard

Secure | https://scholar.google.ca/scholar?start=370&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

AppsWoSGoogle ScholarWikipediaGbooksGHangoutGImageUMLDDJournalsNetsetSyncOther Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 38 of about 488 results (0.13 sec)

My profileMy library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

Create alert

Purification and amino acid composition of the hyperglycemic neurohormone from the sinus gland ofOrconectes limosus and comparison with the hormone ...

R Keller - Journal of comparative physiology, 1981 - Springer

... acid-oxidized CHH were hydrolyzed in vacuo at 110 ~ in 5.6 N HC1 (three times distilled) for 20, 70 or 120 h ... Crayfish, Orconectes limosus and fiddler crabs, Uca pug# lator (**Gulf Specimen Company**, Panacea, Florida) were used for the determination of hyperglycemic activity ...

☆ 39Cited by 39Related articlesAll 2 versions

Detection, Verification and Decoding of Tags and Marks in Head Started Kemp's Ridley Sea Turtles, Lepidochelys kempii

TD Williams, DB Revera, CT Fontaine, CW Callouet Jr - 1993 - tamug-ir.tdl.org

... On top of this layer, 1 to 3 kg of "dry ice" should be placed, wrapped in newspaper or other suitable ... NA90AA-H-MF090, submitted to the National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida, **Gulf Specimen Marine Laboratories**, Panacea, Florida ...

☆ 2Related articlesAll 2 versions

Taste-mediated behavioral and electrophysiological responses by the predatory fish Ariopsis felis to deterrent pigments from Aplysia californica ink

M Nusnbaum, JF Aggio, CD Derby - Journal of Comparative Physiology A, 2012 - Springer

... Sea catfish, A. fells (male and female, 12–30 cm), were collected by **Gulf Specimen Marine Laboratory** (Panacea, FL) and the Whitney Laboratory for Marine Bioscience (St ... in a Petri dish with the blunt end of a scalpel handle; the resultant ink is considered full strength, or 100 ...

☆ 5Cited by 5Related articlesAll 13 versions

Multiple Mariner Transposons in Flatworms and Hydras Are Related to Those of Insects

HM Robertson - Journal of Heredity, 1997 - academic.oup.com

... chain reaction (PCR) and primers designed to conserved regions of particular families of transposable elements to discover related elements even in organisms not previously subjected to intense genetic or molecular analysis ... GSML- **Gulf Specimen Marine Laboratories** ...

☆ 85Cited by 85Related articlesAll 6 versions

[PDF] Echiura of the Gulf of Mexico

JF Pilger - Gulf of Mexico—Origins, Waters, and Biota. Biodiversity, 2009 - biogomx.org

... account is based on recorded citations that were substantiated by subsequent examination of the specimens or other documented ... 1 Based on living specimens from Apalachicola Bay, Florida, collected by **Gulf Specimen Company** and advertised under the junior synonym ...

☆ 1Cited by 1Related articlesAll 5 versions

[BOOK] The behavioral basis for blue crab recruitment in mid-Atlantic estuaries

SD Sulkin - 1981 - mdsg.umd.edu

... According to Dr. Sulkin's theory, however, the significant source of recruitment is the result of a more complex process of larvae loss and recovery: early stage larvae, or zoeae, are flushed from the estuary in surface waters at the mouth of the Bay; in late stages, larvae descend ...

☆ 1Cited by 1Related articlesAll 2 versions

[PDF] Dean

CS Taylor - University College, Utah Valley University, 2010 - researchgate.net

... Food Sciences. Whether you have been a part of the FAMU community for decades, one year, one semester, or you are just joining us, welcome to the start of the new semester and the 2017-2018 academic school year. With ...

☆ 2Cited by 2Related articlesAll 3 versions

[PDF] NHMFL

NSNN Laureates - 1998 - Citeseer

... The top panels show the sequential assignments in the "fingerprint" region. The bottom panels show the amide proton region, which is indicative of conformations with compact structures like turns or helices ... **Gulf Specimen Marine Laboratory**, and many others ...

☆ 2All 2 versions

[PDF] eS BBS NOAA TECHNICAL MEMORANDUM NMFS-SEFC.-334

DOF TAGS, SEA TURTLES, L KEMPI - 1993 - researchgate.net

... On top of this layer, 1 to 3 kg of "dry ice" should be placed, wrapped in newspaper or other suitable ... NA90AA-H-MF090, submitted to the National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida, **Gulf Specimen Marine Laboratories**, Panacea, Florida ...

☆ 2Related articlesAll 2 versions

[PDF] Evolution of the Florida State University Coastal and Marine Laboratory

MJ Greenberg, WF Herrnkind... - Gulf of Mexico Science, 2010 - aquila.usm.edu

... involved a drive with his students from town to the coast, during which they collected (as available) birds, fish, snails, or even fresh ... grew up to be a marine biologist in Panacea, FL, co-Managing Director (with his wife Anne) of the **Gulf Specimen Marine Laboratory** there, and a ...

☆ 2Cited by 2Related articlesAll 2 versions

<Gooooooooooooo>

Previous33343536373839404142Next

HelpPrivacyTerms

Richard

Secure | https://scholar.google.ca/scholar?start=380&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

AppsWoSGoogle ScholarWikipediaGbooksGHangoutGImageUMLDDJournalsNetsetSyncOther Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 39 of about 488 results (0.11 sec)

My profileMy library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

include patents

include citations

Create alert

[PDF] ... Marine Sponge Amphimedon Viridis: Are Faunal Associations Likely to Provide Refuge from Fish Predation Due to Physical Or Chemical Feeding Deterrent ...

J Huang - 2008 - mhs1.uab.edu

... evaluation of the ability of this sponge to deter fish predation by physical (spicule) and/or chemical (lipophilic or hydrophilic secondary metabolite) defenses. Page 14. 7 ... procured from the Gulf Specimen Marine Lab (Panacea, FL 32346, phone (850) 984- 5297) ...

Related articles

[PDF] uab.edu

Expression of G Proteins in the Eyes and Parietovisceral Ganglion of the Bay Scallop Argopecten irradians

ACN Kingston, DR Chappell, HV Miller... - The Biological ..., 2017 - journals.uchicago.edu

... We acquired bay scallops (Argopecten irradians) from Gulf Specimen Marine Laboratory (Panacea, FL) in June 2016 and housed them at the University of ... was reverse transcribed using Superscript III Reverse Transcriptase and an oligo(dT) primer (Life Technologies) or 5/3 ...

Related articlesAll 5 versions

[PDF] uchicago.edu

[PDF] SEA TURTLES, LEPIDOCHEL YS KEMPII

CT Fontaine, DB Revera - 1993 - repository.library.noaa.gov

... On top of this layer, 1 to 3 kg of "dry ice" should be placed, wrapped in newspaper or other suitable paper ... submitted to the National Marine Fisheries Service, Southeast Fisheries Science Center, Miami, Florida, Gulf Specimen Marine Laboratories, Panacea, Florida, 34 p ...

Related articles

[PDF] noaa.gov

[PDF] SeeS MDU-T-81-002 C3

SD Sulkin - nsgl.gso.uri.edu

... According to Dr. Sulkin "s theory, however, the significant source of recruitment is the result of a more com- plex process of larvae loss and recovery : early | stage larvae, or zoeae, are flushed from the estuary in surface waters at the mouth of the Bay; in late i stages, larvae ...

Related articles

[PDF] uri.edu

Interactions with fishes of five species of Lysmata (Decapoda, Caridea, Lysmatidae)

MK Wicksten - Crustaceana, 2009 - JSTOR

... (IKAN, Frankfurt). Dreyer, K., 1994. Cleaning symbiosis between shrimp (Hippolytidae) and moray eels (Mu raenidae): primitive or advanced? Proc ... Page 11. NOTES AND NEWS 1223 RUDLOE, A., 1999. Gulf specimen marine laboratories catalog: 1-91. (Gulf Specimen Mar ...

Cited by 15Related articlesAll 2 versions

Techniques for the analysis of radiation-induced mitotic delay in synchronously-dividing sea urchin eggs

RC RUSTAD - Concepts in Radiation Cell Biology (G. Whitson ..., 1972 - books.google.com

... 33043 Gulf Specimen Company, Inc ... b The individual suppliers should be contacted concerning what times of the year they might provide sea urchins or sand dollars containing gametes "suitable for research" and not simply "adequate for classroom demonstrations." Page 173 ...

Cited by 2Related articlesAll 3 versions

Development of a Kemp's ridley sea turtle stock assessment model

BJ Gallaway, WJ Gazey, CW Caillouet Jr... - Gulf of Mexico ..., 2016 - aquila.usm.edu

... The following mark-recapture data were not used (censored) in our analysis: 1) captive-reared, head-started, or rehabilitated turtles; 2) turtles that transited into or out of the Gulf of Mexico (Mexican and US waters); 3) turtles ...

Cited by 8Related articlesAll 2 versions

[PDF] usm.edu

Book gill development in embryos and first and second instars of the horseshoe crab Limulus polyphemus L.(Chelicerata, Xiphosura)

RD Farley - Arthropod structure & development, 2010 - Elsevier

... The second instar is the last stage examined herein, but there may be 17 or 18 instars taking 9-12 years to reach maturity (Sekiguchi et al., 1988a,b; Shuster and ... Fertilized eggs of L. polyphemus were obtained from Gulf Specimen Marine Lab (Panacea, FL), Spring, 2008 ...

Cited by 14Related articlesAll 6 versions

[PDF] researchgate.net

Oesophageal chemoreceptors of blue crabs, Callinectes sapidus, sense chemical deterrents and can block ingestion of food

JF Aggio, R Tieu, A Wei, CD Derby - Journal of Experimental ..., 2012 - jeb.biologists.org

Cited by 16Related articlesAll 7 versions

[PDF] biologists.org

[HTML] Assessment of sperm chemokinesis with exposure to jelly coats of sea urchin eggs and resact: a microfluidic experiment and numerical study

MV Inamdar, T Kim, YK Chung, AM Was... - Journal of ..., 2007 - jeb.biologists.org

Skip to main content. Advertisement. Main menu. Home; Articles: Accepted manuscripts; Current issue; Issue archive; Archive by article type; Special issues; Subject collections; Interviews; Alerts. About us: About JEB; Editors and Board; ...

Cited by 20Related articlesAll 11 versions

[HTML] biologists.org

< Gooooooooooooole >

Previous34 35 36 37 38 39 40 41 42 43Next

HelpPrivacyTerms

Richard

← → ↻ 🔒 Secure | https://scholar.google.ca/scholar?start=410&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G... 🔍 ☆ ⋮

📱 Apps 🎮 WoS 📖 Google Scholar 📖 Wikipedia 📖 Gbooks 🗣️ GHangout 📷 GImage 🔄 UML 🏠 DD 📁 Journals 📄 Netset 🔄 Sync » 📁 Other Bookmarks

☰ Google Scholar 🔍 "Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim" 👤

📖 Articles Page 42 of about 488 results (0.13 sec) 🎓 My profile ★ My library 🔔

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

📧 Create alert

[HTML] The complex simplicity of the brittle star nervous system [HTML] biomedcentral.com

[Q Zueva](#), [M Khoury](#), [T Heinzeller](#)... - Frontiers in ... , 2018 - frontiersinzooology.biomedcentral ...

... Most modern reports focus on individual aspects of echinoderm neurobiology (eg, immunostaining with one **or** a few cell type markers, ultrastructure of certain ... Adult individuals of *Ophioderma brevispinum* Say, 1825 were purchased from **Gulf Specimen Marine Laboratories**, Inc ...

☆ 📄 Related articles All 10 versions 🔗

Applying Ecological Gap Analysis as a Tool for Restoration Planning [PDF] harvard.edu

[M Amend](#) - 2017 - dash.harvard.edu

... Page 4. Abstract Following oil spills, such as the Deepwater Horizon oil spill, **or** the release of other hazardous materials, natural resources and their services can be lost **or** diminished ... In addition, most of the projects did not occur on the most productive **or** the most threatened ...

☆ 📄 🔗

Anatomy of a cline: dissecting anti-predatory adaptations in a marine gastropod along the US Atlantic coast [PDF] researchgate.net

[ME Kosloski](#), [GP Dietl](#), [JC Handley](#) - Ecography, 2017 - Wiley Online Library

... Th shoulder, Thickness measured at shoulder of shell. Th ridge, Thickness measured at tumid ridge of shell, **or** where ridge would be if not present ... Five large male stone crabs (carapace widths from 8–10 cm) were obtained from **Gulf Specimen Laboratories** in Panacea, Florida ...

☆ 📄 Related articles All 5 versions

Social Signaling and Urea Excretion in the Gulf Toadfish, *Opsanus beta* [PDF] uottawa.ca

[J Fulton](#) - 2013 - ruor.uottawa.ca

... signal candidates in gulf toadfish urea pulsing would be molecules involved in urea production **or** excretion ... The University of Ottawa gulf toadfish, *Opsanus beta* (Goode and Bean), were purchased from **Gulf Specimen Marine Laboratory** (Panacea, FL) and were express ...

☆ 📄 Related articles All 2 versions 🔗

[PDF] Sea Urchin Development [PDF] ableweb.org

[AF Conway](#), [D Igelsrud](#), [AF Conway](#) - 1981 - ableweb.org

... Introduction Sea urchins (Phylum Echinodermata, Class Echinoidea) are excellent **or**- ganisms for demonstrating fertilization and early development ... Sea urchins are also an excellent choice of living material for use in general biology **or** general zoology labs on development ...

☆ 📄 Cited by 1 Related articles 🔗

Echinoderm eggs and embryos: procurement and culture

[KR Foltz](#), [NL Adams](#), [LL Runft](#) - Methods in cell biology, 2004 - Elsevier

... For each species specific advantages and special note is made of key issues to consider when handling adults, collecting gametes, **or** setting and maintaining embryo cultures. The chapter provides information regarding interspecific crosses. I. Introduction. A. Background ...

☆ 📄 Cited by 59 Related articles All 4 versions

Discovery and development of antineoplastic agents from natural sources

[M Suffness](#), [DJ Newman](#), [K Snader](#) - Bioorganic marine chemistry, 1989 - Springer

... 3.2 Disease-Oriented Screening Systems 4. Marine-Derived Antitumor **or** Cytotoxic Compounds 5. Current and Future Directions in Screening Marine Natural Products 6. Development of Active Compounds ... Alternate Uses: Monitor Prescreen **or** None Prescreen Monitor ...

☆ 📄 Cited by 58 Related articles All 3 versions

The Effect of Temperature Extremes on Cardiorespiratory Function in the Grass Shrimp *Palaemonetes pugio*: Oxygen Limited Thermal Tolerance [PDF] unlv.edu

[T Mika](#) - 2013 - digitalscholarship.unlv.edu

... Dr. Carl L. Reiber, Examination Committee Chair University of Nevada, Las Vegas Aquatic poikilothermic animals must either cope with **or** compensate for the mismatch in ... These changing conditions represent challenges to which organisms must respond **or** tolerate to survive ...

☆ 📄 Related articles All 3 versions 🔗

[PDF] PREDATION BEHAVIOR OF OCTOPUS JOUBINI CUVIER [PDF] academia.edu

[B MERLINO](#) - 2013 - academia.edu

... herbivores. The second described hypothesis is called the "bottom up" hypothesis which involves lower level organisms not being as abundant **or** edible to the higher level organisms ... highly desired prey items. A close patch with many less desired prey items may **or** may ...

☆ 📄 Related articles 🔗

"Jellyfish: Dispatches from a Gelatinous Ocean": A non-fiction book proposal [PDF] oregonstate.edu

[R Register](#) - 2011 - ir.library.oregonstate.edu

... This divide seems to fall along the lines of how the information is acquired with active acquisition (ie, reading) favored over passive (ie, listening **or** watching). Steel et al ... they are likely to change their views but not everyone can visit the coast **or** have access to marine exhibits ...

☆ 📄 Related articles 🔗

< Goooooooooooooogle >

Previous 37 38 39 40 41 42 43 44 45 46 Next

Help Privacy Terms

Any time
Since 2018
Since 2017
Since 2014
Custom range...

Sort by relevance
Sort by date

☒ Include patents
☒ Include citations

☒ Create alert

Quantifying Mosaic Development: Towards an Evo-Devo Postmodern Synthesis of the Evolution of Development via Differentiation Trees of Embryos

B Alicea, R Gordon - Biology, 2016 - mdpi.com

... 3. **Gulf Specimen Marine Laboratory** & Aquarium, 222 Clark Drive, Panacea, FL 32346, USA.
4. CS Mott Center for Human Growth & Development ... species, whereas regulating embryos easily adjust to the number of cells available, whether varied by cutting [1] or by ploidy [10] ...

☆ Cited by 4 Related articles All 9 versions

[HTML] mdpi.com

Understanding the morphology and distribution of nematocysts in sea anemones and their relatives

AJ Reft - 2012 - rave.ohiolink.edu

... Specimens were collected in the field from various localities (see Table 2.1) or obtained from commercial sources such as Aquarium Adventure (Columbus, OH), **Gulf Specimen Marine Lab** (Panacea, FL), and Reef Hot Spot (Inglewood, CA). A few ...

☆ Cited by 2 Related articles All 3 versions

[PDF] ohiolink.edu

Crustacean hormone nuclear receptors: Characterization, gene expression, and evolution.

CA Chung - 1998 - shareok.org

... This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some ... NOTE TO USERS The original manuscript received by UMI contains pages with indistinct and/or slanted print. Pages were microfilmed as ...

