

**Office of National Marine Sanctuaries–National Centers for Coastal Ocean Science  
Long-term Agreement – FY 03–05 Report  
and  
National Centers for Coastal Ocean Science FY 05 National Marine Sanctuaries  
Research Plan**

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## BACKGROUND

The National Marine Sanctuaries Act (NMSA) of 1972 (<http://www.sanctuaries.nos.noaa.gov/natprogram/nplegislation/NMSA.pdf>) provides the Secretary of Commerce with the authority to protect and manage the resources of significant marine areas of the United States. The Secretary delegated this authority to NOAA. In response, NOAA established the National Marine Sanctuaries Program [NMSP (identified as ONMS in remainder of document – Office of National Marine Sanctuaries)] in the National Ocean Service to “identify, protect, conserve, and enhance the natural and cultural resources, values and qualities of the NMS System for this and future generations.” This office administers efforts to designate marine sanctuaries and adopt management practices to fulfill this mission. Since 1972, Congress has passed several additional legislative authorities that build on the original act (Appendix A). Today, NMS protect over 18,000 square miles of U.S. waters containing nationally significant natural and cultural resources.

The effectiveness of the NMS program designation and management practices depends heavily on quality, management-driven, scientific research. NOAA created the National Centers for Coastal Ocean Science (NCCOS) in 1999 to support the NOS scientific mission, and NOAA’s coastal mandates in places like National Marine Sanctuaries. NCCOS’s mission is to address coastal managers’ needs by “providing coastal managers with scientific information and tools needed to balance society’s environmental, social, and economic goals.” The match between NCCOS’s mission and ONMS research needs set the stage for the informal partnership that developed simultaneous with the creation of NCCOS in 1999. The partnership dedicated ONMS and NCCOS resources toward the shared goal of effectively managing NOAA’s National Marine Sanctuaries using the best available science. NCCOS had well developed capabilities in areas such as biogeographic assessment, monitoring tools and technique development, and forecasting that directly support ONMS management needs. Since 1999, NCCOS scientists have conducted applied research, managed complex long-term research projects, provided a link between the science conducted in academia and the specific needs of coastal decision-makers and integrated research across scientific disciplines.

Over time, the need for defined joint operating principles became evident. In response, ONMS and NCCOS leadership formalized this partnership in 2001 with the ONMS–NCCOS Long-term Agreement (LTA) (Appendix B) that clarified the relationship, priority research areas, and operating principles. The formal LTA led to the generation of an annual operating timeline including reporting and planning schedules (Table 1), the creation of NCCOS liaisons to each sanctuary (Appendix C), unified quarterly and annual reporting of current research in common formats, and the creation of priority research areas and implementation of an internal competitive proposal selection process for LTA-ONMS funds (Appendix D). Through the established operating principles and research focus areas, NCCOS and ONMS ensure consistency in planning and progress,

accountability, and integration of expertise both within and across the programs, as well as maximize resources.

This document lays out LTA research plan areas and objectives, reports fiscal updates and progress for LTA-sponsored projects, and summarizes non-LTA sponsored contributions to LTA research areas. The report period is FY 2003 – 2005. While the focus of this document is on projects funded via an internal RFP process, these activities make up only a small portion of the total resources addressing the LTA research plan focus areas. This report begins to incorporate information on these associated projects. Future reports will include a more thorough treatment of all sanctuary related projects both LTA and non-LTA funded.

## **ONMS–NCCOS RESEARCH PLAN**

The primary tool used in developing the ONMS–NCCOS collaborative research plan is *Sanctuary Science: Evaluation of Status and Information Need* ([http://sanctuaries.nos.noaa.gov/library/National/science\\_eval.pdf](http://sanctuaries.nos.noaa.gov/library/National/science_eval.pdf)). The annual ‘State of the Sanctuaries’ reports (<http://www.sanctuaries.nos.noaa.gov/library/national/sots04.pdf>) were also consulted.

Sanctuary management issues are categorized into 9 areas in *Sanctuary Science*: (1) habitat delineation, (2) zoning, (3) assessment of living resources, (4) water quality, (5) fishing/harvesting effects, (6) wildlife disturbance, (7) event response, (8) restoration/rehabilitation, and (9) industrial uses. While individual sanctuary information needs varied considerably within these categories, opinion neared consensus about the need for increased activity on (2) zoning and (5) fishing/harvest effects on marine sanctuaries. (4) Water quality and (9) industrial uses require the least amount of increased activity.

Based on these needs and the NCCOS historic role in ONMS, ONMS-applicable NCCOS capabilities include three general research areas: characterization, monitoring, and anticipatory science. This plan formally captures the NCCOS research foci in ONMS; it provides a framework for planning and reporting but was not intended to dramatically shift the NCCOS foci.

### **Research Areas:**

**Characterizing sanctuary resources in the context of each sanctuary management plan.** By 2008 all sanctuary resources will be described so that significant changes over time can be detected. ONMS and NCCOS are working toward characterizing all sanctuary resources to inform zoning decisions and facilitate detection of significant changes as a result of management efforts. Resource characterization specific to each sanctuary informs zoning and management decisions, allows hypothesis testing, and helps to determine whether sanctuary management goals are being met. Implicit in this effort is to provide information to assist each sanctuary in updating and improving their management

plan. Work in this program has as one of its objectives and products “biogeographic assessments” of all ONMS sites by 2008.

**Monitoring the changes in sanctuary resources, particularly in response to management decisions.** By 2008, all sanctuaries will have monitoring programs that can detect changes over time, provide a basis for predicting the consequences of change, and evaluate the significance to the resource and sanctuary ecosystem if no management action is taken. ONMS and NCCOS emphasize application of forecasting techniques and technology that utilize monitoring information. Some techniques and technologies to be transferred to sanctuary managers will include rapid and reliable monitoring and assessment, models for improved forecasting of environmental conditions, and improved knowledge that strengthens models for forecasting of environmental conditions or resource sustainability. These tools will help managers address issues such as zoning plans and determining effectiveness of fishery management.

**Conducting anticipatory science and special projects.** A limited but consistent effort will be made to conduct anticipatory science that aims to develop and test new technologies and techniques for monitoring the health of marine systems. Special projects may arise also that demand immediate attention or that hold great promise for solving specific sanctuary issues. These scientific needs will be addressed on a case-by-case basis. Work will help to ensure continuous NCCOS improvement as an organization, to optimize the capacity of its diverse workforce, to improve its operational capabilities, and to maximize the effectiveness of our partnerships.

The research categories map to the integrated assessment approach described in the NCCOS strategic plan (<http://coastalscience.noaa.gov/documents/strategicplan.pdf>). NCCOS defines integrated assessments as the series of steps connecting the status of ecosystems with the prediction of consequences from different management actions. “Integrated Assessments provide information so managers and scientists can evaluate a system, develop options for future action, and identify gaps in the understanding of the issues.” Sanctuary characterization enables NCCOS to describe sanctuary ecosystems and to assess their condition. Sanctuary monitoring and anticipatory research enables NCCOS to develop forecasts of ecological health and evaluate alternate management strategies and their potential impacts.

### **Implementation:**

The primary emphasis from FY03 to FY08 is on characterizing all sanctuaries, with some select activities in the monitoring and anticipatory science research areas. Resources to implement these efforts come from several sources. First, under the LTA, the ONMS awards NCCOS approximately \$800,000 per year to conduct research in sanctuaries nationwide through a competitive, internal review process (Appendix D). The competitive program is on a two-year cycle that began in 2003, with funds obligated in FY 2004. NCCOS leverages additional funds for the LTA-sponsored projects from their

base program funds and secures research funds for additional projects related to the LTA research areas independent of the LTA competitive process. The non-LTA-funded research is coordinated to the extent possible with sanctuary managers and tracks to the ONMS–NCCOS research plan areas.

Research under the LTA is currently conducted in 3 NCCOS centers including the Center for Coastal Fisheries and Habitat Research (CCFHR), Center for Coastal Monitoring and Assessment, (CCMA) and Center for Coastal Environmental Health and Biomolecular Research, (CCEHBR). Numerous collaborating organizations, in close association with NCCOS, support ONMS research through a variety of arrangements.

## **NOAA ALIGNMENT**

The ONMS–NCCOS sanctuary research plan and corresponding projects align with NOAA, NOS, NCCOS and ONMS missions and performance plans. The LTA effort directly supports NOAA’s mission to “understand and predict changes in the Earth’s environment and conserve and manage coastal and marine resources to meet our Nation’s economic, social, and environmental needs.” Moreover, the LTA effort aligns with the NOS mission “to provide products, services, and information that promote safe navigation, support coastal communities, sustain marine ecosystems, and mitigate coastal hazards.” Key to fulfilling these missions is “serving as the trustee for the nation’s system of marine protected areas, to conserve, protect, and enhance their biodiversity, ecological integrity and cultural legacy.”

(See <http://sanctuaries.noaa.gov/natprogram/natprogram.html>.) NCCOS and ONMS fulfill this responsibility by employing the NOAA end-to-end approach of monitoring and observing, understanding and describing, assessing and predicting, engaging, advising and informing, and effectively managing sanctuaries. This is being accomplished by applying the NOAA and NOS ecosystem goal strategies of delineating ecosystems, applying sound observation and science to management, and improving simulation and predictive models outlined in the NOAA and NOS strategic plans. (See NOAA FY 2005 – 2010 Strategic Plan and NOS Strategic Plan at <http://www.spo.noaa.gov/noaastratplanning.htm>.)

Within the NOAA structures, LTA activity areas map to NOAA’s Ecosystem Goal through the Ecosystem Research Program (ERP) and the Coastal Marine Resources (CMR) Program and cross walk to NOAA, ERP, NCCOS and ONMS performance measures (Table 2). Progress in LTA research areas is tracked in NOAA through their contributions to these performance measures.

## **UPDATE AND HIGHLIGHTS**

Since 1999, NCCOS has participated in several research projects related to ONMS sites. This section summarizes fiscal and project information for FY03 – 05 and provides programmatic and LTA-sponsored project highlights. Future reports will broaden to include an assessment of LTA and non-LTA-sponsored ONMS related activities in order

to give a more complete picture of progress toward meeting the LTA Research Plan objectives.

