



MONROE COUNTY RESTORE ACT Project Funding Submittal Form

Purpose:

The RESTORE Act Project Submittal Form is designed to assist citizens, businesses and public or private organizations wishing to submit a project for consideration of funding from the RESTORE Act dollars allocated to Monroe County by the 2012 RESTORE Act.

Instructions:

- To be considered for RESTORE Act funding from Monroe County's RESTORE Act local allocation, or "local pot," you must complete this Project Funding Submittal Form and submit it electronically and hardcopy, by the due date: ~~AUGUST 30, 2013 AT 2:00 PM~~ **DECEMBER 20, 2013 at 3PM.**
***** **Late or incomplete submissions will not be reviewed.** *****
- Please submit one complete Submittal Form per project; if you have multiple projects, please submit one Submittal Form for each project.
- If you are an organization that has submitted an application in the first round, you may re-submit/replace that application if you wish, or submit another application. If you wish to have your application considered as it was already submitted, no further action is required.
- A complete Submittal Form will consist of the following four sections:
 1. Application Cover Pages - please use the formatted cover pages included (questions 1-6);
 2. Project Budget - please use the budget form included;
 3. Application Narrative -Detailed Project Information (questions 7-18);
(For this portion, please provide responses on normal, letter size paper, 12 pt. font, and 1" margins; and paginate. Take as much space as needed for each question, but please keep responses as focused as possible. It may assist you to review all the questions before addressing any one question. Please be sure to respond to each question. If a question is not applicable, please indicate that.)
 4. Any additional documentation necessary to fully understand your project.
- Please submit completed form ELECTRONICALLY, as a single PDF document, to tennyson-lisa@monroecounty-fl.gov by the deadline. Once your Form is received, you will receive a confirmation email.
- Please ALSO submit completed HARD COPY Form to Lisa Tennyson, Office of Management and Budget, 1100 Simonton Street, Room 213, Key West Florida 33040, by the deadline.
- Please refer to the Monroe County RESTORE Act website for additional information. Questions can be directed to Lisa Tennyson by email at tennyson-lisa@monroecounty-fl.gov.

Selection for Funding:

- Proposals will be evaluated based on these criteria: 1) need for and benefits of the project; 2) cost-effectiveness and financial feasibility; 3) technical feasibility/probability of success; 4) timeliness of implementation and completion; 5) consistency with approved public plans/public support; and 6) project management capacity.
- Applications received by the due date, and which meet at least one of the allowable uses, will be reviewed and scored by the members of the Monroe County Local Advisory Committee.

- The Committee will meet in one or more noticed, public meeting(s) (dates to be determined) to discuss, evaluate and rank project submissions.
- The list of ranked projects will be presented to the Monroe County Board of County Commissioners which will make the final decision on project awards.

General Information:

- **All project awards are subject to availability and amount of local RESTORE Act dollars directed to Monroe County.**
- **All project awards will be subject to all applicable federal, state, and local laws, rules, regulations, and policies (auditing, reporting, procurement, transparency, etc.). Federal rules and regulations guiding RESTORE Act project award funding are still being developed by the US Treasury. All information provided herein is subject to further revision pending the development and adoption of these rules.**
- All projects must have a direct benefit to Monroe County pursuant to one or more of the RESTORE Act criteria.
- Applicants certify that the information provided in their completed Submittal Forms and in any supporting documents, are true and correct to the best of their knowledge and belief. Inaccuracies, omissions, or any other information found to be false may result in rejection of this application and project funding consideration.
- All Submittal Forms and supporting documentation are subject to discussion and public input at RESTORE Act Local Advisory Committee meetings, public meetings, and the Monroe County Board of County Commissioners; and those submitting proposals may be requested to present their proposals or respond to questions at such meetings.
- Applicants may be requested to provide additional information or to complete a supplemental project proposal form.
- All forms and supporting documentation are public information and will be made available to the public pursuant to all applicable federal, state, and local laws and policies.
- Projects for funding from other RESTORE Act provisions should be submitted to the appropriate funding entity, (ie, Gulf Coast Ecosystem Restoration Council, National Fish and Wildlife Foundation, Natural Resource Damage Assessment, etc.) For additional information on other funding opportunities, visit the Department of Environmental Protection website at [www.dep](http://www.dep.gov).
- Projects must meet at least one of the uses listed below. The list of allowable uses has been ranked in priority order by the Local Advisory Committee and is provided as a reference.

Monroe County RESTORE Act Local Advisory Committee Ranking of Allowable Uses

Use	Rank
Restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands	1
Mitigation of damage to fish, wildlife and natural resources	2
Infrastructure projects benefitting economy or ecological resources	3
Promotion of tourism in the Gulf region, including recreational fishing	4
Workforce development and job creation	5
Coastal flood protection and related infrastructure	6
Improvements to state parks affected by Deepwater Horizon oil spill	6
Implementation of federally approved marine/coastal management plan	8
Promotion of consumption of seafood harvested from the Gulf Coast region	9
Planning Assistance	10

APPLICATION COVER PAGE – 1 OF 2 (PROJECT BASIC CRITERIA)

Section 1: Application Cover Page; Basic Criteria

*Please use this page, or re-create **as is**.*

1. **PROJECT TYPE:** *(As mandated by the RESTORE Act, funds may only be used for one or more of the allowable uses listed below, which the County cannot amend or change. Carefully review each criteria listed below and determine if your project will achieve one or more of the allowable uses below. Projects that do not meet at least one of the allowable uses below will not be considered for funding. Check all that apply.)*

- Restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region.
- Mitigation of damage to fish, wildlife, and natural resources.
- Implementation of a federally approved marine/coastal management plan, including fisheries monitoring.
- Workforce development and job creation.
- Improvements to or on state parks in coastal areas affected by the Deepwater Horizon oil spill.
- Infrastructure projects benefitting economy or ecological resources, including port infrastructure.
- Coastal flood protection and related infrastructure.
- Planning assistance.
- Activities to promote tourism and seafood in the Gulf Coast region, for one or more of the following:
 - Promotion of tourism in the Gulf Region, including recreational fishing.
 - Promotion of the consumption of seafood harvested from the Gulf Coast region.