☆ All 2 versions

[PDF] shareok.org

Magnitude and extent of chemical contamination and toxicity in sediments of Biscayne Bay and vicinity

ER Long, GM Sloane, GI Scott, B Thompson, RS Carr... - 1999 - aquaticcommons.org

... Such approval does not signify that the contents of this report necessarily represents the official position of NOAA or of the Government of the United States, nor does mention of trade names or commerical products constitute endorsement or recommendation for their use ...

☆ Cited by 19 Related articles All 10 versions

[PDF] aquaticcommons.org

[BOOK] Biocommunication: Sign-mediated Interactions Between Cells and Organisms

G Richard, S Joseph - 2016 - books.google.com

... to Biocommunication Joseph Seckbach*,§ and Richard Gordon†,‡,| The Hebrew University of Jerusalem, Israel †**Gulf Specimen Marine Laboratory** Panacea, Florida ... signs of coordination, cooperation, and organization between members of the same, related, or non- related ...

☆ Related articles All 2 versions

[HTML] oup.com

Differences in environmental predictability underlie divergent competitive abilities in three congeneric hydroids

DL Ferrell - Biological Journal of the Linnean Society, 2009 - academic.oup.com

... Extensive intraspecific variation in competitive ability was explained primarily by crab host species or site. Dense host populations impose more severe disturbance regimes that favour competitively inferior, but disturbance-resistant, phenotypes ...

☆ Related articles All 5 versions

Design for maintainability

M Chew, N Silva, S Tan - Proc. 2th Int. Symp. on Building Pathology ..., 2003 - World Scientific

... Conditions such as stroke, vestibular deficits, or old age impair this important activity ... edited by Joseph Seckbach (The Hebrew University of Jerusalem, Israel), Richard Gordon (**Gulf Specimen Marine Laboratory** & Aquarium, USA & Wayne State University, USA). 560pp ...

☆ Cited by 2 Related articles All 2 versions

Coupling of growth, differentiation and morphogenesis: an integrated approach to design in embryogenesis

V Fleury, R Gordon - Origin (s) of Design in Nature, 2012 - Springer

... venous phenotype), compressive stress (gastrulation, cartilage formation) or tensile stress (plant budding). This also includes the important case of apoptosis, which may be induced by mechanical forces (finger webbing or non-webbing in response to ectodermal tension) ...

☆ Cited by 15 Related articles All 4 versions

Oriented calcite micropillars and prisms formed through aggregation and recrystallization of poly (acrylic acid) stabilized nanoparticles

X Long, Y Ma, KR Cho, D Li, JJ De Yoreo... - Crystal Growth & ..., 2013 - ACS Publications

... prismatic layer of mollusk shells,(8, 9) sea urchin teeth,(10) and coccoliths.(11) Numerous studies have shown that many biogenic minerals form from amorphous precursors,(2, 12, 13) which are believed to be temporarily stabilized by biomolecules(12, 14) or simple inorganic ...

☆ Cited by 11 Related articles All 2 versions

[PDF] pku.edu.cn

[PDF] TAMU-CC-0105-CCS

RS Carr, M Nipper, GS Plumlee - nrt.org

... maintained at 20 ± 1°C. Sample salinity was measured and adjusted to 30 ± 1 o /oo using purified deionized water or concentrated brine ... SOP F10.6 and F10.7 (Appendices 2 and 3). Arbacia punctulata urchins used in this study were obtained from **Gulf Specimen Company**, Inc ...

☆ Related articles All 2 versions

[PDF] nrt.org

Richard

Secure | https://scholar.google.ca/scholar?start=460&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

AppsWoSGoogle ScholarWikipediaGbooksGHangoutGImageUMLDDJournalsNetsetSyncOther Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Articles

Page 47 of about 488 results (0.14 sec)

My profileMy library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

Create alert

[BOOK] Vertical Reefs: Life on Oil and Gas Platforms in the Gulf of Mexico

MK Wicksten - 2015 - books.google.com

... not available, I have used a photograph of the same species from elsewhere in the Gulf of Mexico or Caribbean waters ... I also thank Page Williams and Dana Larsen of Houston, Texas, for their comments and Anne Rudloe of Gulf Specimen Marine Laboratories, Panacea, Florida ...

☆Cited by 1Related articlesAll 3 versions

[BOOK] Priceless Florida: Natural ecosystems and native species

EN Whitney, DB Means, A Rudloe - 2004 - books.google.com

... No part of this book may be reproduced in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher ...

☆Cited by 71Related articlesAll 2 versions

[PDF] my rzm man

S Weiner - Ann Arbor - lib-phds1.weizmann.ac.il

... Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction ... A second group of acidic proteins is rich in glutamic acid or glutamine (Alzenberg et al. 1996) ...

☆Related articles

Program of Policy Studies in Science and Technology, supplement to seven year review

LH Mayo - 1975 - ntrs.nasa.gov

Page 1. General Disclaimer One or more of the Following Statements may affect this Document ... This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white ...

☆All 2 versions

[BOOK] A field guide to southeastern and Caribbean seashores: Cape Hatteras to the Gulf coast, Florida, and the Caribbean

EH Kaplan - 1999 - books.google.com

... This book is designed to be your companion as you walk the beaches or swim in the shallows ... Marine Laboratory in Ja- maica; Charles ("Chip") Biernbaum of the Grice Marine Labora- tory, Charleston, SC; Ann and Jack Rudloe of the Gulf Specimen Company, Panacea, Florida ...

☆Cited by 103Related articlesAll 2 versions

[BOOK] An examination of secondary metabolites and inorganic acids as chemical defenses against predation and fouling in antarctic and sub-tropical ascidians

G Koplovitz - 2011 - mhs1.uab.edu

... 41 2 Odontaster validus. Results of bioassays offering artificial foods containing lipophilic or hydrophilic ascidian extracts to sea stars ... 3 Notothenia coriiceps. Results of bioassays offering artificial foods containing lipophilic or hydrophilic ascidian extract to fish ...

☆Related articlesAll 2 versions

Recombinant αβ-Tubulin and a Simple Computational Model Shed Light on the Molecular Mechanisms of Microtubule Dynamics

FA Piedra - 2015 - repositories.tdl.org

... nm – nanometer μm – micron or micrometer kon – on-rate constant (μM-1sec-1) ... phenomena like GTP-dependent assembly and GTP hydrolysis-induced conformational change and catastrophe (the switch from growing to shrinking) remain controversial or unexplained ...

☆Related articles

[PDF] Developmental responses to fluctuations in environmental conditions in echinoid echinoderms

S Abdel-Raheem - 2015 - publish.wm.edu

... The second third of eggs were transferred to a new bowl containing the initial salinity of that bowl, either 29 or 26 ppt (Figure 2). This produced a total of 24 experimental bowls ... Gulf Specimen Marine Laboratories in Panacea, FL and shipped overnight to Williamsburg, VA ...

☆Related articlesAll 2 versions

[BOOK] Beaches of the Gulf Coast

RA Davis - 2014 - books.google.com

... When we visit the beach for whatever reason—children playing, teenagers body surfing, fishermen wading in the surf zone, or families having a picnic—it is helpful to understand how things work in this dynamic and energetic environment ...

☆Cited by 1Related articlesAll 2 versions

Molecular Phylogeny of Amitochondriate Excavates

M Kolisko - 2011 - dalspace.library.dal.ca

... DEPARTMENT OR SCHOOL: Biology ... Permission is herewith granted to Dalhousie University to circulate and to have copied for non3commercial purposes, at its discretion, the above title upon the request of individuals or institutions ...

☆Related articles

[PDF] weizmann.ac.il

[PDF] nasa.gov

[PDF] uab.edu

[PDF] tdl.org

[PDF] wm.edu

[PDF] dal.ca

<Goooooooooogle>

Previous39 40 41 42 43 44 45 46 47 48Next

HelpPrivacyTerms

Richard

Secure

https://scholar.google.ca/scholar?start=470&q="Gulf+Specimen+Company"+OR+"Gulf+Specimen+Laboratory"+OR+"G...

Q ☆ ⋮

Apps WoS Google Scholar W Wikipedia G Gbooks GHangout G GImage UML DD Journals Netset Sync » Other Bookmarks

Google Scholar

"Gulf Specimen Company" OR "Gulf Specimen Laboratory" OR "Gulf Specim

Q

Articles

Page 48 of about 488 results (0.13 sec)

My profile

My library

Any time

Since 2018

Since 2017

Since 2014

Custom range...

Sort by relevance

Sort by date

☒ Include patents

☒ Include citations

☒ Create alert

Evolution of peptide hormones and their receptors

[PDF] uvic.ca

G Roch - 2011 - dspace.library.uvic.ca

... University of Victoria All rights reserved. This dissertation may not be reproduced in whole or in part, by photocopy or other means, without the permission of the author. Page 2. ii ... receptor, either at the plasma membrane of a recipient cell or within its cytoplasm or nucleus ...

☆ ⓘ Related articles ⓘ

[HTML] Recherche de substances naturelles à activité thérapeutique (2)-George R. Pettit

[HTML] medecinesciences.org

PPJ Da Silva, LZ Bendjeddou, L Meijer - médecine/sciences, 2014 - medecinesciences.org

... Les composés issus d'organismes marins. Les bryostatines. En juin 1968, Jack Rudloe (1943-), biologiste marin de la Gulf specimen company, récolte, à la demande de l'équipe de JL Hartwell, des organismes marins présents en abondance ...

☆ ⓘ Cited by 2 Related articles All 5 versions

[BOOK] The Cytoskeleton, Part B: Biological Systems and In Vitro Models

L Wilson - 1982 - books.google.com

... NO PART OF THIS PUBLICATION MAYBE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPY, RECORDING, OR ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT ...

☆ ⓘ Cited by 2 Related articles

[BOOK] Cruising Guide to Florida's Big Bend

C Rhodes - 2003 - books.google.com

... The publisher and the author make no guarantee as to the accuracy or reliability of the information contained within this guidebook and will not accept any liability for injuries or damages caused to the reader by fol- lowing this data ...

☆ ⓘ Related articles

[HTML] Jellyfish fisheries of the world

[HTML] ubc.ca

L Brotz - 2016 - open.library.ubc.ca

Learning, knowledge, research, insight: welcome to the world of UBC Library, the second-largest academic research library in Canada.

☆ ⓘ Cited by 1 Related articles All 4 versions ⓘ

Mathematical Modeling, Immersed Boundary Simulation, and Experimental Validation of the Fluid Flow around the Upside-Down Jellyfish Cassiopea xamachana

C Hamlet - 2011 - search.proquest.com

... space was used to test the physical limits of transport mechanisms and to identify cooperative or complementary feeding and ... Specimens of C. xamachana were obtained from Carolina Biological Supply Company (Burlington, NC) and Gulf Specimen Marine Laboratories, Inc ...

☆ ⓘ Cited by 2 Related articles

[PDF] Characterization of the Microsomal Mixed-Function Oxidase System of Several Species of Sea Anemones (Phylum: Cnidaria).

[PDF] lsu.edu

LM Heffernan - 1999 - digitalcommons.lsu.edu

... UMI films the text directly from the original or copy submitted. Thus, some thesis and ... submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction ...

☆ ⓘ Cited by 1 Related articles All 3 versions

[PDF] Florida State University Libraries

[PDF] fsu.edu

DLDL Ferrell - 2007 - diginole.lib.fsu.edu

... (Turkey Point, FL), Gulf Specimen Marine Laboratory (Panacea, FL), National Oceanic and Atmospheric Administration (St. Andrew's Bay, FL), and the Waquoit Bay National Estuarine Research Preserve, or WBNERR (Waquoit Bay, MA). In particular, the staff at WBNERR were ...

☆ ⓘ Related articles ⓘ

[BOOK] microRNA in Porifera: Evolution of a Molecular Mechanism in Sponges

J Robinson - 2015 - search.proquest.com

... "connecting link." Scribners Magazine, 1892. Historical Background The determination of the taxonomic identity of the Porifera as plant or animal was ... Page 11. 3 unrelated characters that have been modified by natural selection to have a similar appearance or function ...

☆ ⓘ Related articles

[BOOK] Maintenance of variation and adaptive consequences of encrusting growth forms in the clonal hydroid genus Hydractinia

DL Ferrell - 2007 - search.proquest.com

... (Turkey Point, FL), Gulf Specimen Marine Laboratory (Panacea, FL), National Oceanic and Atmospheric Administration (St. Andrew's Bay, FL), and the Waquoit Bay National Estuarine Research Preserve, or WBNERR (Waquoit Bay, MA). In particular, the staff at WBNERR were ...

☆ ⓘ Related articles

< Goooooooooooooole >

Previous

39 40 41 42 43 44 45 46 47 48

Next

Help

Privacy

Terms

Sort by relevance
Sort by date

 [Create alert](#)

[PDF] gatech.edu

JL Page - 2009 - smartech.gatech.edu





... There are quite a few people who have contributed to this project by helping with experiments, providing data, **or** physically adding a little elbow grease ... random assortment of physical maintenance tasks (**or** provided the knowledge and tools so I could do things myself) ...

☆ 99 Cited by 2 Related articles All 3 versions »

[PDF] cornell.edu

M Kosloski - 2012 - ecommons.cornell.edu


... The use of an econometric approach, which advocates using the presence **or** absence of traits to assess ... lucked into a better role model **or** a more supportive advisor for going into academia. I have been privileged to work with all of you, and have benefited greatly ...

☆  Cited by 2  Related articles  All 2 versions 

[PDF] gsu.edu

M Nusenbaum - 2011 - scholarworks.gsu.edu

... Chemical defenses are one tool that is employed to protect against predators, especially for slow-moving **or** otherwise susceptible prey. Many of these chemical ... Without them I'm not sure I would have had the courage to come to graduate school **or** to stay once I got here ...

☆  Cited by 1 Related articles All 4 versions

EF Shores - 2008 - books.google.com

... He would walk for hours on dirt roads, in cold, heat, or Page 23. PROLOGUE rain, to call on an old friend ... She suggested we consult the couple who ran the **Gulf Specimen Marine Laboratory** in the coastal town of Panacea, to the east and around Bald Point...

 Cited by 6 Related articles All 4 versions

RL Anderson - 2017 - search.proquest.com

... While it is unclear whether these behavioral differences are driven by genetic differentiation among the subpopulations or by the tidal environments experienced by individuals in early development, the ability of all animals to express a 24.8 hour tidal cycle suggests that ...

☆ 99 Related articles

RB Philp - 2012 - books.google.com

... The user may make one back-up copy of this publication to avoid losing it. The user may not give copies of this publication to others, **or** make it available for others to copy **or** download ... 3. The user may print one **or** more copies/pages of this eBook/chapter for their personal use ...

☆ 99 Cited by 4 Related articles

[PDF] fsu.edu

ZS Riley-Taylor - 2013 - diginole.lib.fsu.edu

... This population was mostly concentrated in Middle Florida **or** the northern part of the state ... crops such as cotton, internal improvements such as roads, canals, and railroads) and what could be extracted from the land, such as timber **or** even native peoples who were holding up ...

☆ 57 Related articles All 2 versions

KM Hultgren - 2007 - search.proquest.com

... Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction ... ($p < 0.05$) but otherwise showed no preferences or avoidances ...

☆ Cited by 2 Related articles All 2 versions

Attachment R

US Navy Correspondence

[HOME](#)[ABOUT](#)[LEADERSHIP](#)[NEWS](#)[MEDIA](#)[LINKS](#)[CAREERS](#)[NAVY POD](#)

US Navy Synthetically Recreates Biomaterial to Assist Military Personnel

Story Number: NNS170124-04 Release Date: 1/24/2017 8:50:00 AM

A A A



By Katherine Mapp, Naval Surface Warfare Center, Panama City Division Office of Congressional and Public Affairs

PANAMA CITY, Fla. (NNS) -- A team of U.S. Navy scientists and engineers at Naval Surface Warfare Center, Panama City Division (NSWC PCD) have successfully recreated a natural material used for marine wildlife defense to assist military personnel.

Biochemist Dr. Josh Kogot and Materials Engineer Dr. Ryan Kincer have produced a synthetic component of hagfish slime from the alpha and gamma proteins of the Pacific hagfish.

The Pacific hagfish, also known as slime eels, are bottom-dwelling scavengers which live on the ocean floor. The hagfish can secrete slime to protect themselves by obstructing the gills of predators which come into contact with the slime.

According to Kincer, hagfish slime consists of two protein-based components -- a thread and a mucin.

"The coiled up thread behaves like a spring and quickly unravels upon contact with water due to stored energy," said Kincer. "The mucin binds to water and constrains the flow between the micro channels created by the thread dispersion. The interaction between the thread, mucin, and seawater creates a three-dimensional, viscoelastic network. Over time, the thread begins to collapse on itself, causing the slime to slowly dissipate. Studies have shown the hagfish secretion can expand up to 10,000 times its initial volume."

The hagfish slime thread has been compared to spider silk. Both are natural, renewable materials which could one day replace synthetic products derived from petroleum-based precursors. Kogot said the slime thread has comparable mechanical properties to Kevlar, a synthetic fiber used as a reinforcing agent for rubber products and protective gear.

During synthetic recreation, alpha and gamma proteins were produced in an Escherichia coli bacteria, or E.coli, where each protein was recovered from the bacteria after a series of isolation and purification steps. The alpha and gamma proteins were later combined together and rapidly assembled in a crosslinking solution. A sample of natural and synthetic hagfish threads were compared using a scanning electron microscope to visually confirm the production of the synthetic threads.

The intended use of the synthetic slime is to provide non-lethal and non-kinetic defense to the fleet.

"The synthetic hagfish slime may be used for ballistics protection, firefighting, anti-fouling, diver protection, or anti-shark spray," said Kogot. "The possibilities are endless. Our goal is to produce a substance that can act as non-lethal and non-kinetic defense to protect the warfighter."

Kincer said the addition of using a material such as the slime will be valuable to the U.S. Navy.