This report draws from information available in the NCCOS Project Database, liaison reports, and direct discussions with PIs where possible. While time limitations did not allow quality control of information for every project, the majority of information for FY03 - FY04 is accurate and anticipated variation is small. Project information for FY05 is preliminary and some variation from this information is expected in future reports.

When calculating the total of monies invested in ONMS research annually, categories such as total incoming and other project collaborators were considered (Tables 5, 6, 7). It is important to recognize that the dollar amounts contributed by NCCOS do not contain the value of the employee salaries. Those numbers are reported only as the number of investigators because the time commitment varies widely among projects. Nonetheless, the total effort expended by NCCOS in sanctuaries far exceeds the dollar amount reported here. Also, not all NCCOS activities in support of sanctuaries are captured in these tables. Activities such as serving on research review panels, responding to information requests, participating in planning activities, and publishing information. Most notable, however, is the absence of time estimates for the NCCOS liaisons and program managers' time. Time contribution of these personnel is substantial, between 2 and 20 percent.

### **Project Categories**

To assist with interpretation, NCCOS projects related to ONMS research plan areas are grouped into three categories based on funding source (LTA or non-LTA) and relationship to sanctuary sites. The first category is LTA projects. These projects are funded through the LTA-RFP process. FY04, coincident with the initiation of the formalized RFP process and research plan, marks the beginning of LTA-funded projects. LTA-sponsored projects were vetted and prioritized based on the LTA research plan and most directly relate to ONMS managers needs.

The second two categories include projects supported outside of the LTA (non-LTA) process and include associated and supporting projects. Associated projects are carried out in one or more sanctuary sites and correspond to a specific ONMS need. Often these projects are proposed via the RFP process, but due to resource constraints were not funded. In other cases, these projects are activities developed between NCCOS, ONMS, and other NOAA and non-NOAA partners, outside the LTA-RFP process

Supporting projects are projects developed independent of sanctuary sites, whose products, tools, or data, support sanctuaries management needs. For example, the NCCOS Mussel Watch program monitors toxic chemicals in U.S. coastal waters and reports on temporal trends in environmental conditions. Data and products from Mussel Watch, while not specific to ONMS sites, provide data that sanctuary managers can use in assessing effectiveness of management for toxins, or the health status of the sanctuary

and surrounding environment. It would be misleading to suggest that the funds for these projects are dedicated solely to meeting sanctuaries' needs and the goals of the LTA research plan; at the same time it would be an oversight not to highlight their supporting role. For this reason, this report includes examples of supporting projects for FY03-05. These are not exhaustive lists.

For all three categories, projects map to research plan areas, sanctuary management issue, and relationship category (Table 4). More information on each project can be found in the NCCOS projects database.

## **Updates**

### *FY03 (Table 4, Table 5)*

FY03 is unique in that the formal LTA-RFP process was not yet implemented. In FY03, NCCOS conducted research for 20 non-LTA “associated” projects in at least seven sanctuary sites; some of these became LTA projects in FY04. NCCOS utilized diverse resources to conduct these projects, including over 35 NCCOS staff, including PI’s, co-PI’s, contractors and technical staff, and over 23 non-NCCOS collaborators. Other marine institutions, such as NOAA’s Damage Assessment Center, TDI Brooks, the NOAA Coral Reef Conservation program, and EPA also contributed funds, research and staff. Funding for ONMS “associated” projects totaled ~\$1,700 K. ONMS contributed approximately 40% of these funds (\$642K) and NCCOS brought the remainder (\$1,100K).

The example list of 11 “supporting” projects demonstrates the breadth of resources and time NCCOS dedicates to projects that support NMS sites indirectly. These 11 projects totaled ~\$1,900K, ~\$200K more than the total funding for the 20 associated projects.

### *FY04 (Table 3, Table 4, Table 6)*

In FY04, the LTA RFP was in effect. NCCOS partnered with ONMS in 32 projects, 10 of them LTA-sponsored and 22 “associated.” Fifty NCCOS and 37 non-NCCOS collaborators participated in research directly related to sanctuary sites. These numbers do not include collaborators for “supporting” projects. ONMS contributed \$800K to this first year of the LTA-RFP process. Six characterization projects of the 20 FY03 non-LTA “associated” projects were selected through the FY04 RFP process for continued funding. NCCOS researchers leveraged ~\$355K in additional resources for the LTA-sponsored projects bringing the LTA total to \$1,155K.

The 22 FY04 non-LTA associated projects included 12 ongoing projects from FY03. Both the new and ongoing projects supported specific ONMS information needs such as coral reef recovery, condition of biological resources, and impacts of harvesting. NCCOS, NOAA Coral Program, and other NOAA programs funded the “associated” projects at a total amount of ~\$1,300K.

“Supporting” projects in FY04 accounted for over \$1,700K in indirect sanctuaries support. “Supporting” projects contributed to ONMS management by working toward documenting the health and condition of coral reefs, developing GIS management tools to reduce by-catch of sea turtles, and evaluating biomarker indices to report adverse biological effects of contamination. Nine of these projects were continued from FY03. Again, these are examples intended to give a sense of the types of “supporting” projects, not an exhaustive compilation.

*FY05 (Table 3, Table 4, Table 7, Appendix D)*

While FY05 project data is incomplete and accomplishments not yet available, summary fiscal information on LTA-sponsored and most “associated” projects is available and presented here. More detailed descriptions of FY05 LTA-funded projects are provided in Appendix D. The FY05 – 06 LTA report will include updated FY05 information.

The NCCOS budget in FY05 was unusually high. As a result of the LTA, NCCOS invested a significant portion of these unanticipated funds in ONMS projects. NCCOS will likely not be able to sustain FY05 levels of funding for sanctuary projects, but will make every effort to bring additional funds to fulfill its LTA commitments.

The ONMS FY05 contribution to NCCOS research through the LTA-RFP was reduced to \$581K. For this reason, only seven of 10 ongoing projects from FY04 were supported and projects that had been selected for initiation in FY05 were put on hold. These projects will be preferentially funded without further competition in FY06, pending availability of funds. NCCOS leveraged ~\$180K for the seven LTA-funded ongoing projects bringing the LTA total to ~\$761K, almost \$400K less than in FY04.

To ensure meeting the LTA research plan objectives and integrated assessment progress, NCCOS contributed base funds (\$228K) to support the three ongoing LTA projects not supported by FY05 LTA funds. In addition, NCCOS funded one of the new FY05 LTA projects that would have been delayed to FY06 (Biogeographic Assessment of OC-\$400K). This means that the ONMS LTA project funding decrease of ~\$300K was accommodated by a NCCOS contribution of \$628K in “associated” projects. As these projects were not funded through LTA-RFP funds, their fiscal information is included in the “associated” rather than LTA direct funded totals in Table 7 and below.

The FY05 “associated” projects, with 22 reported to date, represent \$2,434K in total funding. Already this is \$1,300K more than FY04. Of the 22 FY05 “associated” projects, 18 were ongoing from FY04 and 4 were new starts. Most of the FY05 increase can be attributed to four new characterization efforts. In sum, the LTA agreement attracted additional NCCOS funds to ONMS sites for characterization independent of the RFP process.

The thirteen FY05 example “supporting” projects totaled ~\$2,235K. Only one of these projects was a new start in FY05. Several of these projects are related to the Florida Keys National Marine Sanctuary (FKNMS).



## **Overall Highlights**

*Characterization on track:* NCCOS and ONMS dedicated the majority of FY03, FY04 and FY05 resources to characterization (Chart 1). The combined LTA-funded and associated project funding for characterization activities increased from ~\$1,300K in FY03 to over \$3,000K in FY05. Each year characterization saw larger growth in resources than either of the other two research areas (monitoring and anticipatory research). NCCOS researchers supported characterization projects in nine of the 13 sanctuaries including the Northwest Hawaiian Islands (NWHI) and four will be completed in FY05. Assuming continued availability of resources, NCCOS is on track to complete site-specific characterizations of all sanctuary sites by 2008.

*Increased funding overall for management driven research in sanctuaries:* Total funds for projects directly related to sanctuary sites and managers needs increased significantly between FY03 and FY05. Combined LTA and associated project funds increased from ~\$1,700K (FY03) to ~\$2,500K (FY04) to ~\$3,400K (FY05) – an increase of more than \$1,700K in three years. These increases were not directed through the LTA-RFP. *In fact, the LTA-RFP saw a decrease in funds between FY03 and FY05.* The LTA-commitments, collaborations, and formalized framework certainly contributed to increased success in acquiring research funds for projects directly related to sanctuary sites outside the LTA-RFP process.

*Success in vessel allocation:* The ONMS and NCCOS LTA led to increased success in acquiring days at sea (DAS). Although the ship allocation and the LTA-RFP funding process are not synchronized, an estimated 60% of the DAS obtained by NCCOS scientists in FY03 were in response to the possibility of LTA funding. In FY04, an estimated 70% of DAS obtained were due in part to the prospect of LTA project commitments.

*ONMS funds matched by millions:* The ONMS contributions of ~\$2,000K between FY03 – FY05 was matched by ~\$5,100K in additional funds and an increasing number of collaborators through leveraged LTA project funds and “associated” projects funds. The source of matching funds was both NCCOS base and other NOAA programs. The additional funds can be partially attributed to the yearly ONMS funding commitment.

### **FY03 – FY04 LTA-RFP Project Highlights**

Products related to the ONMS–NCCOS LTA-RFP sponsored projects have contributed significant science information and products that sanctuary managers already use in making management decisions. Highlights provided below relate to projects funded through the FY04 LTA-RFP, six of which are continuations of FY03 projects. Additional information on site-specific accomplishments can be viewed for each project either via the NCCOS project database ([www.nccos.noaa.gov](http://www.nccos.noaa.gov)) or in the yearly liaison reports for each site (contact [patricia.hay@noaa.gov](mailto:patricia.hay@noaa.gov)). Planned objectives and accomplishments for FY05 projects are summarized in Appendix D.

*Preliminary Biogeographic Assessment for Channel Islands National Marine Sanctuary (CINMS) applied to zoning.* The biogeographic assessment scheduled for completion in FY05 in the CINMS has already resulted in development of a capability to define and quantify the ecological characteristics of six boundary alternatives for the site. The NCCOS biogeographic assessment process was utilized in this study but was modified by the development of an Optimal Area Index (OAI) that scores the relative ecological value of boundary alternatives when compared to the existing site boundary. This work directly supports a sanctuary management need to explore potential modification of the CINMS boundary based on the principles of biogeography.

