

North Pacific Research Board: 2011 Request for Proposals

INTRODUCTION

The North Pacific Research Board (NPRB) was created by Congress in 1997 to recommend marine research activities to the Secretary of Commerce, funded through a competitive grant program using part of the interest earned from the Environmental Improvement and Restoration Fund. These funds must be used to conduct research activities on, or relating to, the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean (including any lesser related bodies of water). NPRB must strive to avoid duplicating other research activities and must place priority on research designed to address pressing fishery management or marine ecosystem information needs. The Board's longterm vision is to build a clear understanding of the marine ecosystems off Alaska that enables effective management and sustainable use of marine resources.

The Board, guided by its [Science Plan](#), has funded 252 projects totaling \$41.5 million as a result of nine requests for proposals released since early 2002. Descriptions of the projects can be found at <http://project.nprb.org/> and fall into seven broad categories as shown in Table 1.

Table 1. NPRB-supported research initiated in 2002-2010.

<u>Categories of Research</u>	<u>Projects</u>	<u>Total Funding</u>	<u>Percent</u>
Lower Trophic Level Productivity	44	\$6,761,927	16
Fish and Invertebrates	96	\$17,684,714	42
Fish Habitat	16	\$3,781,642	9
Marine Mammals	40	\$6,458,723	16
Seabirds	22	\$3,954,319	10
Humans	20	\$1,603,508	4
Other Prominent Issues	14	\$1,309,920	3

In addition, the Board funded a \$16 million Bering Sea Integrated Ecosystem Research Program (BSIERP), which, in collaboration with NSF (Bering Ecosystem Study - BEST), started in late 2007 (see <http://bsierp.nprb.org/>), and has initiated a \$9 million IERP for the Gulf of Alaska (see <http://goaierp.nprb.org/>).

This notice constitutes the regular 2011 Request for Proposals (RFP) for projects commencing in 2011. Although the main section of the RFP is similar in form and content to past NPRB requests for proposals, with research priorities structured around the 2005 Science Plan, there are three new features: (1) we are introducing a Focus Section which will highlight pressing research needs for fisheries management or ecosystem understanding. The Focus Topic is expected to vary between RFPs and this section may not be in the RFP every year (see Table 2 and page 15), (2) funding for collaboration with other organizations has been folded into the regular RFP categories (see page 11), and (3) we are implementing a cyclical approach for certain research categories (see page 2).

Cyclical Request for Proposals

The amount of funds available to the RFP has decreased over the last several years. At the same time, in an attempt to address an increasing number of research needs, the number of research priorities and sub-categories has increased. The outcome has been an overall reduction in funding amount to any one category, resulting in reduced scopes of work per individual project. While reduced scopes of work are not necessarily problematic, the Board is concerned that larger research priorities may go unaddressed due to insufficient project funding levels. Therefore, to ensure that sufficient funds are available to properly address the research priorities described, the Board has decided to implement a cyclical approach, whereby some research priorities are not present in the RFP every year and others are not funded at the same level every year. Specially, this cyclical nature applies to items under the general ecosystem components (with the exception of humans), to data rescue, and to the focus sections (see Table 2). The Fish Habitat section is not present in 2011 but will be back in 2012 as its own section or under Fish and Invertebrates. Topics not present in 2011 will return in 2012 at levels higher than those possible if present annually.

Table 2. Distribution of funds over the two-year 2011 and 2012 RFP cycle. Note that funding amounts for 2012 are preliminary and may vary based on actual funding availability and research priorities defined by the Board.