"Researchers have called the hagfish slime one of the most unique biomaterials known," said Kincer. "For the U.S. Navy to have its hands on it or a material that acts similar would be beneficial. From a tactical standpoint, it would be interesting to have a material that can change the properties of the water at dilute concentrations in a matter of seconds."

The effort to create new synthetic means to behave like the natural hagfish slime is supported by Navy Innovative Science and Engineering (NISE) funding and the Office of Naval Research Code 32, ocean battlespace sensing department. The team is researching ways to increase the slime's surface attachment capability, potential delivery systems, and enhanced stability in various environments. From there, Kogot and Kincer will continue to look for innovative applications and explore different variations and properties of the material.

They are currently working to increase the slime protein scale and improve protein assembly.

For more information, visit <http://www.navy.mil/>, <http://www.facebook.com/usnavy/>, or <http://www.twitter.com/usnavy/>.

For more news from Naval Surface Warfare Center, Panama City Division, visit <http://www.navy.mil/local/NSWC/>.

Like 16K

Tweet



SHARE



RELATED PHOTOS

[Download High Resolution](#) [View All Photos](#) 1 of 6 >

Naval Surface Warfare Panama City Division (NSWC PCD) scientist and engineers demonstrate the elasticity of the hagfish slime secreted from the Pacific hagfish in a lab aboard NSWC PCD Nov. 29, 2016. Pictured from left to right: Dr. Josh Kogot, Dr. Michelle Kincer and Dr. Ryan Kincer. U.S. Navy photo by Ron Newsome (Released) 161129-N-PB086-020

January 11, 2017

Navy Social Media



To sign up for updates or to access your subscriber preferences, please click on the envelope icon in the page header above or click [Subscribe to Navy News Service](#).

Jack Rudloe

From: Kincer, Matthew R CIV NAVSEA <matthew.kincer@navy.mil>
Sent: Monday, March 19, 2018 11:06 AM
To: Jack Rudloe
Subject: FW: [Non-DoD Source] Letter of recommendation

Hello Jack,

Sorry for not getting back to you last week, but unfortunately I will not be able to help with the recommendation letter. After our initial conversation, my boss told me to speak with our base legal counsel. As noted below, the counsel informed me of a regulation which restricts government employees from endorsing a non-Federal entity. After further discussing with him about just providing a letter highlighting our past experience, he is afraid that could be considered an implied endorsement since we know what the intent of the letter is being used for. I apologize for not being able to help as you and GSML were a big help in getting our research project started.

Regards,

Matthew "Ryan" Kincer Ph.D.
Materials Engineer
Naval Surface Warfare Center - Panama City Division Intelligent Sensing & Irregular Warfare Branch (Code X12)
Office: (850)235-5174
matthew.kincer@navy.mil

-----Original Message-----

From: Shepherd, James T CIV NSWC PC
Sent: Monday, March 19, 2018 9:49 AM
To: Kincer, Matthew R CIV NAVSEA
Subject: RE: [Non-DoD Source] Letter of recommendation

Matthew,

I recommend that you do NOT provide the letter. Per the DoD Joint Ethics Regulation, Section 3-209, "endorsement of a non-Federal entity, event, product, service, or enterprise may be neither stated nor implied by DoD or DoD employees in their official capacities."

- Jim

James T. Shepherd
Counsel
Naval Surface Warfare Center
Panama City Division, Code 00L
110 Vernon Ave.
Panama City, FL 32407
(850)234-4646
james.t.shepherd@navy.mil

-----Original Message-----

From: Kincer, Matthew R CIV NAVSEA
Sent: Friday, March 16, 2018 12:31 PM
To: Shepherd, James T CIV NSW PC
Subject: FW: [Non-DoD Source] Letter of recommendation

Hello Jim,

I'm an employee at NSW PC and got a request for a letter of recommendation this morning from a previous contactor Gulf Specimen Marine Lab which is in Panama, FL. They provided us help in housing and taking care of live hagfish while we were starting a project on trying to replicate the slime material the fish secrete. My branch head suggested I check with you to determine if there were any legal reasons I couldn't provide a letter. The letter would focus on the services they provided for us and the professionalism and expertise we found valuable for the project. I wouldn't include any language that would come across as campaigning or recommending they get any of the BP settlement money. I envision the letter would be fairly short so if you needed to review prior to me sending it out that would be no issue.

Thanks,

Matthew "Ryan" Kincer Ph.D.
Materials Engineer
Naval Surface Warfare Center - Panama City Division Intelligent Sensing & Irregular Warfare Branch (Code X12)
Office: (850)235-5174
matthew.kincer@navy.mil

-----Original Message-----

From: Jack Rudloe [mailto:jrudloe@earthlink.net]
Sent: Friday, March 16, 2018 1:41 AM
To: Kincer, Matthew R CIV NAVSEA
Subject: [Non-DoD Source] Letter of recommendation

Hi Ryan,

I enjoyed our phone conversation last week, and was glad to hear that the hagfish project has moved on. As I mentioned we are applying for funding from the Triumph Gulf Coast Funds, which resulted from a settlement from the BP Deep Water Horizon oil spill.

It would be most useful to our proposal if you could write a letter of recommendation, spelling out our role in the Navy's research on that programs, and if you were pleased with our work and if another opportunity working with sea life comes along, that you'd consider using our services again. We are getting a good collection of letters, including from National Geographic, (their hagfish photo attached) but your's will be especially valuable.

I want to thank you for the business, and the great opportunity to work with hagfish and their slime.

Attachment S

GSML Annual Report

2018 FLORIDA NOT FOR PROFIT CORPORATION ANNUAL REPORT

DOCUMENT# 752423

Entity Name: GULF SPECIMEN MARINE LABORATORIES, INC.

Current Principal Place of Business:

222 CLARK DRIVE
PANACEA, FL 32346

Current Mailing Address:

222 CLARK DRIVE
P.O. BOX 237
PANACEA, FL 32346 US

FEI Number: 59-2021454

Certificate of Status Desired: No

Name and Address of Current Registered Agent:

RUDLOE, JACK
222 CLARK DRIVE
PANACEA, FL 32346 US

The above named entity submits this statement for the purpose of changing its registered office or registered agent, or both, in the State of Florida.

SIGNATURE:

Electronic Signature of Registered Agent

Date

Officer/Director Detail :

Title DV
Name RUDLOE, CYPRESS
Address 151 CLARK DRIVE
City-State-Zip: PANACEA FL 32346

Title P
Name RUDLOE, JACK J.
Address 151 CLARK DRIVE
City-State-Zip: PANACEA FL

Title D
Name FRISBY, DAVID
Address 265 MADISON STREET
City-State-Zip: MONTICELLO FL 32345

Title STD
Name RUDLOE, SKY
Address 2312 DOZIER DR
City-State-Zip: TALLAHASSEE FL 32301

Title DIRECTOR
Name CARTER, ANDREA
Address 77 FRANK JONES RD
City-State-Zip: CRAWFORDVILLE FL 32327

I hereby certify that the information indicated on this report or supplemental report is true and accurate and that my electronic signature shall have the same legal effect as if made under oath; that I am an officer or director of the corporation or the receiver or trustee empowered to execute this report as required by Chapter 617, Florida Statutes; and that my name appears above, or on an attachment with all other like empowered.

SIGNATURE: KAREN TAYLOR, CPA

ACCOUNTANT/CPA

03/08/2018

Electronic Signature of Signing Officer/Director Detail

Date

Attachment T Eco Tourism

MARINE ECOTOURISM COMPONENT

Gulf Specimen Marine Lab and Aquarium currently hosts a number of ecotourism activities. We would like to offer several others in keeping with our mission to educate people concerning the sea life of the northern Gulf of Mexico. The list below gives existing ecotourism activities first in normal type, followed by proposed ecotourism programs in italics.

Public Aquarium: A uniquely open and hands on aquarium facility within 40 minutes of the state capital. An abundance of touch tanks with living invertebrates to pick up and inspect, make the facility a destination for visiting family and friends. Sea stars, snails, crabs, lobsters, sea urchins, sea cucumbers, sea pansies, sea pork, sea squirts, horseshoe crabs, ctenophores, comb jellies, sponges, fiddler crabs, and worms are among the touchable examples of our rich Gulf waters. In “looking only tanks, tourists can get an up close look at sharks, sting rays, octopus, sea horses, red drum, trigger fish, remoras, cobia, and jacks. Touted by fans as “Where the Sea Reveals its Secrets.”

Guided Aquarium Tours: A docent, intern, or staff member will take groups around the facility showing a pantheon of changing specimens and commenting on their unique features.

Guided Aquarium and Dock Tours: For some groups the Aquarium is not enough, their hand's on experience is extended by visiting the living dock at Panacea, and exploring the fouling community, passing through the salt marsh and viewing an a forming oyster reef.

Guided Aquarium, Dock and Salt Marsh Seining Excursion: The adventure continues for some by taking groups at the end of their dock tour to a sandy bottom location where they seine for small fish, and shellfish in the salt marsh the Gulf's nursery of seafood.

Kayak Rentals: Tourists are able to rent kayaks by the hour to explore the shallow waters of Dickerson Bay a portion of the Apalachee Bay estuary.

Aquatic Adventure Camp: Each June, GSML hosts four one week day camps. The camp highlights activities and exploration of Aquatic environments, for 6 through 12 year olds.

Summer Science Saturday: The staff at GSML also holds classes centered on marine life each weekend during the summer. These lessons are designed for 6 to 12 year olds as well, and includes both instruction and a craft activity.

Proposed educational ecotourism activities include:

Boat Tours:

Educationl Theme: History of Seafood in Panacea.

Limited to 30 people (10 person minimum)

One hour in duration

Cost \$15.00 (Adults);, \$10.00 (members and groups of 15 or more); \$12.00 (Veterans and Seniors)

Educational Activities

Oyster Tonging: *History of Oysterin in area from 1850's to present.*

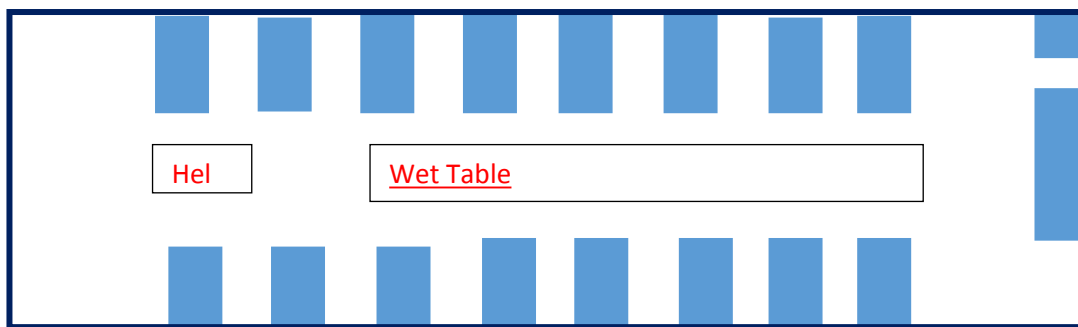
Check Crab Traps: *Discussion of crabbing both for blue and stone crab.*

Cast Net for Mullet: *Discuss importance of mullet world wide gill net ban, etc.*

Pull Shrimp Trawl: *History of local shrimping, show penaeid shrimp, discuss bycatch and turtle exclusion devices.*

Rig a pole for Grouper fishing: *Discuss local grouper and where they go to fish.*

Recreational Fishing: *Discuss importance of recreational fishing to local economy and note commonly caught recreational species.*



Kayak Tours

Educational theme:: Estuarine Habitats

2.5 to 3 hours

Cost \$40.00 (Adults) \$25.00 (Groups over 10 and children}

Limited to 12 people

Take visitors on a marked kayak and canoe trail. Discuss importance of estuary, paddle should include saltmarsh, oyster reef, turtle grass bed, sand or mud flat, and shell hash. Guide should take opportunities to identify birds and sealife one trip.

Coastal Bike Tours and Wade into Coastal Wetlands of Mashes Sands

Educational Theme: History and Geology Northern Gulf Coast or Coastal Habitats

2.5 to 3 hours

Cost: \$40:00 (Adults) \$25:00 (groups over 10 and children)

Limited to 12 people.

Take advantage of Shared use trail system from the Tallahassee to St.. Marks Trail (Rails to Trails) to the Ochlocknee Bay Trail. Discuss the coastal plain, marshes, woodlands and waterfront habitats of northern Florida. Do a beach walk and wade at Mashes Sands.

Other possible Educational Tourism Possibilities

Lecture Series / Classes

Its Wet and its Dark (Nighttime Wet Walks)

Adult Aquatic Adventure Camp

School Holiday Camps

Story time at the Aquarium

Annual Tourist Opportunities

Chrristmas Open House

Halloween Costume Adventure

Coastweeks (last two full weeks in September)

World Oceans Day (June 9, 2018—usually second Saturday in June

NEEDS

Personnel

Intern Volunteer Coordinator

2 Marine Education Specialists

Equipment and Supplies

Tour Boat (Capacity 30)

Bikes

Classroom Space

Attachment U Biological Supply with Map

The financial mainstay of GSML remains its specimen collecting business, which continues to collect and ship throughout the world, including 47 states, Canada, Germany, and United Kingdom. The marine biological supply operation that supports the laboratory provides a constant flow of animals coming through the lab. A wide variety of invertebrates, fishes and algae are routinely collected and shipped to schools and research laboratories, hence no aquarium or standard marine laboratory with static exhibits can compete with it. Table shows specimen sales in the past two years from April 6th, 2016 to April 5th, 2018, based on the FedEx shipment data. GSML has been shipped specimens to 47 states in total amount of \$617,675.29.

GSML Specimen Sales in April 6th 2016-April 5th 2018

STATE	NUMBER OF SHIPMENT	RECEIPT NAME	AMOUNT
Alaska	2	University of Alaska-Wilga	\$2,086.50
Alabama	31	Auburn University; Wetlands Edge-Ferrel; Wetlands Edge Environmental Ce; University of South Alabama; Hoover High School; University of Alabama; Jacksonville State University; Evonik Industries	\$10,732.40
Arkansas	19	Hendrix College-Custer; University of Central Arkansas; Southern Arkansas University; University of Arkansas	\$5,564.24
Arizona	3	Northern Arizona University; OdySea Aquarium; University of Arizona	\$1,922.00
California	30	Aquarium of the Pacific; University of California; Stanford University; Zyagen; UC-Berkeley; UC-Davis; UC-Riverside; US-San Diego; US-Santa Barbara; Thousand Oaks High School; Oscar Perez; Scripps Oceanography; Scripps Institute; California Premier Aquatics; Sara Mullen; Cal Poly State University; David Liittschwager; California State University; La Sierra University; Santa Clara University; Santa Rosa Jr College; St Isabella College	\$14,539.55
Colorado	15	University of Colorado; Colorado Mesa University; Rottman Eye Care; Colorado Early College; Butterfly Pavilion; Colorado State University	\$7,452.23
Connecticut	30	Central Connecticut State University; Connecticut College; Yale University; Eastern Connecticut State University; Manchester Community College; New England Bio-Assay; Sound School; University of Hartford; Waterford High School; Wesleyan University; Western Connecticut State University	\$14,688.00
Delaware	7	University of Delaware	\$1,237.67
Florida	169	Allyn Duffy; Bolles School; Camp Live Oak; Environmental Learning Center; Eye Candy Aquatics; Florida A&M University; Florida Atlantic University; Florida Gulf Coast University; Florida Southern College; Florida State University; Gulfarium; Florida Atlantic University; Gumbo Limbo Nature Center; Hydrosphere Research; Imaginarium; Jacksonville University; Leon High School; Marine Exploration Center; Mote Marine Lab; Museum of Science; Navarre High School; Navy Department; New College of Florida Natural Sciences Division; Pensacola State College; Ponte Vedra High School; Rollins College; Sea Camp; St. Petersburg College; State College of Florida; Trac Laboratory; University of Central Florida; University of Florida-Whitney Lab; University of North Florida; University of South Florida; University of Tampa; University of Tampa; University of West Florida	\$54,195.95
Georgia	85	Abraham Baldwin Agricultural College; Agnes Scott College; Armstrong Atlantic State University; Cairo High School; College of Coastal Georgia; Columbus State University; Covenant College; Flint Riverquarium; Garrison Pilcher Elementary; Georgia Aquarium; Georgia Institute of Technology; Georgia Southern University; Georgia State University; Kennesaw State; North Cobb High School; Oglethorpe University; Emory University; Thomas University; University of Georgia; University of North Georgia; Valdosta State University; Wesleyan College	\$29,581.12
Iowa	23	Northwestern College; Simpson College; University of Iowa; University of Northern Iowa; Waldorf University	\$8,432.00
Idaho	2	College of Idaho	\$225.00
Illinois	52	Alison Science & Tech; Columbia College Chicago; DePaul University; Diana Hay; Harper College; Illinois Wesleyan University; Lake Forest College; Monmouth	\$39,544.47