2. **CONTACT INFORMATION:** *(Include at least one name, phone number, email address, and organization name if applicable)*

- Organization: Florida Keys Community College
- Address: 5901 College Road
- City, State, Zip Code: Key West, Florida 33040
- Contact Person
 - Name: Dr. Patrick Rice
 - Title: Dean of CTWE; Principle Investigator Marine Research
 - Phone: (305) 809-3228
 - Email Address: Patrick.Rice@fkcc.edu

APPLICATION COVER PAGE – 2 OF 2 (PROJECT SUMMARY)

Section 2. Application Cover Page; Project Summary Information

Please utilize this sheet or re-create, but keep format as is.

3. Project Name: *(Provide a short, succinct title for the project)*

Site fidelity fishery management implications for lemon sharks, *Neagprion brevirostris*, in the Marquesas Keys

4. Project Executive Summary: *(Provide a concise summary or abstract in the space below; do not exceed the space below.)*

Lemon sharks, *Neagprion brevirostris*, are top marine predators in seagrass and mangrove dominated environments and they provide a vital role in Florida Keys ecosystem health. With current populations at historic lows and recent protection measures in place for lemon sharks in Florida waters, understanding their population dynamics is paramount for proper management of the species. The primary goal of the proposed lemon shark project (LSP) is to generate a better understanding of lemon sharks populations, especially with regard to natal philopatry (i.e. returning to the place of birth to give birth) in the Marquesas Keys, a known nursery for lemon sharks. Recent evidence suggests that lemon sharks exhibit natal philopatric behavior and site fidelity in Bahamian waters. If this is also true in the Florida Keys, then the potential exists for lemon shark populations to be lower than estimated due to recounting of the same animal. Therefore, this information is critical to current fishery assessments and subsequent management measure.

5. Range of Benefit: Does this project have a

- X Local benefit?
- X Keys-wide benefit?
- X Regional benefit?
- X Gulf-wide benefit?

(Provide the location of the project and a brief description of the area that is benefiting; do not exceed the space below.)

The project will take place at the Marquesas Keys and will help fisheries managers make more informed decisions about Lemon shark populations in the entire region that lemon sharks inhabit throughout the Gulf of Mexico and Atlantic ocean.

6. Project Cost: *(Provide the actual/estimated project cost, the amount being requested with this submission, and the amount of match committed to the project from any source. Please make clear the total project cost and the amount you are requesting. There is an opportunity to provide detailed cost/request/match information in the narrative section (see question 8.)*

- Total Project Cost: \$ 1,514,530
- RESTORE Request Amount: \$ 682,698 % of project cost: 45%
- Secured Cash Match (committed funding from other sources): \$ 0 % of project cost: 0
- In-kind Match value: \$ 811,832 % of project cost: 55%
- Funding Gap: \$ 0 % of project cost: 0

• Anticipated Cash Match (potential funding from other sources)*: \$ _____ % of project cost: _0_____

**These funds must be secured within 1 year of project award.*

APPLICATION PROJECT BUDGET

Section 3. Project Budget

PROJECT BUDGET Activity/ Item	Cost	FUNDING		
		Anticipated RESTORE Funding	Cash Match	In-kind Match
Planning/Design/Permitting				
Personnel	274,266	274,266		
Travel	38,000	38,000		
Permits	1,000			
Contractual	156,000			
Administration*:	31,832			31,832
Planning Subtotal:	501,098			
Construction or Project Activity(ies)				
Equipment	64,400	44,400		20,000
Supplies	13,200	13,200		
Research vessel	120,000	120,000		
BBFS data base	780,000			780,000
Freight	4,000	4,000		
Construction Subtotal:	981,600			
Monitoring				
Administration*:				
Monitoring Subtotal:				
Project Cost				
Total Administration*:	31,832			31,832
TOTAL Project Cost:	1,482,698			

Estimated Costs by Year	
Year 1	\$ 1,004,724.50
Year 2	\$ 159,324.50
Year 3	\$159,324.50
Year 4	\$159,324.50
Year 5	

Notes: Only complete the sections of the budget that are applicable for your project. Please refer to question 8 to provide further explanation of budget details.

*The RESTORE Act places a total 3% cap on administrative expenses. How this 3% will be applied and or utilized is unknown. The Committee has recommended that applicant organizations ASSUME ZERO FUNDING FOR ADMINISTRATIVE COSTS.

APPLICATION QUESTIONS – DETAILED PROJECT INFORMATION

Section 4. Application Narrative; Detailed Project Information

Please respond clearly and specifically to each of the following questions. Use 12 pt. font, 1 inch margins, and pagination, to aid in readability. There is no page limit, but please be as brief as possible. To complete your submission, please attach your response to these questions to the application cover pages and the budget page.