	2011 Cycle	2012 Cycle
1. General Research Priorities on Ecosystem Components	\$2,300,000	\$2,700,000
a. Oceanography and Lower Trophic Level Productivity	\$500,000	\$200,000
b. Fish and Invertebrates (<i>\$400K proposal cap</i>)	\$800,000	\$1,300,000
c. Marine Mammals	\$800,000	\$200,000
d. Seabirds	\$0	\$500,000
e. Humans	\$200,000	\$200,000
f. Other prominent issues	\$0	\$300,000
2. LTK and Community Involvement	\$200,000	\$200,000
3. Collaboration with Other Organizations	included	tbd
4. Cooperative Research with Industry	\$400,000	\$400,000
5. Technology Development	\$200,000	\$200,000
6. Data Rescue	\$50,000	\$100,000
FOCUS SECTION		
Arctic Focus	\$400,000	tbd
TOTAL	\$3,550,000	\$3,600,000*

* Specific category target amounts and total RFP funds may vary from those shown

As a first implementation, the Board has decided on a two year cycle. The specific funds available for categories in the 2012 cycle will be determined by the Board during its fall 2011 meeting, and then the overall cyclical approach will be reevaluated in the fall of 2012 in preparation for the 2013 RFP.

This current announcement calls for **full proposals due December 10, 2010**. Table 3 summarizes the detailed research priorities and funding targets for the 2011 RFP. Explanation of the research priorities begins on page 5.

2011 Request for Proposals: Research Priorities (Total: \$3.55 million)

PLEASE CAREFULLY READ THE EXPLANATORY PARAGRAPHS (STARTING ON P.5) FOR THE RESEARCH PRIORITIES SUMMARIZED BELOW AND BE AWARE THAT ALL SECTIONS HAVE FIRM LIMITS ON THE INDIVIDUAL PROPOSAL FUNDING AMOUNTS. LIMITS NOTED ARE THE OVERALL CATEGORY AMOUNTS UNLESS OTHERWISE NOTED IN THE TEXT. PROPOSALS EXCEEDING THOSE LIMITS WILL NOT BE PROCESSED. AMOUNTS ARE FOR THE ENTIRE STUDY, NOT PER YEAR.

Table 3. 2011 RFP for Regular Research Priorities with target amounts totaling \$3.55 million.

1. General Research Priorities on Ecosystem Components	\$2,300,000
a. Oceanography and Lower Trophic Level Productivity	\$500,000
i. Biotic and abiotic features driving ecosystem processes	
ii. The role of iron in GOA productivity and ecosystem structure	
b. Fish and Invertebrates (\$400K proposal cap)	\$800,000
i. Non-target species management	
ii. Stock assessment support	
iii. Impact of early life body condition on recruitment strength	
iv. Fish and Shellfish movement	
v. Pacific salmon	
vi. Forage species	
vii. Ocean acidification impacts on fish	
viii. Early life history of demersal marine fishery targets	
ix. Other fish and invertebrate research	
c. Marine Mammals	\$800,000
i. Declining, depleted or ESA listed populations (\$100K proposal cap)	
ii. Steller sea lions	
d. Humans	\$200,000
i. Social and economic studies of bycatch and bycatch mitigation	
ii. Pre- and post-implementation studies of management actions	
iii. Community adaptability to ecosystem change, market impacts and management regime changes	
iv. Cost-benefits of fishery enforcement services	
2. LTK and Community Involvement	\$200,000
3. Collaboration with Other Organizations	included
Oil Spill Recovery Institute	
Rockfish and lingcod movement	
Oil spill research in Arctic and subarctic marine ecosystems	
Data Rescue	
4. Cooperative Research with Industry	\$400,000
<i>i. Fishing Industry</i>	
1. Gear modification	
2. Handling mortality	
3. Fishery monitoring	
4. Ecosystem Observations and Research	

<i>ii. O&G Industry</i>	
1. Species of special concern	
2. Monitoring from platforms in the Arctic	
3. Oil spill research in Arctic and subarctic marine ecosystems	
5. Technology Development	\$200,000
i. Molecular and laboratory-based technology development	
ii. Marine measurement technology development	
iii. Resource assessment technology development	
6. Data Rescue	\$50,000
FOCUS SECTION	
Arctic Focus	\$400,000
Arctic fish stocks and habitat with a special emphasis on arctic cod	
TOTAL	\$3,550,000

Request for Proposals for 2011**1. General Research Priorities on Ecosystems Components \$2,300,000**