*Benthic Habitat maps employed in Gray's Reef National Marine Sanctuary (GRNMS) monitoring and zoning.* The NCCOS Biogeography Team mapped benthic habitats of Gray's Reef using sonar imagery. Completed maps include ledges of varying heights, flat live bottom, flat sand, and rippled sand. These maps are used to stratify sampling design of fish and benthic cover. Fish communities, fishing gear, marine debris, and cover of sessile invertebrates were surveyed along diver transects within each habitat type. Data is being used to conduct sanctuary monitoring activities, to identify and protect essential fish habitat, and to address other spatially explicit research and management goals. This baseline characterization is also the first step in monitoring temporal changes in the GRNMS landscape and understanding more about the dynamic nature of this region of the continental shelf.

*Biogeographic Characterizations assist in Stellwagen Bank National Marine Sanctuary (SBNMS) management plan review.* The ONMS working group reviewed the SBNMS management plan using preliminary NCCOS biogeographic characterization of the SBNMS. The working group employed characterization products to map and conduct basic spatial analyses.

*Deep-water surveys protect critical habitat in Olympic Coast National Marine Sanctuary (OCNMS).* NCCOS completed surveys of deepwater coral/sponge assemblages and analyzed their susceptibility to fishing and harvest impacts at the OCNMS. Managers are using this information to assess the need for additional conservation measures in critical habitats.

*Remote sensing data shed light on patterns of dead sea-birds in Central California Sanctuaries.* The final draft report on remotely sensed data and analysis for the Central California sanctuaries is now available. This includes summaries and map products of chlorophyll, turbidity, temperature, winds, and precipitation. Managers are using basic analysis of spatial distributions to better understand patterns of dead seabirds found along the shore.

## **FUTURE**

To date, most LTA-RFP funded and associated projects contribute to sanctuaries characterization (Chart 1). The FY06-07 LTA-RFP lays out the specific priorities for the next two years (Appendix E). These are:

- 1) Characterizing sanctuary resources and ecosystems in which they reside, with an emphasis on biogeographic assessments, in the context of sanctuary management plans and future site designation.
- 2) Observing and monitoring changes in sanctuary resources, particularly in response to management decisions (e.g. the establishment of special protection zones such as marine reserves), but also in terms of developing purposeful regional observing systems.

Beyond FY07, the ONMS–NCCOS research focus will depend on results of program evaluation. The first of these evaluations will take place August 23-24, 2005. As a result NCCOS and ONMS will determine if the LTA-RFP plan will continue with existing research areas or change focus. The ONMS–NCCOS leadership will consider the 2005 Ocean Action Plan, national and state legislation, NCCOS and ONMS strategic directions and funding partnership. One proposed area for future collaboration is to invest in *new marine sanctuaries* with attention on how new and existing sites may form a network of sanctuaries.

Finally, NCCOS will improve coordination of non-LTA-funded projects with the priority research objectives laid out in the LTA research plan. Future reports will better reflect contributions of these projects to LTA goals.

## TABLES AND CHARTS

Table 1. Sequence of LTA program implementation on one annual cycle.

Activity	January	February	March	April	May	June	July	August	September	October	November	December
Science Review & Research Priorities	RC Mtg <sup>1</sup>											
Science Guidance/RFP		NMS & NCCOS <sup>2</sup>										
Proposal Preparation & Submission			NCCOS with NMS Sites <sup>3</sup>									
Proposal Review					NMS & NCCOS <sup>4</sup>							
Selection/Notification						Office <sup>5</sup> Directors						
Project Plan							NMS <sup>6</sup>					
AOP Development							NMS & NCCOS <sup>7</sup>					
Spending Plans								NCCOS <sup>8</sup>				
FOP										To NCCOS <sup>9</sup>		
Quarterly & Annual Reports			PIs <sup>8</sup>			PIs			PIs			PIs
Liaison Annual Report											Liaisons <sup>10</sup>	
NCCOS Annual Report											NCCOS <sup>11</sup>	
NCCOS Annual Report												NMS & NCCOS <sup>12</sup>

<b>Table 2: Alignment of LTA research areas with NOAA, Ecosystem Research Program (ERP), Coastal Marine Resources Program (CMR), ONMS and NCCOS performance measures.</b>				
<b>NOAA Performance Objective</b>	<b>ERP and CMR Performance Measure</b>	<b>ONMS Performance Measure</b>	<b>NCCOS Performance Measure</b>	<b>LTA Research Plan Area</b>
Increase the number of regional coastal and marine ecosystems delineated with approved indicators of ecological health and socioeconomic benefits that are monitored and understood.	<p><b>ERP:</b> Number of Great Lakes, coastal, and marine ecosystem sites adequately characterized for management.</p> <p><b>CMR:</b> Percent of coastal and marine protected areas adequately characterized for management</p>	Percent of sanctuary system adequately characterized	Cumulative number of NMS that have selected resources and stressors characterized by NOAA.	Characterization
	<p><b>ERP:</b> Cumulative number of Great Lakes, coastal, and marine forecast capabilities developed and used for management.</p> <p><b>CMR:</b> Percent of NOAA coastal and Marine Protected Areas with adequate long-term monitoring to track changes in ecosystem health.</p>	<p>Number of sites in which habitat is being maintained or improved.</p> <p>Number of sites in which living marine resources are being maintained or improved.</p>	<p>Number of new ecological forecasts developed and the technology transferred to the appropriate agency to detect the effect of specific environmental changes on selected ecosystems.</p> <p>Cumulative number of NMS that have assessment of the effectiveness of selected management actions.</p>	<p>Monitoring</p> <p>Anticipatory Research/Special Projects</p>

**Table 3. FY04 LTA-RFP Obligations and FY05/06 Continuation Costs (in thousands)**  
**See Table 4 key for abbreviation information.**

("Req." = Requested, "Rec" = Recommended, "Ong" = ongoing from FY03)


Lead	NMS	Abbreviated Title	Status	04 Req	04 Rec	05 Cost	06 Cost
Hyland	OC	Evaluation of Critical Offshore Habitats and their Susceptibility to Fishing/Harvest Impacts at the OCNMS	New	98	90		
Currin	NWHI	Analysis of Sources of 1° Production Supporting the Apex Predator-dominated Ecosystem in the NWHINMS	New	34.9	30	50	
Battista	SB	Biogeographic Assessment of SBNMS	Ong	100	90	80	
Kendall	GR	GRNMS Habitat Mapping and Fish Habitat Utilization Studies	Ong	25	20	160	
Hare	GR	Characterization and Ecological Monitoring at GRNMS	Ong	158.3	100	105	
Kenworthy	FK	Ecological Characterization of Seagrass-Porites Coral Banks in the FKNMS	New	80	75	70	
Fonseca	FK	Characterization of the Tortugas Ecological Reserve: Establishment of a Baseline and Measurement of the Effect of Establishment of a Reserve	Ong	184.3	95	36	
Christensen	CI	Biogeographic Assessment of CINMS to Support Boundary Alternative Assessments	Ong	200	160	80	
Stumpf	GF	Monthly Mean Chlorophyll and SST from Satellite for Sanctuaries	New	59.5	55		
Gill/Monaco	<b>CB,GF MB</b>	Biogeographic Assessment of Central and Northern California National Marine Sanctuaries: Phase II	Ong	100	85		
<b>Recommended FY05 Obligations and FY06 Continuation Costs</b>							
Woodley	FK	Irgarol effects on coral reef health	New			60	63
Monaco	FB	Biogeographic assessment	New			50	
Clark/Monaco	OC	Biogeographic assessment	New			50	150
Stumpf	<b>CB,GF MB</b>	Monthly Mean Chlorophyll and SST from Satellite for Sanctuaries	New			59	
			<b>Total</b>	<b>1040</b>	<b>800</b>	<b>800</b>	<b>213</b>
			Ong	767.6	550	581	
			New	272.4	250	219	213

**Table 4.** Summary table mapping FY03 – 05 NCCOS sanctuary projects to ONMS–NCCOS LTA research plan area, sanctuary management issue, LTA relationship (LTA-funded, Associated, or Supporting), and sanctuary location. FY05 information is based on information available to date and is incomplete. FY03 projects receiving LTA funding in FY04 are listed under LTA-funded section to assist in demonstrating the continuity of LTA-funded projects over time. For the same reason the three FY04 LTA-funded projects continued in FY05 with non-LTA funds are included with the LTA-funded section for FY05. Funds for these projects are accounted for in the associated totals in Tables 5 and 7. FY05 project information is preliminary, projects may be missing. Sanctuary management issues are drawn from *Sanctuary Science: Evaluation of Status and Information Need* document: [http://sanctuaries.nos.noaa.gov/library/National/science\\_eval.pdf](http://sanctuaries.nos.noaa.gov/library/National/science_eval.pdf).

Key:

Sanctuary Relationship: LTA-funded= funded via LTA-RFP process; Associated= Non-LTA-funded projects directly associated with sanctuary need and site. Supporting=Non-LTA-funded projects indirectly supporting sanctuary management needs. “Supporting” projects in this table are examples only, not an exhaustive list.

Sanctuary Site: SB= Stellwagen Bank; GR= Gray’s Reef ; CI= Channel Islands; CB= Cordell Bank; GF= Gulf of the Farallones; MB= Monterey Bay; FK= Florida Keys; NWHI= Northwest Hawaiian Islands; OC= Olympic Coast; FB=Fagatele Bay; Multiple= More than one sanctuary.