		College; North Park University; Northwestern University; Olivet Nazarene University; Southern Illinois University; Saint Xavier University; University of Chicago; University of Illinois: Wheaton College	
Indiana	15	DePauw University; Hanover College; Indiana University; Purdue University; University of Saint Francis; Wabash College	\$5,637.22
Kansas	7	Benedictine College; University of Kansas; Washburn University	\$2,075.50
Kentucky	7	Bellarmine University; Berea College; Morehead State University; Newport Aquarium; Western Kentucky University	\$1,802.92
Louisiana	15	Aquarium of the Americas; Baton Rouge Zoo; Louisiana State University; Louisiana Tech University; Nicholls State University; Northwestern State University; Southwestern Louisiana University; University of Holy Cross; Xavier University of LA	\$8,376.72
Massachusetts	21	American International College; Assumption College; Bay Path University; College of the Holy Cross; Daemen College; Harvard University; Lawrence Academy; Marine Biological Lab; New England Aquarium; Northeastern University; Salem State University; Simmons College; University of Massachusetts; Wyss Institute	\$11,901.04
Maryland	46	Anne Arundel Community College; Cecil College; Christina Tallent; Earth & Space Science Lab; Goucher College; Hood College; Howard B. Owens Science Center; John Hopkins University; McDaniel College; National Aquarium; Oxen Hill High School ; St Johns College; St Mary's College of Maryland; University of Maryland; Washington College;	\$16,513.78
Maine	18	Bates College; Bowdoin College; Colby College; Lotic, Inc. Unity College; University of New England	\$9,764.50
Michigan	49	Albion College; Grand Valley State University; Michigan State University; Northern Michigan University; Saginaw Valley State University; Supe's Exotic Jungle; University of Michigan	\$16,513.78
Minnesota	47	Augsburg University; Bethel University; Bio Corp; Carleton College; Great Lake Aquarium; Hamline University; LKT Lab; Macalester College; Minnesota State University; Moorhead State University; Normandale Community College; Northwestern College; St Catherine University; St Johns University; University of Minnesota	\$27,915.08
Missouri	14	Branson's Wild World; Central Methodist University; Lindenwood University; Truman State University; World Aquarium	\$6,463.50
Mississippi	6	Gulf Coast Research Lab; Institute of Marine Mammal Studies; Mississippi Museum; University of Southern Mississippi	\$1,937.00
North Carolina	48	Catawba Science Center; Discovery Place; Duke University; Fayetteville State University; Greensboro Science Center; Guilford College; Lenoir-Rhyne University; North Carolina Aquarium; Neuseway Nature Park; North Carolina State University; Rocky Mount Children's Museum; Sci-Works Science Center; University of North Carolina	\$18,884.91
Nebraska	15	Doane College; Hastings College; University of Nebraska	\$3,519.50
New Hampshire	21	Aquatic Research Organisms; Dartmouth College; Keene State University; Plymouth State University; Saint Anselm College	\$7,127.24
New Jersey	25	Center for Aquatic Sciences; College of New Jersey; College of St Elizabeth; Georgian Court University; Liberty Science Center; New Jersey Institute of Tech; Princeton University; Rider University; Rowan University; Rutgers University; Stockton University; Tuckerton seaport	\$10,858.13
New Mexico	8	Albuquerque Aquarium; New Mexica State University; New Mexico Tech; Valencia High School	\$6,787.14
Nevada	2	University of Nevada	\$950.00
New York	144	American Museum of Natural History Central Park; Baruch College; Binghamton University; Brooklyn College; Cayuga Community College; Colgate University; Commack High School; Cornell University; Daemen College; Elmira College; Hamilton College; Hofstra University; Ithaca College; New York Aquarium; New York University; Rensselaer Polytech Institute; Rochester Institute of Tech; Russell Sage College; Sea Life Charlotte; Sea Lift Minnesota; Siena College; South Street Seaport Museum; State University of New York; Syracuse University; Union College; Vassar College; Via Aquarium; Wagner College; Walt Whitman High School	\$68,029.61
Ohio	63	Akron Zoological Park; Ashland University; Baldwin Wallace University; Bowling Green State University; Capital University; Case Western Reserve University; Columbus Academy; Denison University; Greater Cleveland Aquarium; Kent State University; Kenyon College; Miami University; Mt St Joseph University; Oberlin	\$27,863.86

		College; Ohio Northern University; Ohio University; Ohio Wesleyan University; Otterbein University; Toledo Zoo; University of Mount Union; Wittenberg University; Wright State University	
Oklahoma	4	Oklahoma Aquarium; Oklahoma State University; University of Central Oklahoma	\$1,295.50
Oregon	7	Clackamas Community College; Linfield College; Oregon State University	\$2,157.00
Pennsylvania	104	Bucknell University; California University of PA; Cedar Crest College; Drexel University; Elizabethtown College; Franklin & Marshall College; Germantown Academy; Gettysburg College; Greensburg-Salem High School; Immaculata University; Kutztown University; Lafayette College; Lebanon Valley College; Life Diagnostics; Lycoming College; Millerville University; Misericordia University; Moravian College; Morehouse school of Medicine; Muhlenberg College; Penn State University; Robert Morse University; St Joseph's University; Swarthmore College; Temple University; University of Pennsylvania; Ursinus College; Widener University; Wilkes University; Xavier Univ of La; Yeshiva University	\$56,342.51
Rhode Island	7	Brown University; Rhode Island College	\$2,207.50
South Carolina	61	Clemson University; Coastal Carolina University; Governor's School; Lander University; Presbyterian College; Ripley's Aquarium; Roper Mountain Science Center; South Carolina Aquarium; University of South Carolina; Wofford College	\$25,638.86
South Dakota	12	Augustana College; Northern State University	\$3,899.75
Tennessee	17	Austin Peay University; Bethel University; Maryville College; Memphis Zoo; Ripley's Aquarium of the Smokies; Southern Adventist University; Tennessee Aquarium; Tennessee Tech University; University of South; Vanderbilt University	\$19,722.93
Texas	18	Children's Aquarium; Fort Worth Zoo; Glaydes Porter Zoo; Houston Baptist University; Houston Zoo; Moody Gardens Aquarium; Southern Methodist University; Texas A&M University; Texas State Aquarium; Texas Woman's University; University of Dallas; University of Texas	\$13,773.28
Utah	11	Loveland Living Planet Aquarium; University of Utah; Utah State University; Woods Cross High School	\$3,449.50
Virginia	33	Academy of Science; College of William & Mary; George Mason University; Governor's School; Liberty University; Longwood University; Riverside High School; Rockbridge County High School; Science Museum of Western Virginia; Shenandoah University; Thomas Jefferson High School; Under the Sea; University of Mary Washington; University of Richmond; University of Virginia; Virginia Institute of Marine Science; Virginia Tech; Virginia Wesleyan University;	\$15,861.02
Vermont	4	Aquatec; Middlebury College	\$8,678.32
Washington	16	Eastern Washington University; Eco Analysis Lab; Everett Community College; Friday Harbor Lab; Gonzaga University; Highline College; North Seattle College; Rosario Beach Marine Lab; Seattle University; University of Washington; Washington State University	\$5,108.50
Washington D.C.	1	American University	\$303.00
Wisconsin	34	Cardinal Stritch University; Edgewood College; Madison College; Triarch, Inc.; University of Wisconsin; Wisconsin Lutheran College;	\$12,955.50
West Virginia	3	West Virginia Wesleyan College; Wheeling Jesuit College	\$468.50
Canada	7	University of British Columbia; St Francis Xavier University; Carleton University	\$2,005.42
Germany	1	University of Bremen	\$254.00
UK	1	University of Cambridge Zoology	\$430.50
Total	1,380		\$617,675.29

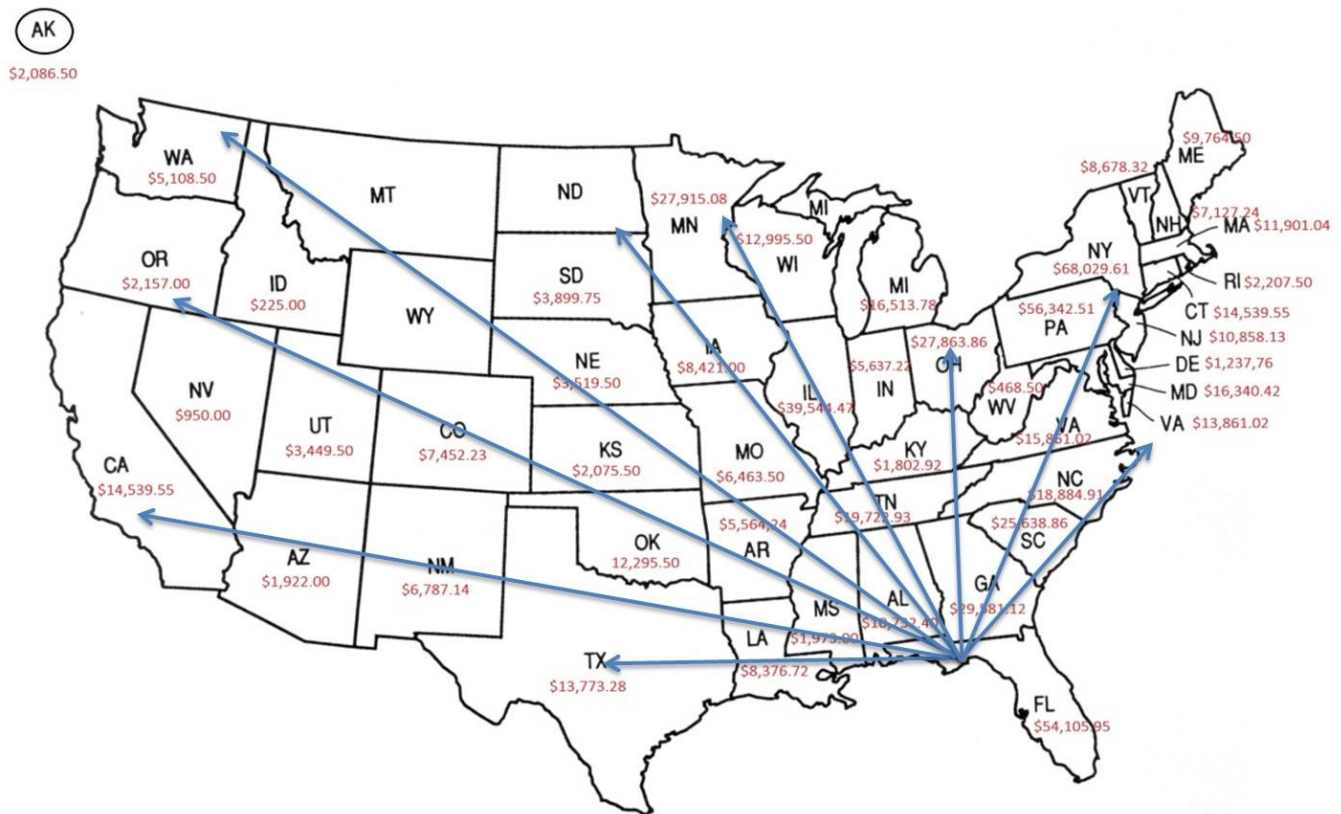


Figure X. GSML Specimen Sales in the United States of America

This project will establish an aquaculture operation to produce specimens which are in demand by aquarium owners and research institutions. Aquaculture methods can bring several advantages to produce specimens. First, a greater, less expensive supply of specimens would be available, very likely increasing demand (Citation needed). Second, a more viable specimen would be produced since many wild-caught creatures have higher mortality rates than aquacultured specimens during shipping (Citation needed). Third, the installation of an aquaculture facility represents a significant economic diversification and could serve as a model for expansion of the techniques in the north Florida area.

Attachment V Field Trips and Tours

Facility	City	State	Head Count	Date
ABC School Apalachicola	Apalachicola	Florida	50	42482
Trinity Christian School	Atlanta	Georgia	10	42404
Atlanta Georgia High School	Atlanta	Georgia	12	42415
Lafayette 4-H Club	Auburn	Alabama	20	42529
Aucilla Christian	Aucilla	Florida	35	42481
Bainbridge Middle School	Bainbridge	Georgia	65	42485
Grace Christian Academy	Bainbridge	Georgia	40	42499
Bonifay Elementary	Bonifay	Florida	130	42496
Shiver School	Cairo	Georgia	72	42443
Washington Middle School	Cairo	Georgia	60	42622
Carrabelle RV Park	Carabelle	Florida	12	42425
Miller County School	Colquitt	Georgia	120	42544
Riversink Elementary	Crawfordville	Florida	90	42467
Wakulla Christian Academy	Crawfordville	Florida	36	42508
Wakulla PreK	Crawfordville	Florida	85	42514
Wakulla Christian School	Crawfordville	Florida	30	42587
Birthday Party	Crawfordville	Florida	15	42609
1st Responder Appreciation Day	Crawfordville	Florida	50	42637
Central Baptist Church	Crestview	Florida	28	42567
Hinson Middle School	Daytona Beach	Florida	120	42409
DeLand Middle School	DeLand	Florida	50	42396
St. Barnabus Episcopal	Deland	Florida	70	42468
Southwestern Middle School	Deland	Florida	45	42695
Pine Ridge High School	Deltona	Florida	40	42377
Galaxy Middle School	Deltona	Florida	40	42432
Deltona Middle School	Deltona	Florida	55	42705
Franklin County Schools	Eastpoint	Florida	85	42517
Pataula Charter Academy	Edison	Georgia	55	42482
Pataula Charter Academy	Edison	Georgia	50	42622
Taylor County 4-H	Gainesville	Florida	36	42534
Taylor County 4-H	Gainesville	Florida	36	42548
NLC Travel Club	Homewood	Alabama	45	42493

Five Points Elementary	Lake City	Florida	60	42410
Lake Mary Prep	Lake Mary	Florida	30	42494
Melody Christian Academy	Live Oak	Florida	20	42515
Melody Christian Academy	Live Oak	Florida	20	42643
Midway Headstart	Midway	Florida	30	42461
Cox Elementary	Moultrie	Georgia	95	42438
RB Wright Elementary	Moultrie	Georgia	120	42513
Brooks County Middle School	Moultrie	Georgia	30	42536
Christian Home and Bible School	Mt. Dora	Florida	70	42439
New Symma Beach Middle School	New Symma Beach	Florida	40	42411
Dr. NH Jones School	Ocala	Florida	50	42444
River Springs Middle School	Orange City	Florida	50	42440
Hunters Creek Elementary	Orlando	Florida	25	42510
My Children Cild Cove	Panacea	Florida	15	42529
St. John Catholic	Panama City	Florida	14	42473
Bay Haven Charter School	Panama City	Florida	40	42481
Bay Haven Charter School	Panama City	Florida	40	42495
Northside Elementary	Panama City	Florida	50	42501
Northside Elementary	Panama City	Florida	120	42720
Shiver Elementary	Pelham	Georgia	70	42489
Perry Primary	Perry	Florida	70	43183
Perry Primary	Perry	Florida	50	42509
Creekside Middle School	Port Orange	Florida	80	42418
Silver Sands Middle School	Port Orange	Florida	80	42418
Westgate Middle School	Port St. Lucie	Florida	55	42412
Gadsden Magnet School	Quincy	Florida	35	42492
Quitman First Baptist Church	Quitman	Georgia	26	42474
Colquitt Christian	Shreveport	Louisana	10	42621
Classical Conversations Home School	Southern Pines	North Carolina	50	42383
Luthern Church of the Cross Day School	St. Petersburg	Florida	70	42475
Steinhatchee School	Steinhatchee	Florida	50	42507
Boys and Girls Club	Steinhatchee	Florida	30	42586
W.T. Moore Elementary	Tallahassee	Florida	80	42417
Birthday Party	Tallahassee	Florida	30	42420
Killeam Lakes Elementary	Tallahassee	Florida	110	42429
Community Leadership Academy	Tallahassee	Florida	25	42437
Springwood Elementary	Tallahassee	Florida	50	43181

Springwood Elementary	Tallahassee	Florida	70	43182
Astoria Park Elementary	Tallahassee	Florida	90	43184
American Heritage Girls	Tallahassee	Florida	30	43184
North Florida Christian	Tallahassee	Florida	55	43188
Sail High School	Tallahassee	Florida	40	43189
Tallahassee Writers Group	Tallahassee	Florida	10	42462
Tallahassee Senior Center	Tallahassee	Florida	25	42466
MacClay School	Tallahassee	Florida	50	42472
Chaires Elementary	Tallahassee	Florida	45	42473
Chaires Elementary	Tallahassee	Florida	45	42474
FAMU Research School	Tallahassee	Florida	65	42474
Conley Elementary	Tallahassee	Florida	54	42478
Conley Elementary	Tallahassee	Florida	36	42479
Conley Elementary	Tallahassee	Florida	36	42480
Hartsfield Elementary	Tallahassee	Florida	85	42487
Springwood Elementary	Tallahassee	Florida	100	42488
Roberts Elementary	Tallahassee	Florida	20	42489
Gilcrest Elementary	Tallahassee	Florida	70	42492
Sealy Elementary	Tallahassee	Florida	48	42493
Gilcrest Elementary	Tallahassee	Florida	70	42494
Sealy Elementary	Tallahassee	Florida	48	42495
Gilcrest Elementary	Tallahassee	Florida	70	42499
Native American Project Venture	Tallahassee	Florida	70	42507
Native American Project Venture	Tallahassee	Florida	70	42508
Ra Elementary	Tallahassee	Florida	50	42509
Sabal Palm Elementary	Tallahassee	Florida	110	42510
Grassroots Free School	Tallahassee	Florida	25	42516
FSU Mag Lab	Tallahassee	Florida	22	42528
Tiny Steps Learning Center	Tallahassee	Florida	30	42530
Imagination day School	Tallahassee	Florida	15	42535
FSU Mag Lab	Tallahassee	Florida	22	42535
FAMU Research School	Tallahassee	Florida	30	42536
Childcare Network	Tallahassee	Florida	65	42537
Terra Toddlers	Tallahassee	Florida	10	42538
Woodruff Family	Tallahassee	Florida	10	42541
Gingerbread Christian Academy	Tallahassee	Florida	35	42542
Growing Room Child Development Centers	Tallahassee	Florida	85	42550
Camp Explorer	Tallahassee	Florida	80	42551