Please consult the NPRB Science Plan for clarification of appropriate research to be conducted under each heading. **Care should be taken to consult current and past NPRB-funded projects (<http://project.nprb.org/>) including components under the BEST-BSIERP and GOAIERP programs, and to show awareness of other related ongoing projects to avoid overlap and create synergies wherever possible.**

a. Oceanography and lower trophic level productivity \$500,000

The NPRB expects to fund projects focused on the topical areas listed below.

i. Biotic and abiotic features driving ecosystem processes

Ocean fronts, eddies and predictable retention zones are important physical features in marine ecosystems that will likely be affected by changes in ocean conditions, but play a critical role in the distribution and abundance of upper trophic level species. The NPRB is interested in research that examines the processes that drive and maintain primary and secondary production from one year to the next, as well as those examining ecosystem implications resulting from changes in these processes (e.g. changes in albedo, loss in the dominant species of *Calanus*). In the Bering Sea, for example, investigations have shown that reduced frequency and intensity of summer storms reduce surface mixing and increase sea surface temperature, thereby increasing stratification. This results in a mixed layer that is shallower than the euphotic zone, and leads to extensive subsurface primary production and depletion of nutrients in the entire water column. On the other hand, moderate decreases in the intensity of summer storms reduce replenishment of nutrients to the euphotic zone, lowering summer primary and secondary production. Although these mechanisms have been described in concept, more research is needed to both continue collecting the relevant information as well to better quantify these relationships. The NPRB is seeking proposals that further our quantitative understanding of these processes and physical-biological couplings to help better forecast the impacts of climate change on the transfer of energy to other trophic levels.

ii. The role of iron in GOA productivity and ecosystem structure

Iron plays a key role in regulating the biogeochemical cycles of carbon and nitrogen, and pelagic ecosystem structures in the North Pacific Ocean. Although a variety of NPZ models applied to the Gulf of Alaska (GOA) include iron, insufficient information is available to quantitatively evaluate the interplay between its sources (e.g. dust, rivers, sediments, and volcanoes), the physical features affecting its availability (e.g. upwelling, meso-scale eddies, boundary currents, and tidal mixing), and its effects on primary and secondary productivity. The NPRB is seeking proposals that will provide proper in situ iron measurements in the GOA and will quantify physical, biological and chemical processes controlling iron distribution and transformation and its linkages to ecosystem processes.

b. Fish and Invertebrates \$800,000

NPRB is seeking proposals that are focused on one of the topics listed below. **The individual proposal funding cap under Fish and Invertebrates is \$400,000. Also see fish and fisheries-related research topics under Cooperative Research and in Arctic Focus section.**

i. Non-target species management

NPRB is seeking proposals that will expand studies of the life history, discard mortality, bycatch reduction, and encounter rates of non-target species to protect and sustain non-target species (e.g., octopus, grenadier, sharks, skates, squid and sculpins). Proposals need to demonstrate and include a section on how they will ensure this new information will be relevant to the fishery management system.

ii. Stock assessment support

To support stock assessment of managed species, the NPRB is seeking proposals that address **one or more** of the following topics:

1. Improved estimation of natural and/or handling mortality for use in stock assessments.
2. Improvement or development of stock assessment methodologies for data-poor but commercially important species.
3. Development of optimal survey designs under changing environmental conditions, including climate.
4. Development of analytical tools to evaluate and communicate uncertainty in stock assessments, and the performance of precautionary harvest policies that incorporate uncertainty.
5. Improvement of species identification in catches by both processors and observers for priority species within species complexes, to avoid misidentification and to reduce the large numbers of unidentified individuals.
6. Effects of truncated age/size harvest distributions on stock productivity.
7. High-resolution bathymetry and classified backscatter data is needed for habitat-based fisheries stock assessments for rockfish (pelagic and demersal), lingcod, red king crab, golden king crab, Tanner crab, and spot shrimp. High resolution benthic maps are also important for the identification of habitat areas of particular concern (HAPC), for predictive modeling, and for better understanding of ecological aspects of biological communities.
8. More research is needed to develop a quantitative female reproductive index for the surveyed BSAI crab stocks. The current stock-status assessment process for surveyed BSAI crab stocks uses the estimated mature male biomass at the presumed time of mating as the best available proxy for fertilized egg production. Research on mating, fecundity, fertilization rates, and, for snow and Tanner crab, sperm reserves and biennial spawning is needed to develop annual indices of fertilized egg production that can be incorporated into the stock assessment process and to model the effects of sex ratios, stock distribution, and environmental change on stock productivity. Priority stocks for study are eastern Bering Sea snow and Tanner crab, Bristol Bay red king crab, and Pribilof Island blue king crab.
9. Development of an improved methodology for determining stock productivity and conducting stock assessments for GOA red king crab and *bairdii* Tanner crab.
10. Studies to validate and improve age determination methods for Pacific cod, spiny dogfish and Bering Sea crab.
11. Winter spawning survey for cod and pollock in the Aleutian Islands.