 Non-LTA funded

 LTA-funded

LTA Research Plan Area	Sanctuary management issue supported	Projects	NMS Site	FY03	FY04	FY05			
<b>Characterization</b>	<ul style="list-style-type: none"> <li>➤ Habitat delineation</li> <li>➤ Zoning</li> <li>➤ Assessment of living marine resources</li> <li>➤ Fishing/Harvesting effects</li> <li>➤ Event Response</li> <li>➤ Wildlife disturbance</li> </ul>	<b>LTA - FUNDED</b>	Biogeographic Assessments of:						
			Stellwagen Bank	<b>SB</b>					
			Gray's Reef	<b>GR</b>					
			Channel Islands	<b>CI</b>					
			Central and Northern California NMS: Phase II	<b>CB GF MB</b>					
			Characterization of the Tortugas Ecological Reserve: Establishment of a Baseline and Measurement of the Effect of Establishment of a Baseline	<b>FK</b>					
			Characterization and Ecological Monitoring at GRNMS	<b>GR</b>					
			Analysis of Sources of Primary Production Supporting the Apex-Predator Dominated Ecosystem	<b>NWHI</b>					
			Ecological Characterization of Seagrass-Porites Coral Banks	<b>FK</b>					
			Evaluation of Critical Offshore Habitats and their Susceptibility to Fishing/Harvest Impacts	<b>OC</b>					
			Monthly Mean Chlorophyll and SST from Satellite for Sanctuaries	<b>GF CB MB</b>					
			<b>Total # LTA-funded</b>				<b>0</b>	<b>10</b>	<b>7</b>

- Non-LTA funded
- LTA-funded



LTA Research Plan Area	Sanctuary management issue	Projects	Site	FY03	FY04	FY05	
<b>Characterization</b>	<ul style="list-style-type: none"> <li>➤ Habitat delineation</li> <li>➤ Zoning</li> <li>➤ Assessment of living marine resources</li> <li>➤ Fishing/Harvesting effects</li> <li>➤ Event Response</li> <li>➤ Wildlife disturbance</li> </ul>	<b>ASSOCIATED</b>	NW Hawaiian Island Mapping	NWHI			
			Define Reef Fish Species Assemblages and Associated Habitats in the FKNMS	FK			
			Real Time Oceanographic Observations in the FKMNS	FK			
			Interdisciplinary Coastal Oceanographic Observations	FK			
			Benthic Studies at the GRNMS and nearby Shelf Waters	GR			
			Characterize Environmental Stressors in Central California National Marine Sanctuaries	MB			
			Development of a Plan to Conduct Biogeographic Assessment	NWHI			
			Contaminant Characterization of Massachusetts Bay and SBNMS	SB			
			Assessment of Ecological Conditions in Shelf Waters along the US West Coast	Multiple			
			Benthic Habitat Mapping of Florida Coral Reef Ecosystems	FK			
			Deep-Sea Coral Communities	OC			
			Biogeographic assessment of the Dry Tortugas	FK			
			History of Marine Animal Populations	SB			
			Biogeographic Assessment of Olympic Coast National Marine Sanctuary	OC			
			<b>Total # Associated</b>				<b>11*</b>

\*Includes FY03 projects continued in FY04 as LTA-funded. These projects are listed under LTA-funded section above.

\*\* Includes FY05 projects that are continuation for FY04 LTA projects. These projects are depicted by dark gray boxes in the FY05 column of the LTA-funded characterization section.

LTA Research Plan Area	Sanctuary management issue	Projects		Site	FY03	FY04	FY05	
<b>Characterization</b>	<ul style="list-style-type: none"> <li>➤ Habitat delineation</li> <li>➤ Zoning</li> <li>➤ Assessment of living marine resources</li> <li>➤ Fishing/Harvesting effects</li> <li>➤ Event Response</li> <li>➤ Wildlife disturbance</li> <li>➤ Restoration</li> </ul>	<b>SUPPORTING EXAMPLES</b>	Conduct Regional Assessments of Sediment Contamination	GR				
			NOAA Benthic Inventory	Multiple				
			Patterns of Energy Flow and Utilization on Georges Bank	GB				
			Integration of Biogeographical Data via GIS Technology	Multiple				
			Assessment of Ecological Condition of Shelf Waters of the South Atlantic Bight (inclusive of GRMNS)	GR				
			Assessment of Ecological Conditions in Shelf Waters along the US West Coast	Multiple				
			<b>Total # of Supporting Examples</b>			<b>3</b>	<b>6</b>	<b>5</b>

LTA Research Plan Area	Sanctuary management issue supported	Projects	Site	FY03	FY04	FY05	
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>➤ Zoning</li> <li>➤ Water Quality</li> <li>➤ Assessment of living marine resources</li> <li>➤ Wildlife disturbance</li> <li>➤ Fishing/Harvesting</li> <li>➤ Restoration</li> </ul>	<b>ASSOCIATED</b>	Development of a Statistically Appropriate Sub-sampling Protocol for Monitoring the Success of Seagrass Restoration in the FKNMS	FK			
			Calibration of the Effect of Injury Size on Spatial Models Predicting the Recovery of Seagrasses from Vessel Injuries	FK			
			Long-Term Monitoring for Seagrasses in the FKNMS	FK			
			Assess Potential of Underwater Acoustic Technology to Estimate Biomass and Seasonal Variation in Pelagic Fish Abundance within GRNMS	GR			
			HAB Studies in Sanctuaries- Develop Method for Applying Satellite Imagery to the Study and Monitoring of HAB's in Marine Sanctuaries	Multiple			
			Development of a Coral Spatial Recovery Model	FK			
			<b>Total # Associated</b>		<b>2</b>	<b>6</b>	<b>6</b>

LTA Research Plan Area	Sanctuary management issue supported	Projects	Site	FY03	FY04	FY05	
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>➤ Water Quality</li> <li>➤ Assessment of living marine resources</li> <li>➤ Fishing/Harvesting</li> <li>➤ Restoration</li> <li>➤ Industrial Uses</li> </ul>	<b>SUPPORTING EXAMPLES</b>	Mussel Watch: Long-Term Monitoring of Toxic Chemicals in U.S. Coastal Waters and Periodic Reporting of Temporal Trends in Environmental Conditions to Document Effectiveness	Multiple			
			HAB Forecasting- Develop Methods to use Satellite Imagery, Meteorological Data and other Data Collected and Processed across NOAA for Monitoring and Forecasting HAB's	Multiple			
			Transfer of Spatial Recovery Model to other U.S. Trust Resource Areas in the Atlantic and U.S. Territories in the Pacific	Multiple			
			Application and Evaluation of Biomarkers and Ecological Indices to Report on Adverse Biological Effects of Coastal Contamination	Multiple			
			ECOHAB Predictive Models of Toxic Dinoflagellate	SB			
			Olympic Regional Harmful Algal Bloom Project (ORHAB)	OC			
			<b>Total # of Supporting Examples</b>		<b>6</b>	<b>6</b>	<b>4</b>

LTA Research Plan Area	Sanctuary management issue supported	Projects	Site	FY03	FY04	FY05	
<b>Anticipatory Research/Special Project</b>	<ul style="list-style-type: none"> <li>➤ Assessment of living marine resources</li> <li>➤ Wildlife disturbance</li> <li>➤ Event Response</li> <li>➤ Restoration</li> <li>➤ Industrial Uses</li> </ul>	<b>ASSOCIATED</b>	Implementation of Restoration of Injured Seagrass Beds in the FKMNS and other U.S. Trust Waters	FK			
			Determining Effects of Crab/Lobster Traps on Seagrass Beds of the FKNMS: Damage Assessment and Evaluation of Recovery	FK			
			Produce a Research Agenda for Assessing NMS Ecological Resources	Multiple			
			Human Dimensions of the Dry Tortugas and Channel Islands	Multiple			
			Development of Design Criteria for Marine Protected Areas	Multiple			
			Calibration of the Effect of Injury Size on Spatial Models Predicting the Recovery of Seagrasses from Vessel Injuries	FK			
			Support Development of NWHI Science Plan for Sanctuary Design Process	NWHI			
			<b>Total # Associated</b>		<b>4</b>	<b>6</b>	<b>3</b>

LTA Research Plan Area	Sanctuary management issue supported	Projects	Site	FY03	FY04	FY05	
<b>Anticipatory Research/Special Project</b>	<ul style="list-style-type: none"> <li>➤ Restoration</li> <li>➤ Wildlife disturbance</li> </ul>	<b>SUPPORTING EXAMPLES</b>	Coral Disease and Health Consortium: Document the Health and Condition of Coral Reef's	Multiple			
			Queen Conch Reproductive Impairment and Impact on the Species Management Plan	Multiple			
			2005 Coral Reef Ecosystem Status Report	Multiple			
			Development of a Geographic Information System (GIS) as a Management Tool to Reduce Bycatch of Sea Turtles in U.S. Atlantic Ocean and Gulf of Mexico Fisheries(2005)	Multiple			
			Coral Disease and Health Consortium: Establish Rapid Response Teams for Investigating Coral Disease Outbreaks(2005)	Multiple			
			<b>Total # Supporting Examples</b>		<b>1</b>	<b>3</b>	<b>4</b>

<b>Table 5. FY03 Totals for sanctuary associated and supporting projects in FY03. See Table 4 key for definitions. Light grey highlighted rows indicated resources directly supporting sanctuary management needs (associated projects).</b>					
Sanctuary Site	Total NCCOS Collaborator	Total non-NCCOS Collaborator	Total Associated Projects	Total Supporting Projects	Total Days at Sea
MORE THAN ONE SANCTUARY	16	14	\$260,985	\$1,021,078	0
FLORIDA KEYS	6	8	\$726,306	\$74,744	29
GRAY'S REEF	6	1	\$302,730	\$247,200	57
OLYMPIC COAST	1	0	\$110,800	\$10,000	0
NORTHWEST HAWAIIAN ISLANDS	1	0	\$159,000	0	0
MONTEREY BAY	1	0	\$27,000	0	10
CHANNEL ISLANDS	2	0	\$92,222	0	3
STELLWAGEN BANK	2	0	\$63,000	\$533,406	0
<b>TOTALS</b>	<b>35</b>	<b>23</b>	<b>\$1,742,043</b>	<b>\$1,886,428</b>	<b>99</b>

**Table 6. FY04 project totals by sanctuary site for LTA-funded, associated, and supporting projects. LTA-funded project totals include both ONMS and NCCOS contributions. See Table 4 key for definitions. Light grey highlighted rows indicate resources directly supporting sanctuary management needs (LTA-funded and associated projects).**