WEI 20th Century	Tallahassee	Florida	50	42556
Boys Town	Tallahassee	Florida	20	42558
Kool Kids Club	Tallahassee	Florida	25	42562
FAMU High School	Tallahassee	Florida	15	42562
Canopy Oaks Summer Camp	Tallahassee	Florida	75	42563
Kinderschool	Tallahassee	Florida	25	42565
WEI 20th Century	Tallahassee	Florida	50	42565
Bond Elementary	Tallahassee	Florida	60	42577
FAMU Summer camp	Tallahassee	Florida	50	42578
FSU Mag Lab/SCI Girls	Tallahassee	Florida	25	42579
Christ Classical Academy	Tallahassee	Florida	25	42580
Boys and Girls Club	Tallahassee	Florida	45	42580
Palmer Monroe Team Center	Tallahassee	Florida	15	42584
Camp Explorer	Tallahassee	Florida	80	42586
Homeschool Group	Tallahassee	Florida	30	42587
Sheriff's Department	Tallahassee	Florida	15	42602
FSU Group	Tallahassee	Florida	10	42619
Crossroads Bible School	Tallahassee	Florida	30	42629
Rose Academy	Tallahassee	Florida	30	42635
Grace Christian Academy	Tallahassee	Florida	50	42643
Appalachee Elementary	Tallahassee	Florida	50	42654
School of Arts and Sciences	Tallahassee	Florida	55	42656
Appalachee Elementary	Tallahassee	Florida	50	42656
School of Arts and Sciences	Tallahassee	Florida	55	42657
Birthday Party	Tallahassee	Florida	20	42707
WT Moore	Tallahassee	Florida	50	42717
James Madison Prep	Tempe	Arizona	27	42486
Thomas University	Thomasville	Georgia	20	42405
Brookwood School	Thomasville	Georgia	40	42447
Leef Teachers	Thomasville	Georgia	20	42447
Garrison Pilcher	Thomasville	Georgia	60	43180
Garrison Pilcher	Thomasville	Georgia	60	43181
Crosscreek Elementary	Thomasville	Georgia	55	42506
Crosscreek Elementary	Thomasville	Georgia	24	42522
Thomasville First United Methodist Church	Thomasville	Georgia	30	42647
University of Alabama	Tuscaloosa	Alabama	20	42630
Tyndall AFB	Tyndall AFB	Florida	15	42511
Brett Little's Zoology Class	Valdosta	Georgia	41	42649

North Florida Child Development Center	Wewahitchka	Florida	55	42712
Higher Learning Dev Center	Winter Park	Florida	28	42445
Higher Learning Dev Center	Winter Park	Florida	28	42549
Uganda Childrens Choir			25	42714
2016			7021	
ABC School Apalachicola	Apalachicola	Florida	45	42849
Senior Center	Apalachicola	Florida	20	42992
Aucilla Christian	Aucilla	Florida	22	42832
John Johnson School	Bainbridge	Georgia	40	42842
Grace Christian Academy	Bainbridge	Georgia	15	42857
Bainbridge Christian Academy	Bainbridge	Georgia	35	42858
Bainbridge Middle School	Bainbridge	Georgia	125	42859
Bonifay Elementary	Bonifay	Florida	120	42867
Bonifay Middle School	Bonifay	Florida	18	42873
Bradenton Christian	Bradenton	Florida	70	42816
WR Toller School	Bristol	Florida	60	42874
Eastside Elementary	Cairo	Georgia	50	43028
Northside Elementary	Cairo	Georgia	50	43077
Clinton Youth Enrichment	Clinton	Mississippi	30	42900
Wakulla City Sheriffs Department	Crawfordville	Florida	20	42823
Wakulla PreK	Crawfordville	Florida	80	42829
Wakulla PreK	Crawfordville	Florida	55	42830
Wakulla Christian Highschool	Crawfordville	Florida	20	42836
Crawfordville Elementary	Crawfordville	Florida	60	42843
Wakulla PreK	Crawfordville	Florida	60	42844
Crawfordville Elementary	Crawfordville	Florida	40	42844
Riversink Elementary	Crawfordville	Florida	110	42845
Medart Elementary Special Ed Class	Crawfordville	Florida	30	42870
Milestone Learning	Crawfordville	Florida	20	42898
Milestone Learning	Crawfordville	Florida	20	42900
Birthday Party	Crawfordville	Florida	12	42903
Camp Mohab	Crawfordville	Florida	60	42914
Kinderschool	Crawfordville	Florida	20	42915
Sunday School	Crawfordville	Florida	25	42931
Wakulla Christian School	Crawfordville	Florida	15	42951
Wakulla Christian School	Crawfordville	Florida	20	43041
Wakulla High School Honors Marine Biology	Crawfordville	Florida	50	43054

Hinson Middle School	Daytona Beach	Florida	80	42773
DeLand Middle School	Deland	Florida	40	42782
Galaxy Middle School	Deltona	Florida	40	42783
Galaxy Middle School	Deltona	Florida	45	43059
Deltona Middle School	Deltona	Florida	50	43076
Little Indians Day Care	Donalsonville	Georgia	25	42915
Franklin County Schools	Eastpoint	Florida	85	42822
Schley County High School	Ellaville	Georgia	30	42818
Hillcrest Elementary	Enterprise	Alabama	37	42874
Florida Master Naturalist Class	Gainesville	Florida	20	42888
Taylor County 4-H	Gainesville	Florida	36	42940
Tallavana Christian School	Havana	Florida	26	42873
Hosford Elementary	Hosford	Florida	100	42927
St. Barnabus Episcopal	Jacksonville	Florida	20	42797
Corinth Christian Academy	Jasper	Florida	25	42849
Jay Elementary	Jay	Florida	40	42948
Generation Church	Jupiter	Florida	14	42808
Grace Homeschool	Jupiter	Florida	15	43031
Lake Mary Prep	Lake Mary	Florida	30	42865
Victory Christian Academy	Lakeland	Florida	30	42789
Lee Elementary	Lee	Florida	60	42838
Lee Day School	Leesburg	Florida	80	42846
Riley Elementary	Macon	Georgia	40	42929
Madison High Scholl	Madison	Florida	95	42863
Day Spring Christian Academy	Marianna	Florida	45	42835
Medart PreK	Medart	Florida	20	42872
Meigs Menonite	Meigs	Georgia	20	43053
Midway Headstart	Midway	Florida	28	42803
Monroe Elementary	Monroe	Georgia	15	42818
Jefferson Elementary	Monticello	Florida	45	42866
RB Wright Elementary	Moultrie	Georgia	140	42871
Brooks City Middle School	Moultrie	Georgia	45	42915
C.A. Gray High School	Moultrie	Georgia	50	43035
Brooks City Middle School	Moultrie	Georgia	90	43075
Mt. Dora Christian School	Mt. Dora	Florida	80	42831
Dr. NH Jones School	Ocala	Florida	80	42802
Victory Christian Academy	Ocoee	Florida	25	42796
River Springs Middle School	Orange City	Florida	80	42804

Ormond Beach Middle School	Ormond Beach	Florida	80	42783
Discovery Academy	Palm Harbor	Florida	80	42787
Panacea Baptist Sunday School	Panacea	Florida	20	42949
Birthday Party	Panama City	Florida	20	42757
Homeschool Group	Panama City	Florida	60	42787
University Academy	Panama City	Florida	90	42824
Senior Citizen Group	Panama City	Florida	15	42860
Trinity United Methodist	Panama City	Florida	24	42973
St. Andrews Baptist Senior Citizens	Panama City	Florida	25	43000
Westgate Middle School	Parkland	Florida	80	42748
Next Generation Christian Academy	Perry	Florida	65	42747
Perry Primary	Perry	Florida	80	42797
Perry Primary	Perry	Florida	80	42838
Greenboro Elementary	Perry	Florida	30	42865
Taylor County 4-H	Perry	Florida	36	42905
Creekside Middle School	Port Orange	Florida	120	42782
Silver Sands Middle School	Port Orange	Florida	40	42789
St. Johns Elementary	Quincy	Florida	55	42831
Stewart Elementary	Quincy	Florida	63	43056
West Gadsden High School	Quincy	Florida	15	42769
Quincy Area PreK	Quincy	Florida	50	42860
Tolar Elementary	Quincy	Florida	120	42902
Fellowship Christian School	Roswell	Georgia	100	42837
Ashton Elementary	Sarasota	Florida	80	42768
Florida High School	Tallahassee	Florida	50	42800
Florida High School	Tallahassee	Florida	70	42801
Cox Elementary	Tallahassee	Florida	70	42810
Sacred Heart Home Educators	Tallahassee	Florida	70	42825
Epiphany Luthern	Tallahassee	Florida	30	42755
Birthday Party	Tallahassee	Florida	20	42763
Florida Virtual School	Tallahassee	Florida	50	42776
Wendy Cheney Homeschool	Tallahassee	Florida	20	42781
FSU School Of Nursing	Tallahassee	Florida	8	42781
Tallahassee Senior Center	Tallahassee	Florida	24	42790
Community Leadership Academy	Tallahassee	Florida	25	42794
SASS Nature Club	Tallahassee	Florida	35	42799
Sail High School	Tallahassee	Florida	40	42824
FSU Nursing School	Tallahassee	Florida	8	42830

Roberts Elementary	Tallahassee	Florida	80	42831
Chaires Elementary	Tallahassee	Florida	65	42837
Chaires Elementary	Tallahassee	Florida	65	42839
Canopy Oaks PreK	Tallahassee	Florida	50	42843
FAMU Research School	Tallahassee	Florida	60	42845
Killearn Lakes Elementary	Tallahassee	Florida	120	42850
Killearn Lakes Elementary	Tallahassee	Florida	60	42851
Roberts Elementary	Tallahassee	Florida	40	42851
Gilcrest Elementary	Tallahassee	Florida	60	42852
Homeschool Group	Tallahassee	Florida	30	42852
Hartsfield Elementary	Tallahassee	Florida	70	42853
Gilcrest Elementary	Tallahassee	Florida	60	42856
Canopy Oaks	Tallahassee	Florida	70	42857
Canopy Oaks	Tallahassee	Florida	70	42858
Gilcrest Elementary	Tallahassee	Florida	60	42860
Govenors Charter Academy	Tallahassee	Florida	60	42870
Leverne Payne Community Center	Tallahassee	Florida	20	42881
Kool Kids Club	Tallahassee	Florida	25	42891
Mag Lab Camp	Tallahassee	Florida	30	42892
Challenger Learning Camp	Tallahassee	Florida	75	42893
Tiny Steps Learning Center	Tallahassee	Florida	25	42894
Mag Lab Camp	Tallahassee	Florida	30	42899
STEM Camp	Tallahassee	Florida	40	42901
Growing Room Child Development Centers	Tallahassee	Florida	60	42906
FAMU Agricultural Discovery Program	Tallahassee	Florida	30	42907
First Step Prep	Tallahassee	Florida	12	42908
Delta Kappa Omega Foundation	Tallahassee	Florida	50	42908
Gingerbread Christian Academy	Tallahassee	Florida	25	42909
FAMU Agricultural Discovery Program	Tallahassee	Florida	15	42913
International Gold Olympics	Tallahassee	Florida	24	42914
Childcare Network	Tallahassee	Florida	60	42916
Delta Kappa Omega Foundation	Tallahassee	Florida	50	42916
Just Like Angels	Tallahassee	Florida	20	42922
Big Bend Lighthouse	Tallahassee	Florida	12	42926
Tallahassee Museum	Tallahassee	Florida	20	42929
Area Bloggers	Tallahassee	Florida	20	42930
FAMU Summer camp	Tallahassee	Florida	20	42933
Imagination Day School	Tallahassee	Florida	20	42934

Lafayette Park	Tallahassee	Florida	80	42936
Gingerbread Christian Academy	Tallahassee	Florida	25	42936
Lafayette Park	Tallahassee	Florida	80	42937
Hawks Rise Elementary	Tallahassee	Florida	100	42941
Boys and Girls Club	Tallahassee	Florida	40	42942
Sci Girls FSU Mag Lab	Tallahassee	Florida	25	42943
Lamb's Senior Center	Tallahassee	Florida	15	42944
Astonia Park Elementary	Tallahassee	Florida	55	42944
Just Like Angels	Tallahassee	Florida	20	42951
Appalachee Elementary	Tallahassee	Florida	48	42998
Appalachee Elementary	Tallahassee	Florida	65	42999
Sabal Palm Elementary	Tallahassee	Florida	70	43006
Florida Virtual School	Tallahassee	Florida	23	43042
Homeschool Group	Tallahassee	Florida	40	43049
Fairview Middle School	Tallahassee	Florida	40	43083
Camp Explorer	Tallahassee	Florida	40	43096
Lighthouse Childrens Home	Tallahassee	Florida	20	43097
Brookwood School	Thomasville	Georgia	36	42811
Garrison Pilcher	Thomasville	Georgia	70	42816
Garrison Pilcher	Thomasville	Georgia	45	42817
Garrison Pilcher	Thomasville	Georgia	45	42821
Garrison Pilcher	Thomasville	Georgia	60	42822
Garrison Pilcher	Thomasville	Georgia	45	42823
Garrison Pilcher	Thomasville	Georgia	50	42824
Boyscouts	Thomasville	Georgia	20	42784
Boyscouts	Thomasville	Georgia	20	42785
Smith-William Afterschool	Thomasville	Georgia	40	42807
Thomas University	Thomasville	Georgia	20	42846
Crosscreek Elementary	Thomasville	Georgia	24	42886
Boy Scouts	Thomasville	Georgia	19	42933
Harper Elementary	Thomasville	Georgia	40	43053
Lowndes High School	Valdosta	Georgia	30	42795
Georgia Military College	Valdosta	Georgia	20	42853
Classical Conversations	Valdosta	Georgia	20	42872
Georgia Military College	Valdosta	Georgia	10	42909
Lowndes High School	Valdosta	Georgia	35	43013
Wewahitchka Elementary	Wewahitchka	Florida	30	42935
Living Science Home Studies	Woodstock	Georgia	80	42788

		2017	8439	
Hinson Middle School	Crawfordville	Florida	75	43174
Maclay School	Daytona Beach	Florida	80	43178
Creekside Middle School	Deland	Florida	120	43132
Ormond Beach Middle School	Deland	Florida	45	43181
Southwestern Middle School	Five Points	Alabama	36	43187
Community Leadership Academy	New Symma Beach	Florida	70	43126
Florida High School	New Symma Beach	Florida	45	43147
Florida High School	Orange City	Florida	20	43158
New Symma Beach Middle School	Ormond Beach	Florida	55	43179
New Symma Beach Middle School	Port Orange	Florida	70	43179
Brookwood School	Tallahassee	Florida	125	43111
Garrison Pilcher	Tallahassee	Florida	60	43165
Garrison Pilcher	Tallahassee	Florida	80	43166
Garrison Pilcher	Tallahassee	Florida	80	43165
Garrison Pilcher	Tallahassee	Florida	45	43167
Oak Ridge Elementary	Tallahassee	Florida	45	43180
St. Barnabus Episcopal	Tarpon Springs	Florida	65	43188
Five Points Middle School	Thomasville	Georgia	80	43147
Garrison Pilcher	Thomasville	Georgia	100	43168
Garrison Pilcher	Thomasville	Georgia	80	43171
Garrison Pilcher	Thomasville	Georgia	45	43172
Garrison Pilcher	Thomasville	Georgia	45	43173
Leon County Virtual School	Thomasville	Georgia	50	43175
Orange City Middle School	Thomasville	Georgia	60	43180
River Springs Middle School	Thomasville	Georgia	50	43182
Tarpon Springs Middle School	Thomasville	Georgia	25	43189
Lowndes High School	Valdosta	Georgia	75	43178
		2018	1726	

Attachment W GSML

Scientist Visitors Doc

Example Visiting Artist Christopher Still

Christopher Still's Paintings at Gulf Specimen



In 1968 I was only seven years old when my dad was studying at Florida State University. We had moved from our home in Dunedin and were far away from the beach that I loved. My dad discovered the Gulf Specimen Marine Laboratory and brought me here for a visit one weekend. What a day that was! Jack Rudloe showed me sea squirts and pulled creatures from the tanks fueling my imagination. It was a lasting and impressionable experience. I would pour over the Rudloe's book, "The Sea Brings Forth for years to come.

We returned to the Tampa Bay area where I pursued my love for art. After studying at the Pennsylvania Academy of the Fine Arts and in Europe I decided to return to Florida. Now some 40 years later when I heard about the oil spill, I rushed to the Florida panhandle to paint the endangered coastline. On my trip back I was passing through Panacea and saw a once familiar sign and made a stop here.

When I walked into the Gulf Specimen Aquarium and saw the touch tanks and met the founders Anne and Jack Rudloe, all of those memories came back. I realized that the trip to the Laboratory as a child had a great impact on my life. Many of the details in recent works are still distant memories of that day. I decided with the Rudloes that my artwork should be a part of this very special place. So with the concern and generosity of Jimmy Buffet, we made reproductions of the artwork before you. The originals can be viewed in the Florida House of Representatives in Tallahassee and the Sandpearl Resort in Clearwater.





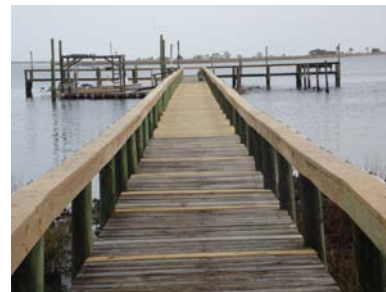


Welcomes Long Term Scientist Visitors

PLEASE POST



You may be familiar with the vast array of live sea plants or animals that Gulf Specimen Marine Laboratory makes available for research and education. We now have a 110 square feet, air conditioned onsite laboratory available for use by scientists, that you might want to consider occupying for a long term visit: for your next sabbatical, for your



summers of research, or for a week or more during school breaks. We can give you priority access to fresh specimens of most any organism that is in season when you come. You bring your own equipment. We provide continuously processed, clean seawater on tap, high speed WiFi, and staff assistance.