iii. Impact of early life body condition on recruitment strength

Physical properties in the marine environment have a strong impact on food availability for YOY fish. This in turn influences first winter survival, as it is, in part, driven by the amount of energy reserves available in the fall. More work is needed to both monitor larval and age-0 fish and to determine the linkage between environmental conditions, energy stores and subsequent survival and recruitment. The NPRB is seeking proposals that will quantify these physical-biological relationships and their impacts on fish survival. Proposals should take care not to overlap with related studies of body condition that are currently part of the BSIERP or the GOAIERP (see www.nprb.org for more information).

iv. Fish and Shellfish movement

The NPRB is seeking proposals that will assess the movement and stock structure of fish and shellfish. Expanded tagging efforts are needed to support the development of spatially explicit assessments. Priority species include: walleye pollock, Pacific cod, sablefish, yellowfin sole, rock sole, arrowtooth flounder, Pacific ocean perch, rockfish, Atka mackerel, lingcod, and Tanner, snow and red king crab. The goal of this research may include an improved understanding of the spatial importance of predator-prey interactions, stock structure and spawning ground identification as related to management boundaries, including seasonal changes and responses to environmental variability. Tagging studies of cod and Atka mackerel in the Aleutian Islands are especially encouraged. Proposals could also focus on stock delineation to appropriately account for the impact of incidental catch, as well as on mechanisms driving movement, connectivity and benthic habitat utilization (e.g. age or seasonal environmental changes) patterns. The use of genetic markers to estimate genetic stock structure is also of interest. The identification of genes under natural selection mined from EST databases or genes involved in immunology (e.g. major histocompatibility complex, MHC genes) might improve stock definitions of high gene flow marine species. The development of molecular markers (e.g. microsatellite DNA or single nucleotide polymorphisms, SNPs) to take advantage of existing databases for spawning populations of Pacific salmon across the North Pacific is also of interest. Proposals should explicitly build on previous information and include retrospective analyses where appropriate. Proposals that include a tagging component must demonstrate, or make it part of their proposal, that barotrauma and/or tagging mortality concerns have been addressed to support a full scale movement pattern study. *Successful proposals under this category that address rockfish and lingcod could be funded as an OSRI-NPRB collaboration – see Section 3.*

v. Pacific salmon

A recent effort led by the North Pacific Anadromous Fish Commission and supported in part by the NPRB has resulted in a report titled Long-Term Research and Monitoring Plan for Pacific Salmon in the North Pacific (<http://www.npafc.org/new/index.html>). Based on the findings detailed in the report and other considerations, the NPRB is interested in supporting proposals that focus on the following research topics in Alaskan waters: (1) identification of the physical and physiological factors that affect the marine survival of juvenile Pacific salmon over their first ocean winter; (2) assessments of the ecosystem impacts of hatchery salmon and their interaction with their wild counterparts; (3) use of pink salmon as ecosystem indicator (58% of catch in AK); and (4) age structured models of exploitation rates for Chinook and chum salmon in Bering Sea bycatch as well as for salmon of these species returning to western Alaska. The NPRB is also interested in supporting proposals that quantify the range expansion of salmonids and its impacts on marine ecosystem structure, particularly in the Northern Bering Sea. International cooperation and retrospective analyses are highly encouraged, as appropriate.