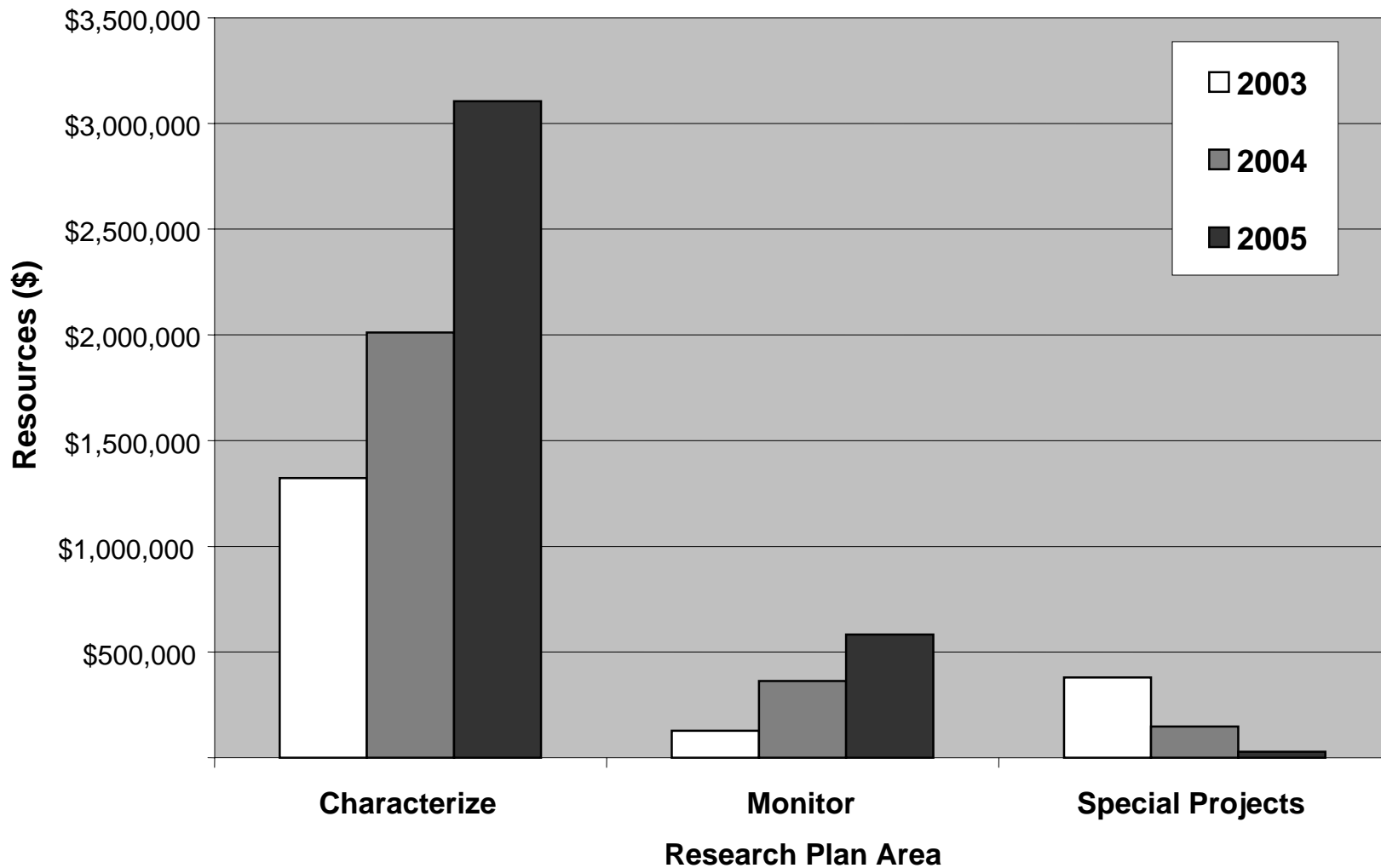
Sanctuary Site	Total NCCOS Collaborators	Total non-NCCOS Collaborators	Total LTA-funded	Total Associated	Total LTA and Associated	Total Supporting	Total Days at Sea
MORE THAN ONE SANCTUARY	11	10	\$140,000	\$134,217	\$274,217	\$810,124	7
FLORIDA KEYS	11	10	\$248,316	\$890,977	\$1,139,293	\$74,744	42
GRAY'S REEF	14	10	\$379,316	\$184,050	\$563,366	\$565,350	42
OLYMPIC COAST	6	3	\$107,850	\$0	\$107,850	\$0	12
NORTHWEST HAWAIIAN ISLANDS	3	4	\$69,404	\$100,000	\$169,404	\$0	36
MONTEREY BAY	1	0	\$0	\$27,000	\$27,000	\$0	10
CHANNEL ISLANDS	2	0	\$160,000	\$0	\$160,000	\$0	3
STELLWAGEN BANK	2	0	\$90,000	\$16,583	\$106,583	\$291,362	10
<b>TOTALS</b>	<b>50</b>	<b>37</b>	<b>\$1,194,886</b>	<b>\$1,352,827</b>	<b>\$2,547,713</b>	<b>\$1,741,580</b>	<b>162</b>



**Table 7. FY05 project totals by sanctuary site for LTA-funded, associated, and supporting projects. LTA-funded project totals include both ONMS and NCCOS contributions. See Table 4 key for definitions. Light grey highlighted rows indicate resources directly supporting sanctuary management needs (LTA-funded and associated projects).**

Sanctuary	Total NCCOS Collaborators	Total non-NCCOS Collaborators	Total LTA	Total Associated	Total LTA and Associated	Total Supporting	Total Days at Sea
MORE THAN ONE SANCTUARY	14	9	0	\$173,098	\$173,098	\$1,537,279	0
FLORIDA KEYS	11	4	\$111,424	\$1,429,891	\$1,541,315	0	0
GRAY'S REEF	15	9	\$416,806	\$286,748	\$703,554	\$579,929	7
OLYMPIC COAST	5	4	0	\$670,202	\$670,202	0	0
NORTHWEST HAWAIIAN ISLANDS	3	5	\$73,000	\$50,000	\$123,000	0	0
MONTEREY BAY	1	0	0	\$20,500	\$20,500	0	12
CHANNEL ISLANDS	2	0	\$80,000	0	\$80,000	0	0
STELLWAGEN BANK	2	0	\$80,000	\$60,000	\$140,000	\$118,012	0
<b>TOTALS</b>	<b>53</b>	<b>31</b>	<b>\$761,230</b>	<b>\$2,690,439</b>	<b>\$3,451,669</b>	<b>\$2,235,220</b>	<b>19</b>

**Chart 1: Total LTA-sponsored and associated project funding per year by research plan area. FY 2005 numbers are preliminary. For LTA and associated project definitions see Table 4 key.**



## APPENDICES

### APPENDIX A

#### **Key legislation authorizing research activities in National Marine Sanctuaries.**

**National Marine Sanctuaries Act (Title III 16 USC 1431-1445c-1):** The National Marine Sanctuaries Act (NMSA) provides the Secretary of Commerce with the authority to protect and manage the resources of significant marine areas of the United States. This authority has been delegated to NOAA. NOAA's administration of the marine sanctuary program involves designating marine sanctuaries and adopting management practices to protect the conservation, recreational, ecological, educational, and aesthetic values of these areas. NCCOS devotes a considerable degree of attention to providing the science to manage these sanctuaries wisely. NCCOS is continuing its characterization of these special places in order to guide managers in conserving their resources as well as conducting research that improves managers' ability to forecast the impacts of different management options.

**Florida Keys National Marine Sanctuary and Protection Act (16 USC 1433):** This Act protects the unique and invaluable natural and cultural resources of the Florida Keys and establishes the Florida Keys National Marine Sanctuary (FKNMS). The Act directed the Secretary of Commerce to develop a comprehensive management plan and regulations for the sanctuary. NCCOS has conducted extensive research in the FKNMS to support effective management of this valuable area, as well as supporting multiple cases of litigation for natural resource damages caused by navigation accidents and recreational use. NCCOS is also supporting research that assesses the potential effects on the FKNMS of altering the freshwater flow from the Florida Everglades.

**Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (16 USC 1451):** The Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 establishes an inter-agency task force, chaired by the Secretary of Commerce, to assess ecological and economic impacts of Harmful Algal Blooms on the ecosystems in which they live and to develop alternatives for reducing, mitigating, or controlling those impacts. The Act also charges the task force with assessing the ecological and economic impacts of hypoxia (reduced oxygen concentration within sea water) in United States coastal waters and alternatives for reducing, mitigating and managing hypoxia.

**Marine Protection, Research, and Sanctuaries Act (MPRSA) (16 U.S.C. 1431 et seq., 1447 et seq.; 33 U.S.C. 1401 et seq., 2801 et seq):** MPRSA creates a comprehensive and continuing program of research on the long range effects of pollution, over fishing, and man-induced changes of ocean ecosystems. The Act also covers ocean dumping. NCCOS supports one of the largest collections of environmental monitoring data on contaminants in coastal ecosystems. The National Status and Trends program collects samples of sediment and biota to provide a long term contaminant 'report card' on the Nation's coastal environments for the major chemical pollutants.

**National Marine Sanctuaries Act (Title III 16 USC 1431-1445c-1):** The National Marine Sanctuaries Act (NMSA) provides the Secretary of Commerce with the authority to protect and manage the resources of significant marine areas of the United States. This authority has been delegated to NOAA. NOAA's administration of the marine sanctuary program involves designating marine sanctuaries and adopting management practices to protect the conservation, recreational, ecological, educational, and aesthetic values of these areas. NCCOS devotes a considerable degree of attention to providing the science to manage these sanctuaries wisely. NCCOS is continuing its characterization of these special places in order to guide managers in conserving their resources as well as conducting research that improves managers' ability to forecast the impacts of different management options.

## APPENDIX B

### **ONMS/NCCOS Long-term Agreement memo (2001) laying out priorities and operating principles**

TO: ONMS staff  
NCCOS staff

FROM: Dan Basta, Director, ONMS  
Gary Matlock, Director NCCOS

SUBJECT: ONMS/NCCOS Long-term Collaboration

This memo has been developed to set out long-term operating principles for the ONMS/NCCOS partnership that has evolved over the last 3 years. Since the partnership was defined by Dr. Nancy Foster in 1999, the interaction between the two programs has become a relationship that both Program Offices value. As the joint program has matured, it has become evident that a definition of joint operating principles would be useful for all staff. The intent of this memo is to clarify this relationship and the operation of this joint program.

The overarching goal of both ONMS and NCCOS is to effectively manage NOAA's National Marine Sanctuaries using the best available science. The measure of success is determined by the goals of the National Marine Sanctuary Act and the individual sanctuary management plans. ONMS is presently reviewing sanctuary management plans to ensure that clearly definable goals and measures are contained within each plan. Based upon each revised plan, a scientific program to support these goals and measures will be developed and/or updated. It is NCCOS goal to work with ONMS to help refine this scientific program, implement it, evaluate the effectiveness of the resulting science, and to provide recommendations on the consequences to sanctuary resources and management goals, based upon the scientific activities conducted in the sanctuary.