7. **Project Description:** *(Describe all aspects of the project; what issue, need, concern or problem does the project address? Why is the issue/need/concern/problem important? Is there an urgency or immediacy to the need? Provide facts and data sources used to support the need for this project. What and/or who does the project impact, benefit or affect; what will it accomplish when completed? Provide facts and data sources to support the expected impacts. Provide any other relevant information needed to describe your project. Be sure you make the connection between your project and the RESTORE Act criteria selected on first page. Provide citations for all references quoted or used to support the need for and impacts of this project.)*

Maximum 20 pts. How important is this project in terms of the need it meets and the goals it is seeking to achieve? How critical is the need it addresses? Is the need supported by data/facts? Is this project likely to meet its goals? Is the project approach organized and well thought out?

8. **Budget Narrative/Financial Feasibility/Cost-Effectiveness:** *(Be sure that your responses to this question and dollar amounts used are consistent with those used in Application Project Budget, and those in Question 6.*

- *Clearly indicate and describe the estimated or actual costs of the project.*
- *Clearly indicate and describe the amount and use of RESTORE Act funding request.*
- *Identify amount and sources for your secured cash match funding. [“Cash match” is defined as actual cash contributions to project costs. “Secured cash match funding” is funding that has been committed to your project.] Please demonstrate secured match funding with documentation such as commitment letter(s) from the funder(s).*
- *Identify amount and sources for your anticipated cash match. [“Anticipated cash match” is potential funding you have sought or will seek but is not confirmed.] Please note that an applicant must have its project’s “anticipated cash match” secured within one year of award of RESTORE Act funding. Explain, if applicable, how these RESTORE funds may be used to leverage additional funding.*
- *If your project is also using in-kind match [“In-kind match” is defined as contribution to project costs other than cash], please identify what the in-kind match includes and how you calculated its value.*
- *Explain how the project is financially feasible [ie, is there a plan to cover all costs?]*
- *Explain how the project is cost-effective [ie, is this project a good value, is it economical in terms of the tangible benefits produced by the money being spent?]*

Important*: *The RESTORE Act places a total 3% cap on administrative expenses. We are uncertain at this point how this will be applied, how “administration” will be defined or assigned, or whether projects may even be able to include administration. You must assume the likelihood that there will be NO ADMINISTRATION EXPENSES ALLOWED TO BE REIMBURSED. Please keep this in mind as you develop your budget.*

Maximum 15 pts. Several things will be evaluated with respect to the budget including match value, financial

feasibility and cost-effectiveness.

9. **Technical Feasibility:** *(Explain how this project is technically feasible; ie, how do you know that this is a feasible project that can be implemented and that will result in success. Describe the technologies involved. Describe relevant past experience or proven success with this type of technology and this type of project. Describe why this project is likely to succeed?)*

Maximum 5 pts. Is this approach likely to work?

10. **Readiness for Implementation/Permitting Considerations:** *(What steps are necessary and how long will it take to implement this project? Describe the required design and permitting work required for implementation. How far along is the design and permitting? Has it started? Is it complete? If required permits have already been obtained, please attach copies. If the design has been completed, please attach copy of the design work. If the design work has not yet begun, please tell us how long this will take. If permits are required, but not yet obtained, please discuss how you know your project will qualify for the required permits and how long will this permit process take. In other words, if your project is not shovel-ready, what is entailed and how long will it take to before it becomes shovel-ready? Identify the specific milestones and timeframe for each.)*

Maximum 10 pts. Is the timeframe realistic? Is the permitting achievable? Is the timeframe acceptable?

11. **Project Completion Timetable:** *(Once the project can be implemented, what are the steps and how long will it take to complete the project? Identify milestones and timeframe for each.)*

Maximum 10 pts. Timeframe realistic? Is the timeframe acceptable?

12. **Environmental Benefits:** *(Describe the nature, magnitude, and timing of any environmental benefits attributable to the project. Identify and quantify all environmental benefits expected. How will these benefits be measured and evaluated? How long before benefits are realized? Are these benefits short-term? Long-term? Identify the party responsible for the achievement of these benefits. Describe how your project is sustainable. (In other words, how much or what percentage of the project's services and/or benefits will still be delivered and maintained after the project is complete and/or funding has ended.) How will you monitor and ensure sustainability after the funding has ended. Please address any potential environmental impacts (ie, loss of habitat) associated with implementing or maintaining the project.)*

Maximum 10 pts. Are the benefits impactful? Do the benefits address/correct/mitigate/advance a critical need/issue? Likelihood of achieving these benefits? Acceptable timeframe for achieving the benefits? Does the project have long-term sustainability?

13. **Economic Benefits:** *(Describe the economic benefits that will be achieved. Identify and quantify all economic benefits expected. How will these benefits be measured and evaluated? When do you expect to see the results? Are these benefits short-term? Long-term? How will you ensure the achievement of long-term benefits? Identify the party responsible for the achievement of these benefits. Describe how your project is sustainable. (In other words, how much or what percentage of the project's services and/or benefits will still be delivered and maintained after*

the project is complete and/or funding has ended.) How will you monitor and ensure sustainability after the funding has ended. If this is a workforce development project please describe how the project will result in new, expanded or retained business development opportunities and job creation. Please include detail about what types of jobs will be created? How many and when? What is the anticipated annual salary or hourly rate, are the jobs full time or part time, are benefits included, etc.?)

Maximum 10 pts. Level of benefits? Do they address/correct/mitigate/advance a critical need/issue? Likelihood of achieving these benefits? Acceptable timeframe for achieving the benefits? Does the project have long-term sustainability?