vi. Forage species

The NPRB is seeking proposals that will improve our understanding of forage species ecology in Alaska marine ecosystems. Here we wish to focus on species such as sand lance, capelin (and other marine smelts), lanternfishes, euphausiids, etc., that are not commercial or otherwise well-studied taxa (i.e. herring or juvenile pollock). We are mainly interested in biological features that are important to predators, such as: distribution and abundance, school density, factors affecting recruitment, seasonal and annual variability in abundance or availability to predators. Proposals submitted to this category should take care to not overlap with the currently funded GOAIERP (see goaierp.nprb.org for more information).

vii. Ocean acidification impacts on fish

Changes in ocean chemistry are causing many concerns in regards to physiological and subsequent population and ecosystem impacts on commercial important fish and shellfish species. The NPRB is requesting proposals that will focus on one or more of the following:

- a) Understanding and quantification of species-specific physiological responses of all life stages of commercially important fish and shellfish species to ocean acidification, and
- b) Forecasting population dynamics, distribution and abundance, productivity and ecosystem impacts of these physiological responses.

viii. Early life history of demersal marine fishery target species

The NPRB is seeking proposals that will assess the importance of dispersal, settlement and post-settlement processes on the distribution and abundance of demersal marine fishery target species. Proposals submitted to this category should take care not to overlap with the five focal species in the currently funded GOAIERP (see goaierp.nprb.org for more information).

ix. Other fish and invertebrate research

While the above topics are given priority status in this RFP, the NPRB will also consider proposals that focus on other topics identified in Table 3-4 of the Science Plan, p. 79.

c. Marine Mammals**\$800,000**

Proposals directed toward the study of marine mammals should be focused on one of the topics listed below. *Also see marine mammal related research topics under Cooperative Research.*

i. Declining, depleted or ESA listed populations (*Proposals to this category have a funding cap of \$100,000.*)

Several populations of marine mammals in the North Pacific have been in decline for over a decade, are depleted under the MMPA, or listed under the ESA. These populations require special attention under the Marine Mammal Protection Act and Endangered Species Act. The NPRB is seeking proposals that address one or more of the following issues:

- a) Investigate environmental or anthropogenic factors controlling the current status or trends of marine mammal populations in one of these categories with particular focus on factors that directly or indirectly cause depressed reproduction rates or increased rates of mortality.
- b) Quantitatively describe physical and biological resource utilization patterns. The focus for physical features should be habitats that are important during crucial periods in the life history of the species described in the proposal or important foraging grounds.
- c) Could contribute to comprehensive status reviews of species/populations currently listed under the ESA that may be appropriate for consideration for delisting.

ii. Steller sea lion feeding ecology, migration, movement and supplemental count information in the Aleutian Islands and central GOA

The NPRB is seeking proposals that address one or more of the following:

1. Investigate the large- and small-scale movements of Steller sea lions in the central and western Aleutian Islands (AI), and particularly west of 178 degrees west longitude, which would provide for a designation of what areas are being utilized for foraging, and the ranges of depths over

which foraging occurs. Proposals to improve efficiency and otherwise support tagging efforts would also be considered.

2. Provide year-round information on seasonal prey use of Steller sea lions in the central and western AI, and particularly west of 178 degrees west longitude, and the central Gulf of Alaska. Proposals could employ a variety of methods, including scat collection and analysis, stable isotope analysis, and fatty acid analysis.
3. Provide data about the numbers, range, and habitat use of Steller sea lions in the central and western AI during the winter.
4. Provide data about the year-round use of important western and central AI SSL sites to augment the understanding of SSL movement and supplement information from NMFS' planned brand/resight studies. Studies should provide supplemental information about the duration of SSL foraging trips and SSL movements. Studies could employ methods including installation of cameras, and novel methods to retrieve images from cameras (such as vessel-based wireless connections in lieu of or in conjunction with satellite-linked systems).
5. Increase the understanding of population status, population dynamics, and distribution of SSLs in the Commander Islands, and potentially all of the Russian population.
6. Investigate the potential role of contaminants to affect the population dynamics of SSLs in the AI and Russian sub-regions.