Meeting the joint scientific goals will be through financial contributions of both NCCOS and ONMS, as well as other funding mechanisms developed through partnerships. NCCOS' role is to conduct scientific research directly addressing sanctuary management's needs, to conduct anticipatory science or technology development that will benefit the sanctuary program, and to provide technical assistance to sanctuary managers on an as needed basis to address unforeseen issues.

**Priorities:** The general priorities of work for the next five years will focus on 1) characterization of sanctuary resources, in the context of each sanctuary management plan; 2) monitoring the changes in sanctuary resources; 3) conducting anticipatory science, and 4) addressing specialized topics that may be identified by ONMS and NCCOS management. The primary emphasis in the next five years, however, is on characterizing all sanctuaries and developing monitoring programs that support the

sanctuary management goals. NCCOS will work with ONMS scientists to complement existing activities in these areas since some sanctuaries have ongoing programs. When requested, NCCOS scientists will assist in developing standards, guidance documents, or other protocols that will help in comparability of data and approaches among sanctuaries. Specific priorities for each sanctuary are defined in the “Science Evaluation for the National Marine Sanctuary Program” (2002). These needs will be updated annually by ONMS, based upon discussions with ONMS sanctuary managers, discussions with NCCOS managers and researchers.

Characterization: Within five years, ONMS and NCCOS want all sanctuaries’ resources to be described so that significant changes can be detected. Resources characterized must be selected so that future determinations can be made as to whether the sanctuary goals are being met.

Monitoring: Within five years, all sanctuaries will have monitoring programs that can detect change and provide the basis for predicting consequences and for evaluating the significance to the resource and sanctuary ecosystem if no management action is taken.

Anticipatory Science: A limited effort will be spent on developing new technologies/techniques for monitoring the health of marine systems. In addition, some effort will be spent in beginning to build forecasting capabilities that can predict the consequences of different threats to sanctuary resources and provide the framework for evaluating alternative management actions.

These three categories of research will be the primary focus of the NCCOS/ONMS effort.

Special Projects: In some cases, special projects may arise which demand immediate attention or which hold great promise for solving specific sanctuary issues. These scientific needs will be addressed on a case by case basis. If they involve NCCOS scientists and the funding requirement exceeds \$50K, the decision will be made by the Office Directors.

### **Coordination:**

#### Work Coordination:

Overall coordination for the ONMS/NCCOS partnership is the responsibility of Dr. Steve Gittings (ONMS/HQ) and Dr. Mark Fonseca (NCCOS/Beaufort). Each of them is responsible for coordinating their Program Office’s activities to ensure that needs of each Office is being met in a timely and efficient manner. It is their responsibility to propose annual guidance, based upon sanctuary managers, NCCOS PI inputs, and discussions with ONMS/NCCOS management. They are to develop and implement a proposal process that includes a proposal evaluation system that fosters high quality, relevant science. They are responsible for overseeing the implementation of the scientific projects and reporting to management the progress these joint projects. They are to set up a coordinating mechanism(s) that will foster close working relationships among the scientists to effect high quality, relevant science that improves the ability of the sanctuary

managers to carry out each sanctuary's management goals. They are also to set up evaluation mechanisms to assess the effectiveness of the scientific findings in meeting managers' needs and to work with managers and P.I.s to re-direct efforts when necessary. These reviews will address scientific quality, support at both the sanctuary and national level, and efficiency and consistency in approach.

NCCOS/sanctuary coordination will be augmented through the designation of NCCOS P.I.s for each sanctuary whose responsibility is to know in great detail the issues, both scientific and policy, facing the sanctuary. This NCCOS scientist will work with the sanctuary lead scientist to develop and refine scientific measures that will meet the sanctuary's management needs, determine the significance of change in sanctuary resources, and provide general scientific advice to the sanctuary manager. The intent is to augment the scientific capability at each sanctuary and strengthen NCCOS' understanding of the ONMS mission. A list of these contacts by sanctuary will follow.

NCCOS PIs will also be expected to participate in the annual sanctuary managers meetings, as well as other topic specific meetings, as requested. Similarly, sanctuary managers or scientists will participate in research coordination, planning, or findings meetings, as appropriate.

**Reporting:** ONMS will produce a report at the beginning of each fiscal year summarizing the activities to be conducted during the coming year between NCCOS and ONMS. NCCOS will produce a report at the end of each fiscal year summarizing the scientific results in the context of the management objectives of each sanctuary and the national program. The responsibility for the preparation of each report is that of Steve Gittings and Mark Fonseca, respectively. In addition, each project lead will prepare quarterly reports of their activities.

Formal reporting on the scientific activities in each sanctuary will be through the ONMS scientist and the NCCOS sanctuary lead. This designation is not to prohibit other coordination among individual P.I.'s and sanctuary personnel; rather it is meant to ensure that one person from ONMS and from NCCOS are aware of all significant scientific activities at a sanctuary so that they can accurately represent concerns, issues, successes, etc. These individual sanctuary contacts are responsible for keeping Steve Gittings and Mark Fonseca aware of project status, issues, etc., and to provide them with their quarterly reports on each project. If a project covers several sanctuaries, the project lead will provide quarterly reports to Steve, Mark and the appropriate sanctuary NCCOS and ONMS contact.

Please review this memo and identify any issues that have not been addressed, that are not clear, or which you feel is unworkable, and provide comments to us by May 17 (?).

## APPENDIX C

### NCCOS LTA liaison responsibilities

NCCOS liaisons to each NMS site are in general responsible for the activities listed below as modified from the LTA memo of Sept., 2002. These responsibilities are dynamic and adapt to meet evolving LTA needs and requirements.

1. Being knowledgeable of science activities and capabilities of NCCOS.
2. Being knowledgeable of site's science efforts as well as science and management needs (i.e. the Sanctuary Management Plan).
3. Tracking science efforts of sanctuaries and NCCOS related to the sanctuary (ies) for which they are responsible
4. Identifying and assessing areas for potential collaboration between NCCOS and ONMS
5. With the support of ONMS representative(s), producing a yearly report (from existing and new materials) containing information pertinent to sanctuary sites in order to recommend future collaborative efforts on new or existing projects.  
These reports might include:
  - science activities and capabilities of NCCOS;
  - current science efforts in sanctuaries beyond NCCOS work (summary)
  - scientific requirements translated from sanctuary management plans;
  - areas of overlap between NCCOS and ONMS efforts, if existing, or areas where greater efficiencies could be made;
  - research gaps; and
7. Where appropriate, work with ONMS representative(s) and staff through meetings and/or conference calls to investigate funding and partnership options (monetary and in kind) and assist in developing proposals for future years of the ONMS/NCCOS collaboration. When feasible, liaisons should travel to sanctuaries to participate in or observe research or monitoring activities.



## APPENDIX D

### LTA-RFP process

One of the primary products of the research process was the formal institution of a competitive, peer-review process for the selection of projects to be funded under the \$800K allocation from ONMS to NCCOS. The use of the internal, competitive RFP process integrates ONMS priorities with NCCOS capabilities ensuring proper identification and action on relevant research gaps and needs.

Starting with the joint release of a guidance memorandum by the NMS and NCCOS Office Directors in September '03 significant progress was made in organizing the Long-Term LTA. Ongoing interaction between the Program Coordinators, with input from all quarters, resulted in the generation of a timeline under which the whole process revolves on an annual basis and includes reporting and planning schedules, presentation of the LTA structure to the Research Coordinator retreat, the creation of NCCOS Liaisons to each sanctuary, unified quarterly and annual reporting of current research in common formats, and the creation and implementation of an internal RFP process.

With respect to the RFP, the Partnership Priorities under the RFP focused on:

- 1) Characterization of sanctuary resources in the context of each sanctuary management plan;
- 2) Monitoring the changes in sanctuary resources, particularly in response to management decisions,
- 3) Conducting anticipatory science, and
- 4) Addressing specialized topics that may be identified by ONMS and NCCOS management as particularly timely or promising.

The RFP also stated, "Starting in FY04 our additional research priority for NCCOS Partnership Projects will be projects that can both utilize and contribute to biogeographic assessments, especially as they contribute to the refugee concept. This is an important and unique opportunity. Much of what we do can be scaled up and amplified through the use of spatially articulated data layers that act as independent, explanatory variables otherwise employed in statistical evaluation of our data. The hope is that through utilization of the spatially articulated data compiled through biogeography we can provide the various sanctuary sites with more comprehensive products whenever possible."

The request for proposals closed on April 30, 2003 after being advertised within NCCOS for ~30 days. Thirty-five proposals were submitted by three NCCOS centers, for a total request of \$2,572,112 in FY04. Under the RFP, proposals could be submitted requesting a second year of consideration. Eighteen of the 35 proposals (51%) requested continuation into FY05 totaling \$1,778,034. NCCOS scientists, not counting salaries and associated overhead, in-kind services, or designated travel for Liaisons, brought another \$633,000 of leveraged funds to augment the FY04 request. With these other

contributions, the NCCOS commitment to this work is considerably greater than this amount.

On May 20, 2003, Jean Snider, Charly Alexander, Steve Gittings and Mark Fonseca met to review the proposals. As stipulated in the RFP, only proposals submitted through the sites' Research Coordinators and in consultation with the NCCOS Liaison to the site were considered so as to ensure coordination between the two organizations. Several criteria were utilized in our assessment of project priorities:

- 1) Applicability to the biogeographic / refugia concept;
- 2) Support of the sites' Management plans, including RC rating and support of unique site needs;
- 3) Commitment to ongoing projects to ensure completion of relevant science;
- 4) Geographic representation of work, including proposals for work at sites not previously serviced by NCCOS; and
- 5) Outside support.

The RC and this review panel found the proposed work to be on-target and rigorous. In fact, most RC reported a great deal of difficulty in choosing among excellent proposals in the generation of their ranking.