We are located in Panacea, Florida. Short term rentals of homes and motels are available within a few blocks as well as full service RV campgrounds. We also



have a modern, fully equipped, one room furnished guest home that we can rent to you, 2 blocks from GSML, with WiFi, heating and air conditioning. Pets and children are welcome, with supervised access to our touch tanks.



For daily relaxation, you have access to our collecting dock on Dickerson Bay, and our company (<http://tinyurl.com/Jack-Rudloe>) if you wish on dog walks along miles of beautiful, natural dune-rimmed beaches or in woods nearby, all within a 15 minute drive. Sunsets over Ochlockonee Bay are spectacular.

Come stargaze or look down at bioluminescence from our Living Dock on our dark nights and try our lift net as the tide comes in and out.

Rates:

Duration	Lab	Guest home	Wave tank	Glass tank	Isolation tank
Weekly	\$150	\$75	\$100	\$25	\$100
Monthly	\$450	\$225	\$300	\$75	\$300



Specimens would be provided per our standard rates, with, of course, no shipping charges. Staff time for feeding your animals or technical assistance can be provided at \$25 per hour. Our 21' collecting boat is available for \$250/day

including an experienced captain. There are 4 restaurants within walking distance in Panacea, and three 3.5 miles south, near bike paths and an ocean front RV campground with a sand beach. Panacea also has a hardware and fishing tackle store, gasoline, marine supply, liquor store, hair salon, fresh fish market, machine shop, post office, Dollar Store with groceries, public park with a fully equipped playground and fishing pier, a public loading

dock if you bring a boat, and an RV park, again all within walking distance of GSML. Crawfordville is a full service city 20 minutes drive north, and Tallahassee, the capital of Florida, is 40 minutes north. Panacea is part of the Forgotten Coast, with shrimp and oyster fishing villages, national and state parks, all within an hour drive. Wakulla Springs Lodge & State Park offers housing and daily boat rides for observing manatees, alligators and a fantastic array of birds up close. We are only 250 miles from Orlando making a weekend in Disneyworld feasible during your stay. Nearby airports include Orlando, Tallahassee, and an airstrip for small airplanes.

Letters of Support

- 🚧 Aquatic Equipment, Mount Dora, FL. Amy Stone
- 🚧 Aqua-Tech, Algonquin, IL. Mark Vera
- 🚧 CP Foods, Thailand. Robins McIntosh
- 🚧 Educational Tours, Inverness, FL. Grant Doyle
- 🚧 Flint River Aquarium, Albany, GA. Richard Brown
- 🚧 Florida Atlantic University, Fort Pierce, FL. Brian Lapointe
- 🚧 Florida Department of Environmental Protection, Florida Park Service. Kristin Ebersol
- 🚧 Florida Fish and Wildlife, Dr. Robin Trindell
- 🚧 Florida State University, Dr. Gary Ostrander
- 🚧 Florida State University, Barbara Shoplock
- 🚧 Florida State University, Dr. Janie Wulff
- 🚧 Florida State University, Dr. Trisha Terebelski
- 🚧 Florida Wildlife Commission, Koinski
- 🚧 Lively Technical College, Tallahassee, FL. Shelly Bell
- 🚧 National Geographic, Joel Sartore
- 🚧 Panacea Waterfronts Florida Partnership
- 🚧 Rock Landing Marina, Panacea, FL. Robert Lowther
- 🚧 Sea World, Orlando, FL. Gary Violetta
- 🚧 Serviette Equipment, Orlando, FL. Joseph Choromanski
- 🚧 University of South Florida, Tampa, FL. Dr. Clifford Merz, PE
- 🚧 Visit Florida, Nelson Mongiovi
- 🚧 Wakulla County Chamber of Commerce
- 🚧 Wakulla County Tourist Development Council
- 🚧 Wakulla Commercial Fisherman's Association



July 25, 2018

Gulf Specimen Marine Laboratory
Attn: Cypress Rudloe
PO Box 237
Panacea, FL 32346

RE: Employee and/or Intern Recruitment

Dear Cypress,

I am writing this letter to express my support for your intern program. We have had a long term working relationship and have been on-site to review the operations. For the past 20 plus years, we have been working in this industry and touring facilities. Along the way, we have seen the good, the bad and the ugly in terms of employee quality and knowledge base.

When searching for new employees, we always look for those who have experience. Our recruitment procedure focuses on several key items within the applicants CV. We are interested in finding applicants that have made an effort to gain experience either by internships or volunteering in our field while still in school. We have found that those who have completed a program have more drive, more knowledge and are better employees.

The GSML internship and location is highly favorable for making sure these interns and employees have a thorough understanding of the equipment and the animals it is supporting. That relationship is crucial for everyone entering or working in our field to understand. The facility's size and age allow the intern to see several different filtration methods in action as well as allows them to learn how to work with these varied systems.

The management team at GSML is very hands-on which allows the intern to learn all sides of the operation. This understanding of how the overall operation functions allows the interns to really understand their role and how it impacts the rest of the facility. This isn't so obvious in a larger facility where the jobs are more compartmentalized.

We look forward to recruiting past interns from your facility because we know they will have the tools we need them to have to succeed with us.

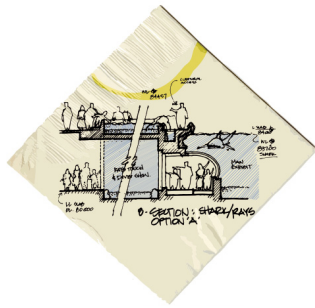
All the best!

Amy Stone
President

Phone: 407-995-6490
Fax: 407-641-9172

18981 US HWY 441 #329
Mount Dora, FL 32757

www.AquaticED.com
info@AquaticED.com



July 25, 2018

To Whom It May Concern:

This letter is being written in support of the Gulf Specimen Marine Lab and Aquarium in their application for Triumph Grant funds to expand their intern program. The management staff of the lab requested that I specifically comment on the fitness and hireability of their interns in the public aquarium profession.

While I do not have any direct experience with the Lab's interns, I am very familiar with the Laboratory and Aquarium facilities and operations. As a 35-year Public Aquarium Professional and former Vice President simultaneously in charge of three aquarium operations, I can state unequivocally that aquarist candidates with previous hands-on experience always perform higher and make better aquarium husbandry employees than those with only academic training or credentials. From what I have learned about the intern program and the interns, I believe that they would be successful aquarists at any aquarium from which they sought employment.

Sincerely,

Joseph M. Choromanski
President, Serviette, LLC

To whom it may concern,

My name is Young Kang and I am a former Gulf Specimen Marine Lab intern. After my internship with Gulf Specimen Marine Lab, I was able to become a laboratory manager for a marine biology lab at Florida State University and am now currently in law school at the Florida State University College of Law. It is clear that the skills and experience I gained at Gulf Specimen Marine Lab were critical to gaining employment in the laboratory as well as my acceptance into law school.

The specialized practical skills that I gained at Gulf Specimen Marine Lab were crucial to my employment at Florida State University as a laboratory manager. One of the difficulties of marine biology is that due to the technical expertise and geographic restrictions inherent in the field, there are few opportunities to attain meaningful experience. Because I was able to get that rare level of experience at Gulf Specimen Marine Lab, my resume stood out from the crowd and made me qualified for a job as a laboratory manager. Once my employment began, it became clear that the skills related to animal husbandry, aquaria and working in a marine environment I had acquired in my internship had prepared me for that job.

While the link to my acceptance to law school may be less clear, I am positive that having my internship with Gulf Specimen Marine Lab contributed to my acceptance. When one is applying to law school, it is always important to have unique experiences that demonstrate commitment to a cause. Having Gulf Specimen Marine Lab helped to achieve that for my application. As previously noted, Gulf Specimen Marine Lab is a unique opportunity that not only conferred interesting skills, but also demonstrated a commitment to improving my local environment. My application centered around my desire to improve the environment and having the internship on my resume showed that I understood *what* the local environment was as well as my commitment to its improvement. I have no doubt that my Gulf Specimen Marine Lab internship demonstrated that my desires were not flighty whims but were instead concrete aspirations with which I had already worked toward.

My internship at Gulf Specimen Marine Lab has clearly been a boon to my career in all fields that I have pursued. From academic scientific research to a burgeoning law career, my internship has certainly contributed to my success. By having Gulf Specimen Marine Lab on my resume, employers can see that I have the knowledge and the mettle to make it in the fields that I have chosen.

Sincerely,

Young Kang

Juris Doctor Candidate, Class of 2020

Florida State University College of Law

PHOTOARK

JOEL SARTORE

To Whom it May Concern,

This letter is to sing the praises of Jack Rudloe and his staff at Gulf Specimen, a remarkable scientific organization in Panacea, FL.

Known around the world for providing fish and marine invertebrates to be studied at hundreds of colleges and research facilities, Gulf Specimen has also worked tirelessly to educate school children about the wonders of all life forms in the Gulf of Mexico. Since 1980, they've hosted literally tens of thousands of kids at their education center.

Jack and his team especially relish teaching about the small, overlooked species like sea cucumbers, starfish and mussels. In a series of shallow display tanks, children can literally touch many species they never could have even imagined. This has a lasting impact, especially for local kids that would never otherwise be able to learn about the biodiversity just under the surface out in the bay.

Indeed, one of the most remarkable effects is how many lives are profoundly changed once they leave this special place. Interns and volunteers alike receive professional training there, and carry that with them all their lives. Many go on to have successful careers in the biological sciences, driven by the inspiration they got at Gulf Specimen.

Jack has had a big impact on me as well. I've visited several times over the years, each time photographing dozens of species for the National Geographic Photo Ark. From sponges to squid, crabs to hagfish, the wonders of the sea never cease to amaze me. Jack even ships creatures up to Nebraska to photograph, something nobody else has ever taken the time, trouble or expense to do.

Thanks to Jack's boundless enthusiasm, we learn that all creatures, great and small, have value. As he once famously said, "Whether they sizzle, hiss, pop, etc, etc., I love them all". This sums up the attitude of the entire team at Gulf Specimen. It's this passion that landed him a recent National Geographic book and exhibition on the Photo Ark, where he is featured as an environmental hero of mine.

I'm proud to add my voice to those supporting Gulf Specimen's latest endeavor, and can attest that your grant funding could not be better spent. Please do not hesitate to contact me for any more information about this remarkable place.

Sincerely,



Joel Sartore
Photographer and Fellow, National Geographic Society
Founder, National Geographic Photo Ark
Cell: 402.326.1150

July 31, 2018

Gulf Specimen Marine Laboratory
Attn: Jack Rudloe
P.O. Box 237
Panacea, FL 32346

Subject: Gulf Specimens Aquarist Internship

To Whom It May Concern:

I am writing this letter in support of the Gulf Specimen Marine Laboratory Aquarist Internship program. I have worked with and known Jack Rudloe for well over 25 years. Several years ago, I had the opportunity to transport an endangered sea turtle the Gulf Specimens for one of his displays. After the transport I was able to tour his facility. I found the aquariums to be in great shape: water quality was clear, specimens were robust and healthy and the animals were displayed in natural environments.

Internship programs are extremely valuable when interviewing potential candidates for employment. When reviewing applications, we look for areas where potential employees have gone the extra mile – something that will separate them from all the other candidates. Internship programs fall under this category. An internship program is where the candidates can learn the basics of husbandry techniques such as feeding, nutrition, disease assessment, treatment and water quality. The Gulf Specimen Internship program not only includes these basic skills but also includes extras such as boating experience, collecting, and public speaking. These are all valuable experiences for future employment in a public aquarium environment.

As a major asset to this intern program, Jack is a phenomenal educator and author. I have personally observed Jack interact with visitors at Gulf Specimens Marine Laboratory teaching fun facts about each animal. As stated on the back cover of his book, Search for the Great Turtle Mother, "The facility, located in the quiet Florida Panhandle community of Panacea, offers tours of its aquarium to school groups and the public, teaching visitors about hundreds of fascinating creatures and the marine and estuarine habitats where they live." This is a perfect environment for an intern to learn.

With that being said, I fully support Gulf Specimens internship program and would recommend it to any future students interested in the aquarium field.

Sincerely,



Gary Violetta
Director of Animal Husbandry
SeaWorld Orlando

Letters of Support

-  Aquatic Equipment, Mount Dora, FL. Amy Stone
-  Aqua-Tech, Algonquin, IL. Mark Vera
-  CP Foods, Thailand. Robins McIntosh
-  Educational Tours, Inverness, FL. Grant Doyle
-  Flint River Aquarium, Albany, GA. Richard Brown
-  Florida Atlantic University, Fort Pierce, FL. Brian Lapointe
-  Florida Department of Environmental Protection, Florida Park Service. Kristin Ebersol
-  Florida Fish and Wildlife, Dr. Robin Trindell
-  Florida State University, Dr. Gary Ostrander
-  Florida State University, Barbara Shoplock
-  Florida State University, Dr. Janie Wulff
-  Florida State University, Dr. Trisha Terebelski
-  Florida Wildlife Commission, Koinski
-  Lively Technical College, Tallahassee, FL. Shelly Bell
-  National Geographic, Joel Sartore
-  Panacea Waterfronts Florida Partnership
-  Rock Landing Marina, Panacea, FL. Robert Lowther
-  Sea World, Orlando, FL. Gary Violetta
-  Serviette Equipment, Orlando, FL. Joseph Choromanski
-  University of South Florida, Tampa, FL. Dr. Clifford Merz, PE
-  Visit Florida, Nelson Mongiovi
-  Wakulla County Chamber of Commerce
-  Wakulla County Tourist Development Council
-  Wakulla Commercial Fisherman's Association



August 9, 2018

The Honorable Don Gaetz, Chair
Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Chair Gaetz,

I write to you today in support of the application of the Gulf Specimen Marine Laboratories, Inc. (GSML) to the Triumph Gulf Coast Inc. Triumph funds are requested for infrastructure upgrades and expansion for Gulf Specimen Marine Laboratory & Aquarium. Currently the GSML hosts approximately 10,000 school children each year on field trips from counties around the state and as far away as southern Georgia. Another 17,000 tourists, from around the United States and abroad, positively impact the local economy when they visit each years. The GSML is critical to the local economy.

Faculty, staff and students from the Florida State University have interacted with the GSML for many years. Students have completed internships that have led to employment in the State of Florida and GSML has provided specimens used in both our teaching laboratories and by our researchers. I have visited the GSML on a number of occasions relative to the ongoing relationship between our two institutions and can speak to the critical role it plays.

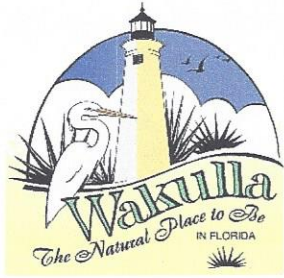
We very much support the request of the GSML for \$3.9 million to fund much needed infrastructure upgrades and expansion of their 50-year old Marine Laboratory and Aquarium located in Panacea, FL. Expansion will include 8 new marine displays, upgrades to seawater and filtrations systems and a new educational center. The educational center will provide interactive education for visiting schools and will be the hub of the planned *Aquatic and Marine Technician Certification Program*. It is anticipated that the successful completion of the activities proposed to Triumph will add 20 new jobs, certify 72 technicians (per year) and triple their tourism impact to the town of Panacea adding much needed tourism dollars and economic stimulation to the local economy.

I and my colleagues are pleased to support this application and we look forward to the long-term positive economic impact this will have on the community.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary K. Ostrander".

Gary K. Ostrander
Vice President for Research
Florida State University



Wakulla County Tourist Development Council

Post Office Box 1263 Crawfordville Florida 32327

www.visitwakulla.com

July 25, 2018

The Honorable Don Gaetz, Chair
Florida Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Senator Gaetz,

On behalf of the Wakulla County Tourist Development Council I am writing this letter in support of Triumph funding for the Gulf Specimen Marine Laboratories.

The Gulf Specimen Marine Laboratories seeks 3.9 million to fund much needed infrastructure upgrades and expansion of their 50-year-old Marine Laboratory and Aquarium located in Panacea, FL. Expansion will include 8 new marine displays, upgrades to seawater and filtrations systems and a new educational center that will not only provide interactive education for visiting schools but will also be the hub of the Aquatic and Marine Technician Certification Program. Currently the GSML host up to 10,000 school children per year visiting on field trips from counties around the state and Georgia. Another 17,000 tourists come through the lab annually from all over the United States. With approved funding the GSML will be able to add 20 new jobs, certify 72 technicians (per year) and triple their tourism impact to the town of Panacea adding much needed tourism dollars and economic stimulation to the local economy.

The Wakulla County Tourist Development Council fully supports this application for funding and looks forward to the much needed long term economic impact this will have on the community.

Consideration by the Gulf Coast Triumph, Inc. Board to fund this project is greatly appreciated.

Regards,

Becton Roddenberry, Chairman
Tourist Development Council

WAKULLA COUNTY CHAMBER OF COMMERCE

P. O. Box 598/23 High Drive, Crawfordville, FL 32326

Telephone: (850) 926.1848

June 6, 2018

The Honorable Don Gaetz, Chair
Florida Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Senator Gaetz,

We are writing to you today to provide our support for Gulf Specimen Marine Laboratories, Inc. project for funding infrastructure upgrades and expansion for Gulf Specimen Marine Laboratory & Aquarium from the Florida Gulf Triumph Fund.