14. **Community Economic and/or Environmental Resilience Benefits:** (Describe if the project assists with our community's ability to anticipate, withstand, or recover (environmentally and/or economically) from hazards or threats, eg. hurricane evacuation, flood mitigation and prevention, future oil spills, shoreline protection, etc.)

Maximum 5 pts. Level of benefits? Do they address/correct/mitigate/advance a critical need/issue? Likelihood of achieving these benefits? Acceptable timeframe for achieving the benefits?

15. **Complements to Existing Efforts/Public Acceptance:** (How does the project complement existing local, regional or state efforts/plans/objectives or on-going efforts/activities. Explain why your project does not interfere or conflict with any existing efforts, and why your project is not duplicative of any existing efforts. Also, please explain whether your project is consistent with/included in a local government Comprehensive plan, Capital plan, Mitigation Plan, Wastewater or Storm Water Master Plan, etc. If not part of an already approved plan, please describe any known or potential public approval or opposition to the project. Explain any efforts to determine public acceptance.)

5 pts. Does the project align with county and/or municipal priorities? Is there clear public support?

16. **Compliance with Federal, State, Local Regulations:** (Describe how the project complies with all regulations. Note: Additional restrictions and requirements may be applicable based on US Treasury guidance to be established pursuant to the RESTORE Act.) **No points awarded, since compliance with regulations is a requirement.**

17. **Project Management Capacity:** (We expect that all funded projects will receive a high degree of scrutiny from both state and federal agencies throughout their duration both programmatically and financially, and will be required to comply with a rigorous standard for monitoring, reporting and auditing of both results and expenditures.)

Please also note that the framework for RESTORE Act project funding has not yet defined but will likely draw significantly from federal grant guidelines, rules, regulations and requirements. Therefore, assuming the applicant entity will be responsible for implementing and administering its project according to federal grant guidelines, concisely:

1. Describe the expertise, experience and prior success of the organization and persons to implement the type and size project proposed here.
2. Describe the organization's experience with federal grant requirements, and with management of government grant-funded projects of this type and size, including financial and outcomes, monitoring, reporting and auditing.
3. Describe your plan for programmatic and financial management, oversight and monitoring.
4. Describe the project management team, including the names, qualifications, experience and prior success of

those responsible for design, implementation, outcomes achievement, and financial management.)

Maximum 10 pts. Does the organization or sponsor have the demonstrated ability and experience to implement/administer this project, and deliver on the outcomes?

18. **Additional Information:** *(Please include any maps, designs, drawings, photos, or background resources that may assist in understanding the project. Please be mindful of the electronic file size of your application. We will be forwarding this application to various reviewers/recipients electronically. Many servers do not accept large file sizes. Also limit attachments to those measuring 8x11 that can reproduced with little or no expense (limit color photos, blueprint type documents, etc.)*

SCORING RUBRIC

Project Description	20
Project Budget (Match, Financial Feasibility, Cost- effectiveness)	15
Technical Feasibility	5
Readiness for Implementation	10
Completion Time	10
Environmental Benefits	10
Economic Benefits	10
Community Resilience Benefits	5
Complements Existing Efforts/Public Support	5
Management Capacity	10
Maximum Points	100

SOLICITATION TIMEFRAME

- Funding Solicitation Opens: ~~July 22, 2013~~
- Funding Solicitation Re-Opens: NOVEMBER 20, 2013
- Funding Solicitation Closes: ~~August 30, 2013~~
DECEMBER 20, 2013

TENTATIVE PROJECT REVIEW/AWARD TIMEFRAME

- Local Advisory Committee Review/Ranking Meeting(s): ~~September/October, 2013~~
TBD
- BOCC Decision of Project Awards: ~~October/November, 2013~~ TBD

7. Project description

Background and Significance:

There has been a rapid worldwide depletion in large marine predators, including sharks, since the inception of industrialized fishing from about 1950 (Figure 1).