In addition, in trying to fit the proposals into the \$800K limit, the review panel recommended minor adjustments to some proposal budgets instituted a sequenced implementation strategy (i.e., delay implementation of some proposals until FY05) in order to accommodate and plan for high priority research topics. Two of the projects delayed until FY05 include biogeography studies (Olympic Coast and Fagatele Bay), which remains consistent with completing biogeography characterizations within the prescribed five year period.

## APPENDIX D FY05 project descriptions

### 1. A Biogeographic Assessment of the Stellwagen Bank National Marine Sanctuary

Objectives: The goal of the SBNMS/NCCOS partnership is to provide sanctuary management with the best available science on the biogeography of the site. The resulting biogeographic characterization will provide the foundation for decision making, monitoring long-term changes in the sanctuary, and for assessing the consequences of any new management protocols. These goals will be achieved through the following four objectives: 1) fully develop SBNMS/NCCOS.

FY03 collaborations focused on analysis of (bio) geographic distributions of fishing vessels, juvenile fishes and seabirds within the sanctuary, and the development of a website for the rapid dissemination of scientific information about the sanctuary; 2) identify biological and physical data sets that can be used to augment existing sanctuary data for a comprehensive biogeographic assessment in a GIS environment; 3) identify spatially and temporally important ecological areas within the sanctuary based on data analyses carried out under objective 2; 4) model the physical and biological dependencies that may explain the temporal and spatial dynamics of the ecosystem represented within the sanctuary. The results of our effort on these four objectives will provided new scientific information that can be used to address issues related to zoning, living marine resources, fishing /exploitation effects, and wildlife disturbance. Each of these areas identified in the Sanctuary Science: Evaluation of Status and Information Needs as in need of further research (Gittings et al., 2002). PI: [tim.battista@noaa.gov](mailto:tim.battista@noaa.gov)  
\*not yet designated as a National Marine Sanctuary .

### 2. Biogeographic Assessment of the Channel Islands National Marine Sanctuary and Surrounding Areas: A Review of Boundary Expansion Alternatives for NOAA's National Marine Sanctuary Program

Objectives: Continue a partnership project initiated in FY03 (see attached work plan) between NOS' Center for Coastal Monitoring & Assessment (CCMA) and the Channel Islands National Marine Sanctuary (CINMS) to conduct a biogeographic assessment of the marine region surrounding the sanctuary. Specific project objectives include: 1) Identification and collection of relevant biological and physical data sets in the study area necessary to conduct biogeographic analyses within a Geographic Information System (GIS) environment; 2) A marine biogeographic analysis of available data to identify ecologically significant regions and time periods, based on species distributions, abundance, associated habitats, and their ecological function, and to produce a summary assessment report of the GIS analyses and results; 3) Evaluation of boundary alternatives in the context of biogeographic patterns observed in the seascape (see item 2 above); 4) Support development of a GIS capability/tool to assist sanctuary staff in developing and evaluating resource analysis scenarios; and 5) Support National Marine Sanctuaries Program (ONMS) staff's integration of biogeographic assessment products into revisions of the sanctuary management plan and supplemental EIS on boundary change.

PI: [john.christensen@noaa.gov](mailto:john.christensen@noaa.gov)

3. Analysis of sources of primary production supporting the apex predator-dominated ecosystem in the Northwest Hawaiian Island Coral Reef Ecosystem Reserve

Objectives: a) Determine the role of benthic and planktonic primary production in supporting secondary production of apex predators in the NWHI reserve. b) Assess vertical trophic linkages between primary producers and consumers, and horizontal trophic linkages between the reef environment, the adjacent shallow seafloor, and deep-water fishes. c) Obtain estimates of benthic microalgal and phytoplankton biomass from the reef, surrounding sediments, and water column of the Northwest Hawaiian Islands. d) Obtain taxonomic description of dominant microphytobenthos in NWHI shallow sediments, to contribute to biodiversity assessment. e) Provide data on distribution and abundance of primary producers and food web structure in a GIS-compatible format for integration into biogeographic and ecosystem function models.

PI: [Carolyn.currin@noaa.gov](mailto:Carolyn.currin@noaa.gov)

4. Characterization of the Tortugas Ecological Reserve: Establishment of a Baseline and Measurement of the Effect of Establishment of the Reserve:

Objectives: a) Complete the biogeographic characterization of the benthic habitats in the extreme depths of the Tortugas South reserve; b) Continue our long-term, diver-based surveys of community changes in response to refugia status - evaluate need for continued sampling; c) Complete the current food web (stable isotope) analysis of TER north; d) Complete comparative analysis of various habitat survey methods; e) Complete assessment of pink shrimp recovery following release of gear impacts and trawling efforts in TER north. f) Modified effort: perform sonar-based assessments of fish movement between the reef and adjacent, non-coral habitats. g) New effort: population genetic evaluation of the Tortugas Ecological Reserve as a source of larval recruits for Florida Keys and mainland Florida populations of the hogfish, *Lachnolaimus maximus*, including a preliminary characterization of reproductive output and habitat utilization.

PI: [mark.fonseca@Noaa.gov](mailto:mark.fonseca@Noaa.gov)

5. Characterization and Ecological Monitoring at GRNMS

Objectives: At larger-scales, what are the source regions providing recruitment to GRNMS and what are the supply regions receiving recruitment from GRNMS? At smaller scales, what are the trophic relationships between reef fish inhabiting GRNMS and primary and secondary production in the surrounding ecosystem?

PI: [jon.hare@noaa.gov](mailto:jon.hare@noaa.gov)

6. Gray's Reef National Marine Sanctuary Habitat Mapping and Fish Habitat Utilization Studies

Objectives: NOS's Gray's Reef National Marine Sanctuary (GRNMS) and the Center for Coastal Monitoring & Assessment (CCMA) have recently completed fine-scale benthic maps of the sanctuary. Now that a resolved baseline assessment of the bottom types in the sanctuary is available, we propose to build on that activity and meet additional sanctuary objectives. The fine-scale benthic maps were designed in part to provide a spatial framework to enable characterization and quantification of benthic fish communities within the sanctuary. Establishing a comprehensive characterization of both

the habitats (now complete) and their associated biota (proposed) is critical to sanctuary inventory and management activities. The development of this resource assessment meets the actions requested by the ONMS as outlined in the Biogeographic Assessment Plan developed in February 2003. Specific project objectives include: 1) aide in strata design sampling strategy for comprehensive ichthyofaunal characterizations in the sanctuary based on the April 23-25 monitoring workshop; and 2) characterize the benthic fish communities. PI: [matt.kendall@noaa.gov](mailto:matt.kendall@noaa.gov)

7. Ecological Characterization of Seagrass-Porites Coral Banks in the Florida Keys National Marine Sanctuary

Objectives: a). Determine the species composition and standing stock of fishery populations in the coral-seagrass bank channels of the middle and lower keys regions. b) Characterize benthic invertebrate and plant communities from a stratified random sample of the bank channels in the middle and lower keys regions. c) Revise the existing benthic habitat maps for the FKNMS to include the coral-seagrass bank channel systems using in situ surveys and aerial photography. d) Establish a baseline of human impacts on these habitats and develop an integrated assessment to forecast the effects of vessel traffic and restoration of water flow in Florida Bay on coral-seagrass bank tidal pass systems.

PI: [jud.kenworthy@noaa.gov](mailto:jud.kenworthy@noaa.gov)

**APPENDIX E**  
FY 06/07 LTA RFP

**REQUEST FOR NCCOS SCIENTISTS TO CONDUCT RESEARCH  
UNDER THE ONMS/NCCOS LONG-TERM AGREEMENT:  
FY06-07**

**Background**

The partnership between the Office of National Marine Sanctuaries and NCCOS was defined by Dr. Nancy Foster in 1999, and the interaction between the two programs has become a relationship that both Program Offices value highly. The overarching goal of both ONMS and NCCOS is to effectively manage NOAA's National Marine Sanctuaries using the best available science. Success is achieved by meeting the goals of the National Marine Sanctuary Act and the individual sanctuary management plans, and by making progress toward defined performance measure and strategic milestones. NCCOS is working closely with ONMS to help support science-based management by providing targeted research in the implementation of management goals. Working with ONMS staff, NCCOS will help develop a set of scientific requirements that support the management goals, define hypotheses and research actions to meet the requirements, implement the research, evaluate the effectiveness of the research activities in supporting these requirements, and provide recommendations regarding the consequences of management actions on sanctuary resources and management goals.

Meeting the joint scientific requirements will be through financial contributions of both organizations, as well as other funding mechanisms developed through partnerships. NCCOS' role is to conduct scientific research directly addressing sanctuary management's needs, to conduct anticipatory science or technology development that will benefit the ONMS program, and to provide technical assistance to sanctuary managers and staff on an as-needed basis in order to most effectively implement findings and address unforeseen issues.

*General Priorities*

The following three general categories of conservation science are the primary focus of the NCCOS/ONMS effort:

Characterization: ONMS and NCCOS recognize the need to identify and describe the resources of all sanctuaries so that significant changes can be detected. In some cases, resources that are selected must be characterized so as to allow hypotheses to be tested regarding the source of those changes and to determine whether ONMS goals are being met. The programs have set the goal to complete site characterizations by 2008.

Monitoring: Within five years, all sanctuaries will have monitoring programs that can detect change in the status of selected resources, in certain cases at a scale that provides the basis for testing hypotheses and predicting consequences of those changes to sanctuary ecosystems under both management action and inaction. Application of forecasting techniques and technology that utilize this monitoring information will be emphasized.

Anticipatory Science: A limited, but consistent effort will be made to develop and test new technologies and techniques for monitoring the health of marine systems.

Special Topics: Addressing specialized topics that may be identified by ONMS and NCCOS management as particularly timely or promising.

The priorities for the next two years (06-07) are:

- 1) **Characterizing** sanctuary resources and the ecosystems in which they reside, with an emphasis on biogeographic assessments, in the context of sanctuary management plans and future site designation;
- 2) **Observing and monitoring** changes in sanctuary resources, particularly in response to management decisions (e.g., the establishment of special protection zones, such as marine reserves), but also in terms of developing purposeful regional observing systems.

Specific priorities for each sanctuary are defined in the report “Sanctuary Science: Evaluation of Status and Information Need” (2002).