GSML seeks 3.9 million to fund much needed infrastructure upgrades and expansion of their 50 year old Marine Laboratory and Aquarium located in Panacea, FL. Expansion will include 8 new marine displays, upgrades to seawater and filtrations systems and a new educational center that will not only provide interactive education for visiting schools but will also be the hub of our Aquatic and Marine Technician Certification Program. Currently GSML host up to 10,000 school children per year visiting on field trips from counties around the state and Georgia. Another 17,000 tourists come through the lab annually from all over the United States. With approved funding the GSML will be able to add 20 new jobs, certify 72 technicians (per year) and triple their tourism impact to the town of Panacea adding much needed tourism dollars and economic stimulation to the local economy.

The Wakulla County Chamber of Commerce fully supports this application for funding and looks forward to the much needed long term economic impact this will have on the community.

Sincerely,



Courtney Armitage, President



WAKULLA
COUNTY

**BOARD OF
COUNTY COMMISSIONERS**

Ralph Thomas
Chairman, District 1

Charles Hess, Ph.D.
Vice-Chairman, District 5

Randy Merritt
District 2

Mike Stewart
District 3

Jerry Moore
District 4

J. David Edwards
County Administrator

Heather J. Encinosa
County Attorney
(850) 224-4070

January 8, 2018

Mr. Alan Bense, Chairman
Triumph Gulf Coast, Inc.
Post Office Box 12007
Tallahassee, Florida 32317

Dear Chairman Bense,

The Wakulla County Board of County Commissioners (Board) transmitted a list of recommended projects on or about November 6, 2017. Since then we have received two additional projects from organizations seeking the Board's recommendation for Triumph Gulf Coast, Inc. (Triumph) funding.

On January 8, 2018, the Board met and based upon our review and input from each organization, we have updated our November 6, 2017, Recommended Projects List to include one additional project. The recommended project is from the Gulf Marine Specimen Marine Laboratories, Inc. seeking funds to expand and improve their facilities so that they can increase educational opportunities in various areas of marine life.

It is anticipated that the Board will continue to update its list of recommended projects as funding decisions are made and priorities shift to reflect current needs and conditions. Your consideration of each of our projects is greatly appreciated.

Please contact me if you have any questions or need additional information.

Sincerely,

Ralph Thomas
Chairman

Administration – Human Resources
Post Office Box 1263
Crawfordville, FL 32326
(850) 926-0919 x 707
(850) 926-0940 FAX

RT/stk

Enclosure

Cc:
Mr. Jack Rudloe, Gulf Specimen Marine Laboratories, Inc.

WAKULLA COUNTY LIST OF RECOMMENDED PROJECTS FOR TRIUMPH GULF COAST, INC. FUNDING
Revised on January 8, 2018, (Original Submitted on November 6, 2017)

<i>Organization</i>	<i>Project Title/Brief Description</i>	<i>Est. Project Cost</i>	<i>Board Priority</i>
Wakulla County Board of County Commissioners	First Responder Communication System: Replace existing aging and unrepairable first responder communication system with one that can communicate with all federal, state and local first responder agencies as well as extending the range of communication within the County, i.e., national/state forest, metal building, etc. Our County is working with other 7-counties for potential regional project – with each County submitting their own application.	\$2 M	#3
	New Library: Construct a new, larger more centrally located library at the community center to meet the growing demands for new programs and provide space for participation at current and new events. The existing library will be repurposed and used for a much-needed Fire/EMS station in the Medart area, south of Crawfordville. A new library also has the potential to provide virtual classes not provided elsewhere in the County and could target underprivileged populations needing workforce skills. The County owns the property. Funds are needed for design, permitting, construction and furnishings.	\$3.5 M	#4
	Medart Rec Park Improvements: Improve the parking lot, restroom and concession facilities, and sports fields of Wakulla County's only recreation park for organized outdoor youth and adult sports. The County owns the Park. Funds are needed for any design, permitting and construction.	\$2.0 M	
	Realignment of County Road 61/Shell Point: The County has only two north-south bound highways from Capital Circle (Leon County) to US 98 (Wakulla County): US 319 is on the eastern side of the County and US 27 is on the western side. High traffic on both of these highways is attributed mainly to travelers working in Tallahassee and living in Wakulla. Internal arterial roads off of these highways leading to residential areas become clogged at peak times creating extremely hazardous conditions. Additionally, these highways provide the only access to Wakulla's coast, rivers, forest, etc. creating heavy traffic conditions on weekends and holidays. This proposed realignment would provide a north-south bound County Road centrally located in Wakulla County and would ease congestion and increase safety conditions. Funds are needed for design, permitting and construction.	\$2.5 M	
	Camp Indian Springs Campground Partnership: This project proposes a partnership with Department of Environment Protection (DEP), in the event they purchase the Camp Indian Springs Property. The County proposes seeking funds for the improvement of existing buildings on the Camp Indian Springs Campground property and the design, permitting and construction of a RV/Tent camp ground.	TBD	
	New Rec Park – US 319: The County is in need of land to design, permit and construct a larger outdoor multi-use recreational Park on the north side of the County. This park has the potential to serve the region for youth and adult outdoor sports, i.e., softball tournaments, soccer tournaments, etc. Funds are needed for land acquisition, planning, design, construction and furnishings.	\$20 M	

WAKULLA COUNTY LIST OF RECOMMENDED PROJECTS FOR TRIUMPH GULF COAST, INC. FUNDING
Revised on January 8, 2018, (Original Submitted on November 6, 2017)

Wakulla County School Board	<p>Wakulla Career and Technical Education Center: This project would provide training and job skills for the non-degree seeking student for emerging or high-demand jobs. WCSB owns the property and will staff the center once constructed. Funds are requested for design, permitting, construction and furnishings.</p> <p>Wakulla County Learning Center: This project proposes a partnership with TCC for a campus in Wakulla County where students and adults may pursue an AA degree. WCSB owns the property and will staff the center once constructed in partnership with TCC. Funds are requested for design, permitting, construction and furnishings.</p>	\$5.7 M	#1
		\$3.4 M	#2
City of St. Marks,	<p>ADA Compliant Kayak/Canoe Launch: To provide kayak/canoe access to the Wakulla River via the City Park. Increase recreational opportunities and enhanced visitor experience. Will also relieve kayak/canoe launching at the St. Marks Boat Ramp. The City of St. Marks owns the property. Funds are requested for design, permitting and construction.</p> <p>St. Marks WWTP – Conversion of Grinders to Gravity Sewer: First a feasibility study (i.e., preliminary engineer report) will need to be conducted to determine if conversion is feasible and probable cost. Funds are needed for feasibility study/preliminary engineering report.</p> <p>St. Marks Board Walk: Construct a boardwalk that will connect to the terminus of the St. Marks Bike Trail and provide an off-road multi-use pedestrian to the Fort, St. Marks Board Ramp, and back to the St. Marks Bike Trail terminus. The City of St. Marks own the property and the project is designed and permitted. Funds are requested for construction.</p>	\$65 K	#5
		\$350 K	
		\$900 K	
Wakulla Commercial Fishermen's Assoc, Inc.	A Partnership Reviving Apalachee Bay Oyster Reefs: Shoreline restoration on oyster reefs to enhance commercial and recreational fishing; provide tidal, storm surge and coastal erosion protection, improve water quality; strengthen economy, social and environmental capital. Funds are requested for all stages of the project.	\$2.6 M	
Wakulla Environmental Institute	Marine Manufacturing Training Center: A state of the art multi-purpose facility that will function as an auditorium, conference center, manufacturing center, oyster seed hatchery and commercial kitchen for processing local Gulf Coast seafood products. WEI owns the property. Funds are needed for design, permitting, construction and furnishings. Total estimated project cost is \$22.7 M, seeking \$15M Triumph funds.	\$15 M	
Gulf Specimen Marine Laboratories, Inc. (GSMI) (added to list 1/8/2018)	GSMI expansion of infrastructure and operations for adding courses that will lead to technical certificates in an array of marine subjects as well as marketing new local marine products. Funds will be used to upgrade/expand the existing facilities, purchase of two vessels, and salaries and benefits for 11 planned new positions. It is anticipated that after three-years the course will be self-sustaining	\$3.9 M	



July 9, 2018

The Honorable Don Gaetz, Chair
Florida Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Senator Gaetz,

I am writing to you today to express support for Gulf Specimen Marine Laboratories, Inc. project for funding infrastructure upgrades and expansion for Gulf Specimen Marine Laboratory & Aquarium from the Florida Gulf Triumph Fund.

GSML seeks \$3.9 million to fund much needed infrastructure upgrades and expansion of their 50 year old Marine Laboratory and Aquarium located in Panacea, FL. Expansion would include 8 new marine displays, upgrades to seawater and filtrations systems and a new educational center that will not only provide interactive education for visiting schools but will also be the hub of the Aquatic and Marine Technician Certification Program.

Currently the GSML host up to 10,000 school children per year visiting on field trips from counties around the state and Georgia. Another 17,000 tourists come through the lab annually from all over the United States. With approved funding the GSML will be able to add 20 new jobs, certify 72 technicians (per year) and *triple their tourism impact to the town of Panacea* adding much needed economic stimulation to the local economy.

Your consideration of their request for Triumph Funding is sincerely appreciated. Please let me know if I can provide any additional details.

Respectfully,


Nelson Mongiovi
Chief Marketing Officer, VISIT FLORIDA

TO WHOM IT MAY CONCERN



As a visiting scientist, I had a great pleasure of working for 10 days (from 9 to - 19 February, 2018) at Gulf Specimen Marine Lab & Aquarium in Panacea, Florida. During my stay, the kind invitation from President Jack Rudloe has given me the chance to use the local sea urchin (*Arbacia punctulata*) to perform *in vitro* fertilization experiments to correlate the fertilization response of this American sea urchin with that of the Mediterranean species *Paracentrotus lividus*. For more than 150 years, sea urchin eggs have provided a large body of information on the structural and biochemical changes regulating successful fertilization, and are still used as a favorite model system to demonstrate this fundamental process to the students of the advanced high school and university biology laboratory courses. At Gulf Specimen Marine Lab & Aquarium in Panacea, owing to the excellent organization and performance of the facility, large quantity of animals are kept in the tanks that recreate the natural environmental conditions. The possibility to use a large number of animals has offered me the exceptional opportunity to follow the spatio-temporal series of morphological changes that take place on the egg surface following fertilization in their physiological and experimental conditions.

During my stay, I particularly enjoyed the comfortable work environment and the gracious hospitality, and I was very much impressed by the high level of technical competence, professionalism and enthusiasm of the staff of the facility.

Napoli, March 19, 2018

Sincerely,

Dr. Luigia Santella

Research Director
Coordinator Morpho-Functional Analysis &
Bioimaging Unit
Stazione Zoologica Anton Dohrn
Villa Comunale 80121
Napoli, Italy
santella@szn.it
www.szn.it

June 30, 2018

Florida Triumph Gulf Coast Inc.
P.O. Box 12007, Tallahassee, Florida 32317

Dear Members of the Florida Triumph Gulf Coast Inc.

The Wakulla Commercial Fishermen's Association Inc. is eager to support the Gulf Specimen Marine Lab in its efforts to conduct research and development of methods for increasing the commercial seafood industry in Wakulla County.

Over the years, the GSML has worked with the academic community to identify a means for growing harvestable oysters on trees. This is especially beneficial to members of the WCFA because it could afford an opportunity for wild oyster harvesters to increase their earning power not only by harvesting oysters, but also in developing the areas that would produce oysters.

Presently oyster farming is being conducted in Wakulla's waters, but with mixed reviews. State records show that oyster farming in these waters has not produced a living income for leaseholders. In addition, in a series of meetings, commercial fishermen and oyster farmers reached a conclusion that expansion of that project in Wakulla waters was unlikely since there are no remaining areas for submerged land leases that comply with state and federal regulations. And regrettably, the triploid oyster spat being used in order to avoid diseases being introduced in our waters has been criticized by local seafood sellers for having a less desirable taste than wild oysters or farmed oysters in other areas.

If Florida Triumph Gulf Coast is committed to improving the overall living standards of this seacoast community with projects that would continue to benefit the area, it would be appropriate for a serious consideration of GSML's proposal.

Thank you,

John Taylor

John Taylor, president, Wakulla Commercial Fishermen's Association Inc.



July 20, 2018

TO: The Honorable Don Gaetz; Florida Triumph Gulf Coast, Inc.
FROM: Trisha (Spears) Terebelski, Ph.D.
RE: Letter of support on behalf of Gulf Specimen Marine Lab

I am a faculty member in the Biology Department of Florida State University located in Tallahassee, and I am writing to attest to the important role that Gulf Specimen Marine Lab (GSML) plays in the education of my students and the significant impact the lab has had on the lives and future careers of many of them. Among the courses that I teach, two specifically address biological diversity: Eukaryotic Diversity (BSC3016) and Animal Diversity Lab (ZOO3141-L). As such, I strongly encourage my students to make the one-hour drive from campus to the lab so they may observe first hand living representatives of the marine organisms we discuss in lecture. Even college students get excited interacting with the touch tanks!

I estimate that each year since 2014 I have had between 100 and 240 college students visit the lab, after which they submit a short report based on their experience. Not only do they write about the various animals they have observed, but they always comment on how knowledgeable and approachable the staff is. They especially enjoy the openness and accessibility of the displays, and how they are encouraged by staff to linger as long as they want and make the most of the experience. During their visit, my students connect with and interact with marine organisms and come to view them in a new light, leaving with a greater appreciation for marine diversity and the need to preserve it. Truly, GSML enhances the education my students receive in ways that my showing mere videos of organisms in class could never achieve.

Each semester I always have some students who have had such a positive experience with GSML that they apply for internships to work at the lab. Because of the close proximity of the lab to our campus, students can serve their internships for entire semesters while also taking classes. GSML not only gives my student interns a unique and valuable opportunity to expand their knowledge of marine life, but it also provides them with opportunities to interact with and educate the public. My students grow as individuals because of this, and many end up deciding to apply to graduate school for marine biology, to study marine veterinary science, or to become educators themselves.

GSML serves many vital and worthwhile scientific and community functions, but I am especially thankful for the role it plays in the lives and education of so many of my college students.

Sincerely,

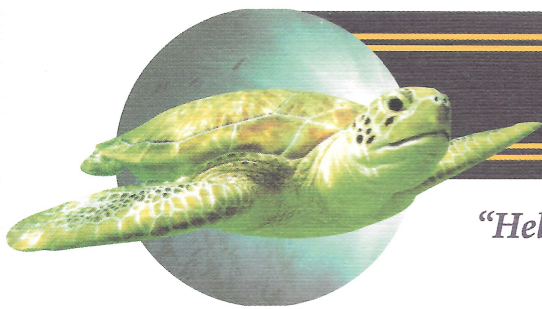
A handwritten signature in dark ink, reading "Trisha Terebelski". The script is cursive and fluid, with the first name "Trisha" and last name "Terebelski" clearly legible.

Trisha (Spears) Terebelski, Ph.D.

*University Distinguished Teacher
Teaching Faculty III
Coordinator of Introductory Biology Lecture Courses*

Department of Biological Science
Florida State University
Tallahassee, FL 32306-4295

phone: (850) 644-1847
terebelski@bio.fsu.edu



NATIONAL SAVE THE SEA TURTLE FOUNDATION

"Help Save A Life and Generate Hope For Our Endangered Species"

July 12, 2018

The Honorable Don Gaetz, Chair
Florida Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Senator Gaetz,

We are writing to you today to provide our support for Gulf Specimen Marine Laboratories, Inc. project for funding infrastructure upgrades and expansion for Gulf Specimen Marine Laboratory & Aquarium from the Florida Gulf Triumph Fund.

GSML seeks 3.9 million to fund much needed infrastructure upgrades and expansion of their 50 year old Marine Laboratory and Aquarium located in Panacea, FL. Expansion will include 8 new marine displays, a new turtle rehabilitation facility, holding pools, upgrades to seawater and filtrations systems and a new educational center that will provide interactive education for visiting schools and special programs on environmental education. Currently GSML host over 10,000 school children per year visiting on field trips from counties around the state and Georgia. Another 17,000 tourists come through the lab annually from all over the United States. With approved funding the GSML will be able to add 20-30 new jobs, expand the existing marine intern program to accommodate 72 students per year, from FSU, FAMU, TCC and Thomas University. In the first 3 years it is the Gulf Specimen Marine Lab's goal to triple their tourism impact to the town of Panacea adding much needed tourism dollars and economic stimulation to the local economy.

National Save The Sea Turtle Foundation, Inc. fully supports this application for funding and looks forward to the much needed long term economic and environmental impact this will have on the community.

Sincerely,

Frank Wojcik
Executive Director

4419 W. Tradewinds Avenue • Fort Lauderdale, Florida 33308
Phone: 954-351-9333 • Fax: 954-351-5549 • Toll Free: 877-887-8533
Website: www.savetheseaturtle.org • Email: savetheseaturtle@bellsouth.net



**Florida Fish
and Wildlife
Conservation
Commission**

Commissioners

Bo Rivard
Chairman
Panama City

Robert A. Spottswood
Vice Chairman
Key West

Joshua Kellam
Palm Beach Gardens

Gary Lester
Oxford

Gary Nicklaus
Jupiter

Sonya Rood
St. Augustine

Michael W. Sole
Tequesta

Executive Staff

Eric Sutton
Executive Director

Thomas H. Eason, Ph.D.
Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

**Division of Habitat and
Species Conservation**

Kipp Frohlich
Director

(850) 488-3831
(850) 921-7793 FAX

*Managing fish and wildlife
resources for their long-term
well-being and the benefit
of people.*

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: 850-488-4676

Hearing/speech-impaired:
800-955-8771 (T)
800 955-8770 (V)

MyFWC.com

July 31, 2018

Florida Triumph Grant Committee
P.O. Box 12007
Tallahassee, FL 32317

Dear Committee,

I am writing to confirm that Mr. Cypress Rudloe, Gulf Specimen Marine Laboratory, Inc., holds a Marine Turtle Permit (MTP-18-036) from the Florida Fish and Wildlife Conservation Commission (FWC) to conduct specific activities with threatened and endangered marine turtles. Under this permit, Mr. Rudloe and the Authorized Personnel listed rescue stranded marine turtles and then hold and rehabilitate them for release back into the wild. Mr. Rudloe is also authorized to hold a non-releasable marine turtle for educational display at Gulf Specimen Marine Laboratory, Inc.