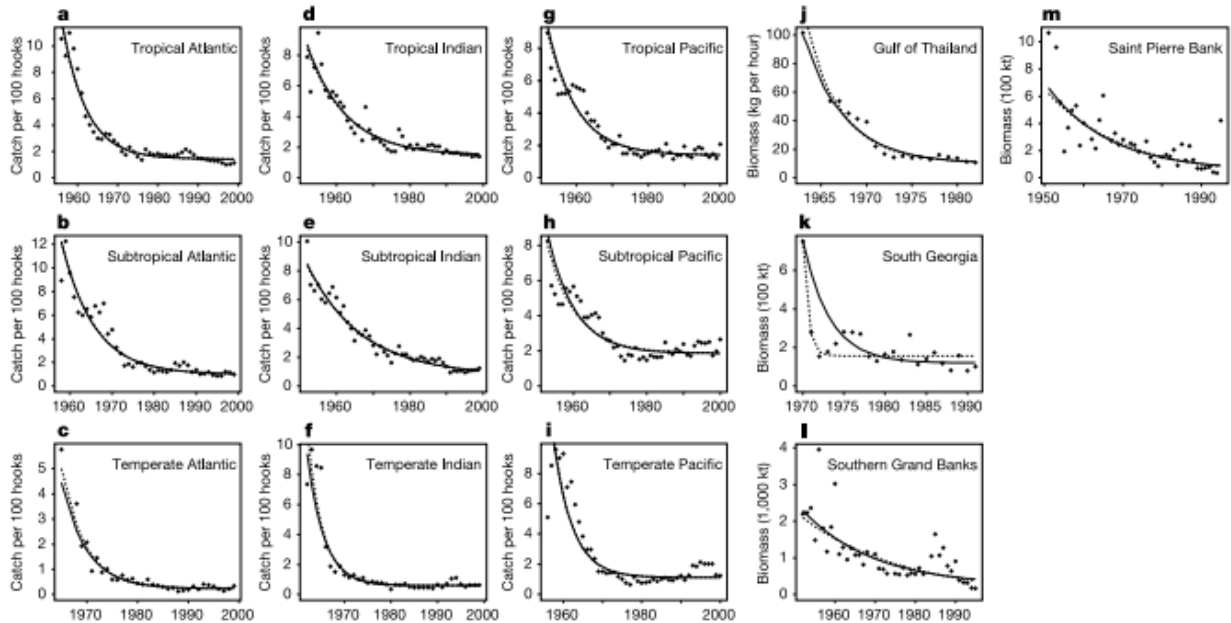


Figure 1. Global evidence of rapid world wide depletion of large ocean predators based on declining catch from 1950 – 2000 (Myers and Worm, 2003).

Figure 1 a. illustrates this alarming trend closer to home in the Tropical Atlantic. Heithaus et al. (2007) suggests that there is a substantial decline in shark populations throughout the Florida Keys from historic levels and that conservation of sharks is critically important to the entire seagrass marine ecosystem. Sharks are the top predators in the marine ecosystem often preying on lower trophic organisms that keep ecosystems healthy and control marine flora populations (e.g. seagrass, seaweed, etc.). When sharks are removed from seagrass ecosystems, trophic downgrading occurs and pristine marine ecosystems, such those that surround the Marquesas Keys, could be greatly affected. Marquesas Key is a mangrove fringed island that encloses a shallow seagrass lagoon subdivided by several deep channels. This has been shown in other similar seagrass environments (Burkholder et al. 2013). Therefore, understanding shark population and accurate estimations are critically important for fisheries managers.

Evidence of philopatric behaviors among lemon sharks has recently been found in Bahamian waters (Feldheim et al. 2002; 2004). The improvement of our understanding of natal philopatry and site fidelity will help determine the importance of these natal coastal habitats. Natal philopatry and juvenile site fidelity may allow for the best survival chances for lemon shark pups (Hueter et al. 2005).

Site fidelity implies that sharks may continue to return to and use an area despite declining conditions. In addition, the consequence of fisheries is that species exhibiting site fidelity to a coastal area where fishing occurs will have a greater chance of being overfished without careful management. High site fidelity to a fished region can cause localized depletion (e.g. grouper); localized depletion has been reported in a range of coastal shark species (Dudley 1997), and it can dramatically affect the abundance and distribution of species within a localized area (Walker 1998). Natural restocking of females from surrounding areas would not be expected over ecological timescales following localized depletion, or damage to a nursery site (DiBattista et al. 2008).

Lemon sharks are viviparous, giving live birth, and rely on nurseries for successful recruitment of young. In addition, juvenile lemon sharks have been reported to remain in close proximity to their natal nursery ground many years after birth. Compared to teleost (i.e. boney) fish, sharks have low fecundity and high maternal investment in individual offspring.

Using acoustic tags to track movement of lemon sharks in the Marquesas Keys will help improve our knowledge of where they travel once leaving their nursery grounds. Adult lemon sharks are a highly mobile species, with the females exhibiting seasonal site fidelity to nursery ground for parturition (Feldhheim et al. 2002). Dispersal of lemon sharks is relatively slow and does not occur primarily after sharks reach the threshold size (Chapman et al. 2009). Once leaving the nursery grounds many small lemon sharks remain relatively close in the backcountry habitat of the lower keys (Heithaus et al. 2007). Large lemon sharks have had reported home ranges of 18 to 93 km² (Morrissey and Gruber 1993).

Determining whether animals show site fidelity to a particular location is also important for gauging the effects of human impacts on species movement (White and Garrott 1990). Improving our understanding of natal philopatric behavioral patterns of lemon sharks in the Marquesas Keys will lead to better understanding of how to effectively manage the declining lemon shark populations of the Florida Keys.

8. Budget Narrative:

The actual cost of the project is \$1,482,698. Fifty-five percent (55%) of the cost of the project is in-kind match and 45% of the cost is Restore Act funding. In-kind cost is

dominated by the cost to develop a 13 year data base is the Marquesas Keys for lemon shark population dynamics and genetics. This project is not feasible without the use of this data base. The Restore Act funding request is broken down as follows (see detailed breakdown in Table 1 below):

1. Personnel Cost:

- Principal Investigator (Total = \$33,280) – this is the cost for project management which includes personnel management, data collection, data analysis, report preparation, manuscript publication, and information dissemination. This cost is calculated at 10% of the current base salary of the FKCC Principal Investigator – Marine Research.
- Marine Research Assistant (Total = \$140,000) – this is the estimated cost associated with employing a full-time graduate student to conduct the day to day operations. Costs include a very modest salary of \$1,350 per month and tuition and fees. This funding will last the 4 year duration of the project.
- Internships – this is the cost associated with employing undergraduate interns for the duration of the project. Interns will work approximately 20 hours per week on the project at \$13.50 per hour. This funding will last the 4 year duration of the project.
- Clerical (Total = \$14,730) – these are the cost associated with the clerical functions of the grant operations. Primary duties and responsibilities will include purchasing and grant coordination with the Principal Investigator. The cost estimate is based on 10% of the current base cost of FKCC Marine Science Coordinator. This funding will last the 4 year duration of the project.