[http://sanctuaries.nos.noaa.gov/library/national/science\\_eval.pdf](http://sanctuaries.nos.noaa.gov/library/national/science_eval.pdf)

Information is also available in the document “Information Needs for Conservation Science and Management of the Northwestern Hawaiian Islands: a product of the I Ke Āmio O Nā Wa`a Workshop” (2004; see “Special Offerings” section of the ONMS website: <http://www.sanctuaries.nos.noaa.gov/>). Other information may be available on individual sanctuary websites.

#### *Specific Priority Areas of Research for the current RFP (FY06 – FY07)*

This RFP is being implemented so as to unify Partnership Projects under a common, efficient process. Parts of the Partnership are already defined. In particular, the number one priority through 2008 will be the biogeographic characterization of all the sanctuaries, which will continue to be led by the Biogeography Team at NCCOS’s Center for Coastal Monitoring and Assessment. One of the primary reasons for this characterization is to improve our understanding of how protected areas, using sanctuary sites as models, function as refugia for managed resources.

#### *Project Submission and Who May Apply*

All projects must be submitted through the following process for support in FY 06-07. Development of research proposals, including any currently funded projects that will be resubmitting, must be done in coordination and discussion with the Research Coordinator at the target Site(s) and their NCCOS Liaison (Table 1), using the attached Template (Proposal\_Template.doc or .pdf). NCCOS PI should initiate contact with the Liaison as soon as possible. ***Individual project submissions should not exceed five pages; line spacing should be 1.5 lines or greater and font Times New Roman, 12pt. Accepted format is MSWord.***

The RCs, working with the Liaisons and PIs, are requested to submit a single document for each site that includes the research proposals submitted by NCCOS PI, in priority order, when possible. Only these submissions, coordinated with the RC and Liaison, will be considered in the project selection process that follows.

NCCOS scientists are encouraged to create partnerships with other NCCOS and non-NCCOS scientists to develop proposals. Funding for non-NCCOS scientists must be administered through the NCCOS Center where the NCCOS PI resides. Projects will be funded for a maximum of two years.

### *Criteria for Evaluation*

The evaluation of all projects hinges on how well proposals meets the Partnership Priorities described above, a site's management plan, and the Science Needs and Evaluation document. Linkage of products and hypotheses to NMS needs and the NCCOS mission should be clearly identified. When appropriate, specific details of how projects integrate (such as through timing of activities and data exchange) should be indicated. Projects that are augmented by funds from the sites themselves, or successfully leverage other funding also will receive high consideration.

### *Timeline*

The NCCOS Program Coordinator must receive project submissions from sanctuary sites **by close of business, Friday, August 26, 2005:**

Dr. Mark S. Fonseca

NOAA , National Ocean Service

National Centers for Coastal Ocean Science

Center for Coastal Fisheries and Habitat Research

101 Pivers Island Rd

Beaufort, NC 28516-9722

(252) 728 8729 office

(252) 728 8784 fax

[mark.fonseca@noaa.gov](mailto:mark.fonseca@noaa.gov)

Project submissions received (postmarked) after this time will not be considered. Submissions will be acknowledged only if a specific request for confirmation is made.

The Program Coordinators (Dr. Steve Gittings, ONMS; Dr. Mark Fonseca, NCCOS) will compile the prioritized submissions from the sanctuary sites and, together with their recommendations and those of an internal review group, will submit a spending plan to the Office Directors for their evaluation and approval by September 16, 2005. The Office Directors will in turn notify the Program Coordinators of their preliminary funding decision by September 30, 2005 (note that final allocations will depend on FY05 program funds). The Program Coordinators will pass these notifications to the NCCOS PI and reconcile any differences in approved versus requested funding. Projects will begin with the new FY, pending availability of the Federal Budget and submission of an approved Spending Plan by the PI.

### *Reporting Requirements*

Annual reports will be submitted by PI to the Program Coordinators one year from the time funding is received. In addition, the Annual Report will also be peer-reviewed, using criteria appropriate to the product; this is the responsibility of the Program Coordinators. The results of this review will determine continuation of funding. Participation in coordination meetings and possible presentation at the sanctuary research coordinator's annual workshop should be included in the budget submission.



## Liaison and Research Coordinator Contacts for the ONMS–NCCOS Long-Term Partnership

Sanctuary Site	Research Coordinator	RC email	RC phone	NCCOS Liaison	NCCOS email	NCCOS phone
Channel Islands NMS	Sarah Fangman	<a href="mailto:sarah.fangman@noaa.gov">sarah.fangman@noaa.gov</a>	805-844-1473	Mark Monaco	<a href="mailto:mark.monaco@noaa.gov">mark.monaco@noaa.gov</a>	301-713-3028 x160
Cordell Bank NMS	Jan Roletto	<a href="mailto:jan.roletto@noaa.gov">jan.roletto@noaa.gov</a>	415-561-6622 x207	Tracy Gill	<a href="mailto:tracy.gill@noaa.gov">tracy.gill@noaa.gov</a>	301-713-3028 x150
Fagatele Bay NMS	Nancy Daschbach	<a href="mailto:nancy.daschbach@noaa.gov">nancy.daschbach@noaa.gov</a>	684-633-7354	Mark Monaco	<a href="mailto:mark.monaco@noaa.gov">mark.monaco@noaa.gov</a>	301-713-3028 x160
Florida Keys NMS	Brian Keller	<a href="mailto:brian.keller@noaa.gov">brian.keller@noaa.gov</a>	305-743-2437 x25	Jud Kenworthy	<a href="mailto:jud.kenworthy@noaa.gov">jud.kenworthy@noaa.gov</a>	252-728-8750
Flower Garden Banks NMS	Emma Hickerson	<a href="mailto:emma.hickerson@noaa.gov">emma.hickerson@noaa.gov</a>	979-846-5942	Cheryl Woodley	<a href="mailto:cheryl.woodley@noaa.gov">cheryl.woodley@noaa.gov</a>	843-762-8862
Gray's Reef NMS	Greg McFall	<a href="mailto:greg.mcfall@noaa.gov">greg.mcfall@noaa.gov</a>	912-598-2416	Jeff Hyland	<a href="mailto:jeff.hyland@noaa.gov">jeff.hyland@noaa.gov</a>	843-762-8652
Gulf of the Farallones NMS	Jan Roletto	<a href="mailto:jan.roletto@noaa.gov">jan.roletto@noaa.gov</a>	415-561-6622 x207	Tracy Gill	<a href="mailto:tracy.gill@noaa.gov">tracy.gill@noaa.gov</a>	301-713-3028 x150
Hawaiian Islands Humpback Whale NMS	David Mattila	<a href="mailto:david.mattila@noaa.gov">david.mattila@noaa.gov</a>	808-879-2818	Alan Friedlander	<a href="mailto:afriedlander@oceanicinstitute.org">afriedlander@oceanicinstitute.org</a>	808-259-3165
Monitor NMS	John Broadwater	<a href="mailto:john.broadwater@noaa.gov">john.broadwater@noaa.gov</a>	757-599-3122	Mark Fonseca	<a href="mailto:mark.fonseca@noaa.gov">mark.fonseca@noaa.gov</a>	252-728-8729
Monterey Bay NMS	Andrew DeVogelaere	<a href="mailto:andrew.devogelaere@noaa.gov">andrew.devogelaere@noaa.gov</a>	831-647-4213	Jawed Hameedi	<a href="mailto:jawed.hameedi@noaa.gov">jawed.hameedi@noaa.gov</a>	301-713-3028 x170
NW Hawaiian Islands CRER	Randy Kosaki	<a href="mailto:randall.kosaki@noaa.gov">randall.kosaki@noaa.gov</a>	808-933-8184	Mark Monaco	<a href="mailto:mark.monaco@noaa.gov">mark.monaco@noaa.gov</a>	301-713-3028 x160
Olympic Coast NMS	Ed Bowlby	<a href="mailto:ed.bowlby@noaa.gov">ed.bowlby@noaa.gov</a>	360-457-6622 x17	Jeff Hyland	<a href="mailto:jeff.hyland@noaa.gov">jeff.hyland@noaa.gov</a>	843-762-8652
Stellwagen Bank NMS	Dave Wiley	<a href="mailto:david.wiley@noaa.gov">david.wiley@noaa.gov</a>	781-545-8026 x211	Tim Battista	<a href="mailto:tim.battista@noaa.gov">tim.battista@noaa.gov</a>	301-713-3028 x171
Thunder Bay NMS	Wayne Lusardi	<a href="mailto:wayne.lusardi@noaa.gov">wayne.lusardi@noaa.gov</a>	989-356-8805 x11	Mark Fonseca	<a href="mailto:mark.fonseca@noaa.gov">mark.fonseca@noaa.gov</a>	252-728-8729

**ONMS/NCCOS LONG-TERM AGREEMENT  
PROPOSAL SUBMISSION TEMPLATE: FY 06-07**

- 1) Title:**
- 2) Objectives:**
- 3) Background/Work Underway:**
- 4) Statement of Work for (by objective, if appropriate):**
- 5) Schedule:**
  - Field Work (cruises, dates, vessels, partner coordination)
  - Other (e.g. workshops and conferences with dates)
- 6) Products / Deliverables (besides annual report: e.g., reports, services, equipment, and target dates):**
- 7) Resources:**
  - Personnel Involved (name, affiliation, role)
  - Equipment (type, responsible party)
  - Contracts (type)

**8) Budget Summary :**

**FY 06 Budget Breakdown**

Partner1 <sup>a</sup>	Partner 2	Partner 3(etc)
Salaries/Benefits		
Supplies		
Equipment		
Travel		
Contracts <sup>b</sup>		
TOTAL		

<sup>a</sup> NCCOS Center is typically Partner 1

<sup>b</sup> Contracts for services (e.g., ORISE, CASU) should not include any of the other categories listed.

**FY 07 Budget Breakdown (if applicable)**

Partner1 <sup>a</sup>	Partner 2	Partner 3(etc)
Salaries/Benefits		
Supplies		
Equipment		
Travel		
Contracts <sup>b</sup>		
TOTAL		

<sup>a</sup> NCCOS Center is typically Partner 1

<sup>b</sup> Contracts for services (e.g., ORISE, CASU) should not include any of the other categories listed.

**9) Other related projects being conducted in a sanctuary (link to Item 3 as appropriate):**

Brief description (goals, hypotheses, timeline)

Funding (source and amount)

**10) Out-Year Activities (e.g., for a two year project, summary of FY07):**

11) NCCOS Principal Contact(s) (name, affiliation, email, phone, fax):