Gulf Specimen has been involved in conservation and protection of marine turtles for over twenty years. Over the past five years, they have successfully rehabilitated over 50 injured marine turtles and released them back into the wild. The Lab provides opportunities for individuals listed on their FWC permit to work with marine turtles, gaining valuable experience for pursuit of employment in the field of marine biology and marine turtle conservation. Our staff considered this experience when reviewing applicants for a position in FWC's marine turtle management program. We selected the applicant who had worked with marine turtles during an internship at Gulf Specimen Marine Laboratory.

The location of the Laboratory creates a unique opportunity to educate communities in Wakulla and surrounding counties about the important marine ecosystems in this area. This includes providing factual and accurate information about Florida's threatened and endangered sea turtles.

Please feel free to contact me at robbin.trindell@myfwc.com for additional information about Gulf Specimen Marine Laboratory's work with threatened and endangered marine turtles or the authorizations required to conduct such work.

Sincerely,

Robbin. N. Trindell, Ph.D.
Biological Administrator
Imperiled Species Management



July 17, 2018

To Whom it May Concern.

I wanted to follow up with you regarding the economic impact of the GSML Ecotourism & Agriculture Project as it relates to Rock Landing Marina and Mad Anthony's Waterfront Grille. We are uniquely located on Dickerson Bay with direct Gulf access in a few minutes for our boating customers. The marinas to our east and west both require long boating commutes to the Gulf. In addition, both GSML, RLM & MA are only 2 blocks from a major transportation artery highway 98. Therefore, providing easy access for visitors of all demographics. While we have easy access we have difficulty being found because of the State and Federal government blocking the installation of professional signage on our own property to both GSML and Mad Anthony's Waterfront Grille.

As a result of your proposed expansion which would dovetail with ours we are projecting 5-6 additional marina personnel and 22-30 additional restaurant personnel. We are also projecting an additional \$2.4 million of construction investment.

Obviously, there is a direct connection between GSML, RLM & Mad Anthony's Waterfront Grille. We currently support events at the lab like Sharks & Chablis. You and your staff routinely bring guests or visitors to Mad Anthony's for lunch or dinner. When we look at the demographics of the region it is easy to see an aggressive increase in visitors to GSML if your plans come to fruition. Likewise this directly correlates to an increase in MA/RLM business/customers. Additionally, a tour boat service providing educational and recreation opportunities related to GSML will generate additional visitation to the lab and potentially to the restaurant.

One area of concern is available housing for new employees moving to the area. We have plans to develop housing in the Panacea market to address this issue as needed. We have property available to develop affordable housing. The model for this development is already been proven elsewhere in the region.

My final concern which I mentioned earlier is the State and Federal government blocking the installation of professional signage on our property adjacent to highway 98. GSML and Mad Anthony's Waterfront Grille currently miss hundreds of drive-by customers/visitors each week. We have a monumental opportunity to make a profound impact on the community and the region as a whole. I welcome your comments.

Respectfully,

Robert J. Lowther, Jr.



June 12, 2018

The Honorable Don Gaetz, Chair
Florida Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Senator Gaetz,

We are writing to you today to provide our support for Gulf Specimen Marine Laboratories, Inc. project for funding infrastructure upgrades and expansion for Gulf Specimen Marine Laboratory & Aquarium from the Florida Gulf Triumph Fund.

GSML seeks 3.9 million to fund much needed infrastructure upgrades and expansion of their 50 year old Marine Laboratory and Aquarium located in Panacea, FL. Expansion will include 8 new marine displays, upgrades to seawater and filtrations systems and a new educational center that will not only provide interactive education for visiting schools but will also be the hub of our Aquatic and Marine Technician Certification Program. Currently GSML host up to 10,000 school children per year visiting on field trips from counties around the state and Georgia. Another 17,000 tourists come through the lab annually from all over the United States. With approved funding the GSML will be able to add 20 new jobs, certify 72 technicians (per year) and triple their tourism impact to the town of Panacea adding much needed tourism dollars and economic stimulation to the local economy.

Panacea Waterfronts fully supports this application for funding and looks forward to the much needed long term economic impact this will have on the community.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark S. Mitchell". The signature is fluid and cursive, with the first name "Mark" being the most prominent.

Mark Mitchell, Chairman
Panacea Waterfronts Florida Partnership, Inc.
PO Box 212
Panacea, FL 32346



July 16, 2018

The Honorable Don Gaetz, Chair
Florida Triumph Gulf Coast, Inc.
P.O. Box 12007
Tallahassee, FL 32317

Dear Senator Gaetz,

I am pleased to provide this letter in support of the Gulf Specimen Marine Laboratories, Inc. (GSML) efforts to obtain funding for infrastructure upgrades and expansion for the Gulf Specimen Marine Laboratory and Aquarium from the Florida Gulf Triumph Fund.

GSML seeks 3.9 million to fund much needed infrastructure upgrades and expansion of their 50 year old Marine Laboratory and Aquarium located in Panacea, FL. Expansion will include 8 new marine displays, upgrades to seawater and filtrations systems and a new educational center that will not only provide interactive education for visiting schools but will also be the hub of the Aquatic and Marine Technician Certification Program. Currently the GSML host up to 10,000 school children per year visiting on field trips from counties around the state and Georgia. Another 17,000 tourists come through the lab annually from all over the United States. With approved funding the GSML will be able to add 20 new jobs, certify 72 technicians (per year) and triple their tourism impact to the town of Panacea adding much needed tourism dollars and economic stimulation to the local economy.

I encourage your consideration of this worthy cause and support the much needed long term economic impact this will have on the community. If I can be of further assistance in this matter, please do not hesitate to contact me at the address below.

Sincerely,

A handwritten signature in black ink, appearing to read "Clifford R. Merz", is located below the "Sincerely," text.

Dr. Clifford R. Merz, PE

Program and HF Radar Operations Director, Coastal Ocean Monitoring and Prediction System (COMPS)

University of South Florida/College of Marine Science
140 Seventh Avenue South, MSL Room 136-M
St. Petersburg, FL 33701
(727) 553-3729 (Office)
(727) 553-1189 (Fax)
(727) 409-0770 (Mobile)
cmerz@usf.edu

TAMPA ST. PETERSBURG SARASOTA LAKE LAND

July 29, 2018

Triumph Grant Program

Subject: Gulf Specimen Marine Lab Triumph Grant Pre-Proposal

To Whom it May Concern:

I can fully recommend the Gulf Specimen and Marine Lab for a Triumph Grant Award. I have known Jack Rudloe through his writing on the marine animals since I was a teenager; and it to the credit of those books that contributed to me becoming the aqua culturist I am today. Today I am involved in commercial aquaculture; raising both shrimp and fish in Asia and South America. In my past life I was involved in the growing of marine algae for both fuels and chemicals. And for the past ten years I have become reacquainted with Jack and his son Cypress at the Gulf Specimen and Marine Lab. Always on visits I am very impressed with the dedication to the marine environment and with their desire to pass on their gained knowledge to the next generation through many types of activities supported through the GSML. I know the spirit of these two is contagious and as I stated; I personally owe my being hooked on the marine environment and aquaculture to this same spirit that captured me forty years ago.

Today the United States has no or very little capacity for inland mariculture. The future is inland mariculture for both shrimp and fish. I have spoken to many politicians and NGOs in the past year; and they all support creating that inland mariculture industry. But without capacity this will not happen. There are very few place where you can go and gain this experience that will be required in building this new industry; but Jack and Cypress Rudloe have such a place and this idea of an intern program conducted at the GSML is perfect. Interns will learn and be exposed to recirculating marine aquaculture systems. They will be involved in keeping marine animals healthy, and about the very animals in those systems. This is basic, but it is the basics the United States will require if an inland mariculture industry in to be a reality. I know when it is time to discuss investment and time to discuss how to build even one farm in the United States; one of the areas of concern is: where will we find Americans that can do this work. Interns that have an opportunity to learn about systems, about animal health, and about the animals themselves; will develop a same enthusiasm and dedication that Jack Rudloe through his writing provided me with. I can only imagine how much better of aquaculturist I might have become if I had been given the opportunity to intern at the GSML.

In the past I have assisted in the trouble shooting and design of Recirculating Aquaculture Systems and equipment at the GSML. I look forward to continuing this relationship as I find it very rewarding to contribute to the mission of this established Gulf Coast Marine Institution.

Best Regards,
Robins McIntosh
CP Foods, Thailand
Executive Vice President



Charles E. Schmidt College of Science
Department of Biological Sciences
777 Glades Road
Boca Raton, FL 33431
tel: 561.297-3320
fax: 561.297-2749
31 July 2018

Triumph Grant Program
Gulf Specimen Marine Lab Triumph Grant Pre-proposal

Dear Sir or Madam:

I am delighted to write in strong support of the application by the Gulf Specimen Marine Lab's Pre-proposal to the Triumph Grant Program. I have been familiar with the President of Gulf Specimen for several decades and respect what he established and has developed. Recently, I became familiar with the amazingly effective and productive internship program the Lab runs and learned of their more expansive public outreach. They are the go-to facility for healthy marine organisms for science for decades, but they have added, many educational components to their mission, and their public outreach as grown and matured from tours of the specimens to diverse and exceptional public education about the marine world.

To give you some perspective on my background, I am the Director of the FAU Marine Lab at Gumbo Limbo Environmental Complex and have more than 20 years of experience in training undergraduate students at the lab in both marine biological skills, as well as public outreach.

Recently, I hired one of their former interns and can say with complete confidence that the training she got at Gulf Specimen Marine Lab was responsible for her rising to the top of the applicants. She came to me well-versed in the basics of managing seawater quality, understanding diverse tanks and species, how to work with novices and train them, skills in completing and filing required reports, how to talk with the public effectively, and with a sense that she is a public face of our University. She takes pride in doing her job well and being effective. She seeks out help when needed and brings up things she learned at Gulf Specimen Marine Lab when we are trouble-shooting. Much of our work is with marine turtles. While she worked with just a few marine turtle species in their sea turtle rehabilitation facility, those skills also translated well. It was her internship experience there that made her the well-rounded marine biologist that she is and, now, an essential part of my team.

It is for these reasons that I strongly encourage support of this lab and its highly effective teaching.

Sincerely,

A handwritten signature in dark ink that reads 'Jeanette Wyneken'. The signature is fluid and cursive, with a long, sweeping underline.

Jeanette Wyneken
Professor

Director, FAU marine Lab at Gumbo Limbo Environmental Complex

FLINT RIVERQUARIUM

ENVIRONMENTAL EDUCATION CENTER

July 23, 2015

To Whom It May Concern:

This letter is in support of the Gulf Specimen Marine Laboratory (GSML) Internship Program. I have been associated with GSML for several years not only as a customer, but as a colleague in a similar business. The Flint RiverQuarium also has an intern program that is similar to GSML's and I have associated with their interns as they packed up animals and gave us information and advice about the animal's care and handling. I was always impressed with how much these individuals had learned, how much responsibility they were given, and how helpful they were.

In comparing intern programs with Jack and Cypress Rudloe, I have learned that their programs were similar to ours in that they instruct their interns in the proper care of marine life as well as care and maintenance of the equipment associated with life support. They also teach their interns how to properly collect and transport live specimens from their natural habitat to captive closed systems.

The students from the GSML intern program interact with aquarium visitors on a regular basis serving as an explainer/educator while carrying out typical job responsibilities. They do daily maintenance, clean exhibits and back areas, make adjustments to water chemistries in exhibits, treat diseased fish, participate in diet preparation, and feed the animals in the exhibits. I understand that they also learn the ins and outs of filtration and water quality. This is basic knowledge necessary in many aspects of aquarium technology, and would be of great help to anyone going into the fields of recirculating aquaculture, aquaponics, mariculture, fish farming, or aquarium operation.

I would highly recommend this program for anyone beginning in a field related to Aquarium and Marine Technology.

Please feel free to contact me in person for verbal confirmation of this recommendation.

Sincerely,



Richard S. Brown

Director
Flint RiverQuarium
117 Pine Ave
Albany, GA 31701

HARBOR BRANCH

FLORIDA ATLANTIC UNIVERSITY

Ocean Science for a Better World

July 26, 2018

Triumph Grant Program

Subject: Gulf Specimen Marine Lab Triumph Grant Pre-Proposal

To Whom it May Concern,

It gives me great pleasure to recommend Gulf Specimen Marine Lab (GSML) for a Triumph Grant award. I have visited this facility several times in the past year and have become familiar with their outstanding educational and outreach programs. I was particularly interested to learn of their interest in training students in the field of seaweed aquaculture. The global seaweed industry has an estimated value of US \$6 billion, and is now expanding in coastal waters of New England and the Pacific Northwest. The industry has great potential for development along Florida's Gulf Coast, which has year-round light and temperature levels needed to support high yields of target seaweed species.

The GSML has a proven track record of developing new seafood markets. They were pioneers in the rock shrimp and bulldozer lobster markets, as well as the Asian jellyfish market, which resulted in a multi-million dollar market for cannonball jellyfish in the Florida panhandle. GSML now plans to pioneer the culture, processing, and marketing of locally abundant seaweeds, especially the local red macroalga *Gracilaria* that is used to make a popular "sea moss" drink in the Caribbean region. Other species of local red algae, such as *Agardhiella* and *Halymenia*, could also be considered as potential target species.

I am excited to assist GSML as a consultant on this project if funded. I would not only be involved in the design and operation of the land-based seaweed aquaculture system, but also training students in seaweed aquaculture and nutrition. I envision an integrated, flowing seaweed culture system at GSML that would recycle nutrients generated by intensive shrimp and/or fish cultures, a design that would prevent nutrient pollution and eutrophication of adjacent coastal waters. This project would also lead to development of the first Marine Botanical Garden at GSML. The overall program will provide training that will lead to jobs in seaweed aquaculture in the region, as well as public education and outreach about the ecology and nutritional benefits of eating seaweeds.

Should you have any questions or need more information, please do not hesitate to contact me at your earliest convenience.

Sincerely,

Brian E. Lapointe

Harbor Branch Oceanographic Institute

5600 U.S. 1 North, Fort Pierce, FL 34946 • tel: 772.465.2400 • www.hboi.fau.edu

An Equal Opportunity/Equal Access Institution

352-344-3589
800-343-9003
Fax: 352-344-0067
E-mail: info@myedtours.com
Web site: www.myedtours.com

1123 Sterling Road
Inverness, FL 34450



Gulf Specimen Marine Laboratory
222 Clarks Drive
Panacea, FL 32346

To whom it may concern,

We are a student travel company. We have been in business since 1985. We have schools throughout the state that travel with us to various locations. Tallahassee is one of the most requested destinations from teachers. Civics teachers have always been interested in taking their classes to Tallahassee to see government in action. It goes along with their lesson plans.

Our company discovered GSML in 2006. We were looking for an educational program that would enhance the tour. The addition of GSML opened up a new subject for teachers. Science teachers became excited to take their classes along on the tour.

Since January of 2018 we've taken 921 students to GSML along with their teachers and parents that go on the tours as chaperones. By the end of this school year we will have taken over 1300 students to GSML. The staff there are professional and knowledgeable. They are able to structure a program to an age group. They work well with students of various ages.

I've been told on multiple occasions that GSML was a highlight of the tour. Students come away with an educational experience that they probably will never get again. Teachers come away with a similar experience. We are very satisfied with the staff and the programs that GSML provide to students. I would highly recommend GSML to any educator that wants to provide a unique experience to their students.

Best regards


Grant Doyle
352/344-3589
gdoyle@myedtours.com





Shelly Bell
Director of Career, Technical and Adult Education

Randy Free
Assistant Director

500 North Appleyard Drive • Tallahassee, FL 32304 • Phone: 850.487.7555 • Fax: 850.922.3880 • www.livelytech.com

July 20, 2018

To Whom It May Concern,

Lively Tech is committed to working with Gulf Specimen Marine Laboratories, Inc. to establish a program aimed at providing instruction and certification for Aquaculture Technicians. Part of Lively's mission is to work with community organizations to train and provide a skilled workforce. Due to habitat destruction and overfishing, aquaculture has become a necessary segment of the agriculture industry and an industry that is on the rise in our community. Lively recognizes the importance of establishing a partnership with Gulf Specimen Marine Laboratories, Inc. and the positive impact it will have on our community.

Sincerely,

Shelly L. Bell
Director of Career, Technical and Adult Education



July 25, 2018

To Whom It May Concern:

This letter is being written in support of the Gulf Specimen Marine Lab and Aquarium in their application for Triumph Grant funds to expand their intern program. The management staff of the lab requested that I specifically comment on the fitness and hireability of their interns in the public aquarium profession.

While I do not have any direct experience with the Lab's interns, I am very familiar with the Laboratory and Aquarium facilities and operations. As a 35-year Public Aquarium Professional and former Vice President simultaneously in charge of three aquarium operations, I can state unequivocally that aquarist candidates with previous hands-on experience always perform higher and make better aquarium husbandry employees than those with only academic training or credentials. From what I have learned about the intern program and the interns, I believe that they would be successful aquarists at any aquarium from which they sought employment.

Sincerely,

Joseph M. Choromanski
President, Serviette, LLC