2. Benefits (Total = \$30,096) – these are the cost associate with fringe benefits (e.g. insurance, retirement, social security, etc.) of full-time and part-time employment at FKCC.

3. Travel:

- Volunteers from BBFS (Total = \$20,000) – This is the estimated cost associated with transporting 10 volunteers from the Bimini Biological Field Station in Bimini, Bahamas to Key West, FL to board the research vessel. This will be a reoccurring annual cost of about \$5,000 for the 4 year duration of the study.
- PI to AES conference (Total = \$6,000) – this is the estimated travel cost associated with the PI attending the American Elasmobranch Society (AES) annual meeting to disseminate information gained during the research project.
- Co-PI to AES conference (Total = \$6,000) – this is the estimated travel cost associated with Dr. Samuel Gruber attending the American Elasmobranch Society (AES) annual meeting to disseminate information gained during the research project.
- Research Assistant to AES conference (Total = \$6,000) – this is the estimated travel cost associated with the Marine Research Assistant attending the

American Elasmobranch Society (AES) annual meeting to disseminate information gained during the research project.

4. Equipment

- Tough Book Computer (Total = \$3,500) – this is the estimated cost for a Panasonic Tough Book Computer and relevant software. This rugged computer is waterproof and perfect for data collection and analysis during marine research.
- Fishing Gear (Total = \$ 5,000) – this is the estimated cost for four years of research fishing gear (e.g. hooks, floats, anchors, clips, nets, buckets, knives, etc.).
- Hook timers (Total = \$20,000) – this in-kind match of over 500 hook timers at approx. \$40 each. These timers are a valuable part of the research and inform the research of the amount of time the individual animal spent hooked.
- Vemco Tags (Total = \$19,800) – this is the quoted cost associated with the purchase of 100 Vemco V16 transmitting tags. These tags are critical to the research to determine fish movements.
- Vemco Receiver Array (Total = \$ 15,100) – this is the quoted cost associated with the purchase of 10 Vemco VR2W Receivers to create a small array proximal to the study area. These receivers are critical to the research to determine fish movements by recording data from the Vemco V16 transmitting tags.
- Vemco Accessories (Total = \$1,000) – this is an estimate based on information provided by Vemco for software and data logging equipment.

5. Supplies

- Bait (Total = \$2,000) – This is the estimated cost associated with purchasing bait for field studies over the four year duration of the study.
- Food (Total \$11,200) – this is the estimated cost associated with feeding the research crew for approximately 40 days at-sea (4 x 10 day research cruises).

6. Contractual

- Dr. Samuel Gruber (Total = \$36,000) – This is the required cost for consulting and Co-PI services of Dr. Samuel Gruber
- BBFS (Total = \$40,000) – This is the cost associated with the consulting services and general assistance of the Bimini Biological Field Station including up to 10 skilled and trained volunteers to help with the project.
- Genetic Analysis (Total = \$80,000) – this is the estimated cost to conduct genetic analysis and identification of shark samples. This cost is estimated for the plan to ship approximately 100 samples annually for genetic analysis and is concurrent with quotes from Texas A&M University.

7. Research Vessel (Total = \$120,000) – this is the estimated cost for a minimum of 40 days at-sea in a research vessel with capacity to comfortably house 14 people plus

crew. The estimate is around \$3,000 per day.

8. Other

- BBFS Database (Total = \$780,000) – this in-kind match from the BBFS and Dr. Samuel Gruber has an estimated value associated with 13 years of data collection in the Marquesas Keys.
- Permits (Total = \$1,000) – this is the estimated cost associated with obtaining and maintaining collection permits over the 4 year duration of the research project.
- Utilities, business services, IT support, maintenance support (Total = \$31,832) – this in-kind support is the estimated cost associated with 4 years of business services (purchasing, collection, HR, utilities, IT support, maintenance, etc.). The cost is based on itemized indirect cost from other FKCC federal grants.
- Freight (Total = \$4,000) – this is the cost associate with shipping of equipment or other grant related resources.

For a detailed breakdown of the estimated proposal expenses over the 4 year project, please refer to Table 1 (below):

Table 1. Detailed budget breakdown.