d) Humans

\$200,000

Proposals directed toward the study of humans should be focused on one of the topics listed below.

i. Social and economic studies of bycatch and bycatch mitigation

Research is needed on methods for assessing the economic and social costs of bycatch and bycatch reduction efforts. This includes studies that evaluate the performance of bycatch control methods, the costs borne by fishery participants (or interpreted in terms of the overall value of the fisheries) who must implement bycatch control mechanisms, and the social, economic, or other costs borne by a broad spectrum of stakeholders who depend on species that are affected by bycatch removals.

ii. Pre- and post-implementation studies of management actions

Pre- and post-implementation studies of the benefits and costs, and distribution of benefits and costs, associated with changes in management regimes are needed. "Benefits and costs" include both economic and social dimensions and assessments of analytical methods are of interest in addition to directed studies. Specific topics could include: the effectiveness (e.g., potential for overharvest or unintentionally limiting other fisheries) of setting ABC and OFL levels for data-poor stocks (Tier 5 and 6 for groundfish and Tiers 4 and 5 for crab; e.g., squid, octopus, shark, sculpins, other flatfish, other rockfish, skates, grenadier, and crab); the impact of data-poor species catch quotas on limiting harvest of other species (i.e. the impact of choke species); changes in product markets; characteristics of quota share markets; changes in distribution of ownership and/or crew compensation, as a consequence of the introduction of catch share programs; and prospective and retrospective analyses of changes in the spatial and temporal distribution of fishing effort in response to management actions. Studies of this kind could also consider the cumulative impacts of regulatory decisions on fishing communities, including subsistence policy changes and the use of regional economic models in analyzing these types of impacts.

iii. Community adaptability to ecosystem change, market impacts and management regime changes

The NPRB is seeking proposals that investigate the adaptability of Alaskan communities and/or the sustainability of the subsistence way of life relative to ecosystem change (e.g. location, abundance and productivity of marine species of importance to commercial and subsistence activities), market impacts and management regime changes (e.g. toward limited access privilege program, LAPPs). Preference will be given to those proposals that focus on communities in the Gulf of Alaska and Arctic and to those in the Bering Sea and Aleutian Islands that do not overlap with current efforts undertaken as part of BSIERP.

iv. Cost-benefits of fishery enforcement services

Various fishery rationalization programs adopted or under consideration by the NPFMC (e.g. halibut/sablefish IFQ program) have spread fishing effort in space and time. Whereas these measures have increased the overall safety of the industry and associated fishing fleets, this spread of fishing efforts has placed increased demands on enforcement. Similarly, an increasingly accessible Arctic, and the adoption of the Arctic Fisheries Management Plan, has increased enforcement and other safety (e.g. search and rescue) requirements. NPRB is requesting proposals that focus on the costs and benefits of recently implemented fishery management programs from an enforcement perspective. Studies of this kind could include research aimed at improving effectiveness of fisheries enforcement, for example through emerging technologies.

2. Local and Traditional Knowledge and Community Involvement \$200,000

The Board continues to support proposals that relate to Local and Traditional Knowledge (LTK) as well as those that involve community-based organizations and individuals. Although LTK and Community Involvement have been combined in one section this year, proposals do not have to address both of these but should clearly address either LTK or Community Involvement as follows:

a. Local and Traditional Knowledge

The Board is requesting proposals that address one or more of the research priorities identified elsewhere in this 2011 RFP that relate to LTK and its holders but do not duplicate current Local and Traditional Knowledge (LTK) efforts in the Bering Sea Project. Potential projects must be responsive to the LTK section of Chapter 4 of the NPRB Science Plan and contribute to the mission of the NPRB. In addition to the usual proposal evaluation criteria, LTK proposals will be assessed with regard to: (a) the depth to which they engage holders of LTK throughout the project, including design and interpretation as well as the collection of data and information, and (b) the demonstrated commitment of community partners (where “community” may refer to a geographic, ethnic, occupational, or other group), for example as research team members or in letters of support. Proposals should include specific plans for communicating research results back to the appropriate communities.