LSP Budget									
	Base Salary	% or hr	(FY14-15)	(FY15-16)	(FY16-17)	(FY17-18)	SubTotal	In-Kind/Cash Match	Grand Total
1. PERSONNEL									
PI: Dr. Patrick Rice	83,200.00	0.10	8,320	8,320	8,320	8,320	33,280		33,280
Research Assistant	35,000.00	1.00	35,000	35,000	35,000	35,000	140,000		140,000
Internships	13.50	4160.00	14,040	14,040	14,040	14,040	56,160		56,160
Clerical - base	36,825.00	0.10	3,683	3,683	3,683	3,683	14,730		14,730
1 Subtotal			61,043	61,043	61,043	61,043	244,170		244,170
2. BENEFITS									
PI and clerical		0.30	3,601	3,601	3,601	3,601	14,403		14,403
Research Assistant/Interns		0.08	3,923	3,923	3,923	3,923	15,693		15,693
2 Subtotal			7,524	7,524	7,524	7,524	30,096		30,096
TOTAL PERSONNEL (1 and 2)			68,566	68,566	68,566	68,566	274,266		274,266
3. TRAVEL									
Volunteers from Bimini to Key West (RT)			5,000	5,000	5,000	5,000	20,000		20,000
PI to American Elasmobranch Society (AES)			1,500	1,500	1,500	1,500	6,000		6,000
Co-PI to AES			1,500	1,500	1,500	1,500	6,000		6,000
Research Assistant to AES			1,500	1,500	1,500	1,500	6,000		6,000
3 Subtotal			9,500	9,500	9,500	9,500	38,000		38,000
4. EQUIPMENT									
Toughbook Computer			3,500	0	0	0	3,500		3,500
Longline Gear			5,000	0	0	0	5,000		5,000
Hook Timers			0	0	0	0	0	20,000	20,000
Vemco tags (V16)			19,800	0	0	0	19,800		19,800
Receiver Arrays (VR2W)			15,100	0	0	0	15,100		15,100
Vemco accessories			1,000	0	0	0	1,000		1,000
4 Subtotal			44,400	0	0	0	44,400	20,000	64,400
5. SUPPLIES									
Bait			500	500	500	500	2,000		2,000
Food			2,800	2,800	2,800	2,800	11,200		11,200
5 Subtotal			3,300	3,300	3,300	3,300	13,200		13,200
6. CONTRACTUAL									
Purchased Services: Dr. Samul Gruber consulting			9,000	9,000	9,000	9,000	36,000		36,000
BBFS			10,000	10,000	10,000	10,000	40,000		40,000
Genetic Analysis			20,000	20,000	20,000	20,000	80,000		80,000
6 Subtotal			39,000	39,000	39,000	39,000	156,000		156,000
7. Research Vessel			30,000	30,000	30,000	30,000	120,000		120,000
8. OTHER									
BBFS Data base			0	0	0	0	0	780,000	780,000
Permits			1,000	0	0	0	1,000	0	1,000
Utilities, business services, IT support, maintenance support							0	31,832	31,832
Freight			1,000	1,000	1,000	1,000	4,000	0	4,000
8 Subtotal			2,000	1,000	1,000	1,000	5,000	811,832	816,832
9. Total Direct Cost			196,766	151,366	151,366	151,366	650,866		1,482,698
10. Indirect costs = 0% MTDC			0	0	0	0	0		0
11. TOTAL Project Costs							650,866		1,482,698
12. In-Kind Applicant Share									811,832
13. Cash Applicant Share									0
14. Total Applicant Share									811,832

9. Technical Feasibility:

The proposed project has a high level technical feasibility. Dr. Samuel Gruber (Professor Emeritus – University of Miami) and his research group from the Bimini Biological Field Station (BBFS) have been collecting population dynamics information on lemon shark in the Marquesas Keys from 1997 – 2010. This very important data base will be used for reference to determine if lemon sharks exhibit site fidelity and are returning to the Marquesas Keys to give birth. Dr. Gruber has conducted the previous studies in partial collaboration through FKCC and Dr. Patrick Rice (2009 and 2010). This project will contribute to current efforts for fishery populations dynamics as well as draw on resources from the other research efforts within and throughout the Florida Keys and Florida coastal waters.

10. Readiness for Implementation/Permitting Considerations:

This project will begin as soon as funding is available. Once funded, permitting and planning will commence. We anticipate no permitting issues because this type of research is similar to past research by Gruber (1997-2010) and others (Heithaus et al. 2007; DiBattista et al., 2008).

11. Project Completion Time Table:

Table 2. Four year timeline of milestones and deliverables.

Deliverable/Milestones	Year 1		Year 2		Year 3		Year 4	
	0-6 mo.	7-12 mo.	0-6 mo.	7-12 mo.	0-6 mo.	7-12 mo.	0-6 mo.	7-12 mo.
Permitting/Enhancement Options								
Staffing								
Purchasing equipment								
Deployments of arrays								
Genetic samples collection from sharks								
Capture and tagging of sharks								
Genetic analysis								
Genetic reconstruction								
Reconstruction of shark movements								
Project data analysis								
Final Report preparation								
Final Report submission								
Presentations/Conferneces								

12. Environmental Benefits:

Even with fisheries management levying closures that currently run half the year, the lemon shark population remains at a historic low. The LSP will provide valuable information on lemon sharks population dynamics. If lemon sharks are philopatric, as recent evidence from the Bahamas has suggested, they may be counted multiple times in the numbers given to fisheries management, making the numbers even more concerning. The knowledge attained over the next four years will aid fisheries management in long-term efforts to restore the shark populations that control the structure of regional seagrass communities.

13. Economic Benefits:

Recreational and commercial fisheries are strong economic drivers in the State of Florida with an estimated combined annual economic contribution of about \$19.15 billion dollars to the Florida economy (Florida Fish and Wildlife <http://www.myfwc.com/conservation/value/saltwater-fishing/>). Nowhere in the State of Florida are these economic impacts stronger than the Florida Keys where recreational and commercial fishing are part of the culture. Fisheries managers develop regulations that govern both commercial and recreational fishers and therefore, inaccurate information can result in resource depletion or fishery closures with substantial economic impact. Currently, commercial and recreational landings for lemon sharks in the Atlantic are heavily regulated (www.federalregister.gov). The proposed project intends to provide fishery managers with the most accurate information available on lemon shark movements, nursery grounds and site fidelity, in order for managers to make the best decisions thus reducing the potential negative economic impacts.

14. Community Economic and/or Environmental Resilience Benefits:

It is very difficult to determine or quantify the long term community economic impact of the proposed project. The success of the project will help with a better understanding of lemon sharks in the Marquesas Keys region, which when applied to management efforts will allow historically low lemon shark populations to have a chance at recovery.

15. Compliments to Existing Efforts/Public Acceptance:

The LSP project will expand on the current Marquesas Keys lemon shark database. The arrays deployed with this project will be in concurrence of similar arrays deployed by the Florida Atlantic Coast Telemetry (FACT) consortium. This will provide a larger range for our tags as well as shared data with the consortium's ongoing efforts. With a better understanding of philopatry in lemon sharks, this information will provide other fisheries with essential information towards more successful management. The FACT consortium is regional coordination of multiple acoustic telemetry projects aimed at tracking the movements of multiple species' within and between ecosystems. The FACT consortium consists of eight different organizations:

- Cooperative Institute for Marine and Atmospheric Studies, University of Miami, Miami, FL
- Biological Sciences Department, Florida International University, North Miami, FL
- Florida Fish and Wildlife Conservation Commission, Tequesta, FL
- DYNAMAC Corporation - NASA, Kennedy Space Center, FL
- Loxatchee River District, Jupiter, FL

- Florida Museum of Natural History, University of Florida, Gainesville, FL
- Early Life History Lab, NOAA Southeast Fisheries Center, Miami, FL
- Biological Sciences, Florida International University, North Miami, FL

16. Compliance with Local, Federal and State Regulations:

This project will obtain all necessary permits to be compliant with all regulations.

17. Project Management Capacity:

- Dr. Patrick Rice (Principle Investigator) – Florida Keys Community College, Dean of CTWE and Principle Investigator for Marine Research
 - Dr. Rice has many publications on shark research and fisheries management and is widely considered an expert in shark research. He also has two active Federal grants in which he is the principal investigator.
- Dr. Samuel Gruber (Subcontract Consultant) – Professor Emeritus, University of Miami, RSMAS
 - Dr. Gruber is the founder of the Bimini Biological Field Station and has over forty years of experience working with sharks.
- Dr. Tristan Guttridge (Subcontract Consultant) – Bimini Biological Field Station, Managing Director
 - Dr. Guttridge has experience working with shark behavior and the role it plays in population dynamics. He completed his PhD and post doctoral fellowship working with these principles. He currently resides at Bimini Biological Field Station working with lemon sharks off the East coast of Florida and at the Marquesas Keys.
- Brian DeSanti (Marine Research Assistant) – Florida Keys Community College
 - Brian is currently working at Florida Keys Community College as the marine research assistant with chemical shark repellent bait to reduce shark by-catch on pelagic long line fishing vessels.

The project team has over 70 years of experience related to shark and fisheries management. The principal investigator, Dr. Rice, has brought over \$3.5M in external funding to FKCC over the past five years and has successfully completed two Federal grants totaling \$3.36M. Dr. Rice will rely on the experiences and success of the LSP team.

18. Additional Information: two items (1) Literature Cited, (2) Letter of Support (BBFS)

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South Bimini, Bahamas

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The Bimini Biological Field Station Foundation is dedicated to providing a facility for marine life research and the conservation and preservation of our local aquatic ecosystems.

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Dr. Patrick Rice
Florida Keys Community College
Key West Florida

December 16, 2013

Dear Dr. Rice.

Thank you for your letter suggesting a continued collaboration with FKCC on the Monroe County Restore Project. As you know, we have been studying the lemon shark population at the Marquesas Keys since 1997 with the goal of understanding the life history of this fully-protected species. The lemon shark is perhaps the best researched and well known of all the large coastal species and may be considered a model species for the group.

Recently we published on a long-term study of breeding biology of the lemon shark at Bimini Bahamas. The scientific paper was printed in the journal *Molecular Ecology* and reported in the *New York Times* http://www.nytimes.com/2013/12/14/opinion/faithful-as-a-mother-shark.html?_r=0. The study required more than 15 years to prove among other findings that, like salmon the lemon shark homes back to its birthplace for mating and birthing. This has extremely important consequences for not only protecting the sharks themselves but more importantly their mangrove-dominated nursery grounds. That is why we wish to continue our collaborative research with Dr. Rice and the FKCC marine in biology unit.

Until 2010 we had access to both funding and the FKCC vessel to do our two-week research expeditions the Marquesas Keys. But time and treasure ran out due to a combination of problems including multiple hurricanes, grant-time limits and a serious mechanic failure of the research vessel.

Funding this project will allow us to go forward with the study to determine whether the lemon shark born in the Marquesas Keys also home back to their nursery grounds as they do in the Bahamas, a very different habitat composed of fragmented habitat which requires pups to stay at the small islands for up to eight years. In contrast lemon sharks born in the Marquesas Keys are much larger, grow 3 x faster and leave the mangrove nursery for the flats after 1-3 years. With a few more years funding catching both adults and juveniles, I believe we can answer the question of homing back to their birth place.

Therefore I offer these four points in exchange for collaborating on this proposal: 1. The Bimini Biological Field Station Foundation is prepared to allow the 13-year data base of lemon shark captures as a baseline for the proposed continuing study; 2. BBFS will provide technical expertise and full consultation on the FKCC study including field staff, boat crews, genetic work and statistical analyses; Dr. Gruber who has organized over 50 oceanographic cruises

will act as consultant on the project and his staff and gear will be available on an as needed basis for the research cruises; and 4. BBFS director will be the external referee on the PhD committee of the project marine research assistant.

Thank you again for your interest in the Bimini Biological Field Station and I look forward to our continuing collaboration.

Cordially Yours,

A handwritten signature in black ink, appearing to be 'SHG' or similar initials, written in a cursive style.

Samuel H. Gruber
Professor

Cordially Yours,

A handwritten signature in black ink, appearing to be 'SHG' or similar initials, written in a cursive style.

Dr. Samuel H. Gruber