b. Community Involvement

The NPRB seeks proposals for small-scale research activities based in communities along the coast of Alaska. The intent is to provide community-based organizations and individuals with the chance to gain experience in conducting research projects and to address their research interests and priorities, consistent with the overall mission of the NPRB. This section of the RFP is not intended to discourage community-based organizations from applying for other and larger projects under any other section of the RFP. Instead, it provides an opportunity for those organizations to define priority research, to explain how that

research is connected to the NPRB mission, and to describe how the project would be conducted to meet scientific standards as well as community expectations.

3. Collaboration with other Organizations

Oil Spill Recovery Institute

This is the fifth year of collaboration between the NPRB and the Oil Spill Recovery Institute (OSRI), and again this year OSRI has committed up to \$100,000 to support proposals that address specific research needs of common interest. Instead of limiting the funding for such proposals under this category, topics of common interest have been folded into the topical research categories in this RFP and have been identified throughout. Proposals supported under those topics will receive joint funding from NPRB and OSRI with a maximum \$100,000 total contribution by OSRI across all funded proposals. Proposals related to these topics are subject to the funding cap of the category they are located in.

The topics of common interest are:

Under Fish and Invertebrates:

Fish and Shellfish movement – especially those proposals that address movement of rockfish and lingcod

Under Cooperative Research:

Oil spill research in Arctic and subarctic marine ecosystems

Data Rescue

4. Cooperative Research with Industry \$400,000

The Board is requesting proposals that address one or more of the research priorities identified below ***and engage the fishing or oil and gas industries, or others, as appropriate***. Potential projects must be responsive to the Cooperative Research section of Chapter 4 of the NPRB Science Plan and contribute to the mission of the NPRB. In addition to the usual proposal evaluation criteria, cooperative research proposals will be assessed with regard to:

- a) The depth to which they directly engage the relevant industry throughout the project, including project identification, design, and interpretation as well as the collection of data and information;
- b) How the proposal addresses pressing conservation and management needs identified for the applicable industry;
- c) The extent to which the project will improve understanding between science and industry, and strengthen confidence in the products of research and in the regulatory process; and
- d) Scientific integrity, practicality, and cost effectiveness of the experimental design.

Cooperative Research priorities identified are listed below. Proposals that include financial support from industry will be looked upon favorably.

i. Fishing Industry**1. Gear modification**

Areas of interest include gear modifications to reduce habitat impacts, gear loss, interactions with non-target species of fish, avoidance or minimization of interactions with marine mammal or seabirds, and improvements for catchability and selectivity.

2. Handling mortality

Handling mortality studies for groundfish and shellfish are needed. The NPRB is seeking proposals that will conduct field work to develop and assess techniques to reduce handling mortality in Alaska shellfish fisheries, or for prohibited species in Alaska groundfish fisheries, through careful release or sorting on deck. Proposals could also include an assessment of methodologies to rapidly assess viability on deck prior to release.

3. Fishery Monitoring

The necessity for accurate and cost effective fishery monitoring is growing as management depends more on real or near time data. Observer program logistics and costs are real impediments to improving monitoring or meeting management needs in many fisheries. Various forms of remote monitoring, including electronic monitoring (EM), may offer practical solutions. The NPRB is seeking collaborative proposals to develop or further refine EM or other fishery monitoring techniques.

Monitoring techniques could include a combination of direct and alternative monitoring programs (e.g. electronic logbooks, VMS, video monitoring, and special projects for placement of observers). One of the intents of restructuring the observer program is to deploy observers across all fisheries, vessel classes, and processors so as to better ensure ongoing data collection and improve the quality of observer data. NPRB is seeking collaborative proposals to develop and further refine effective strategies for observer deployment, in a pilot program, in fisheries with less than 100% coverage.

4. Ecosystem Observations and Research

Investigators could use platforms of opportunity in the fishing fleet to carry out marine observations. These platforms could be used to deploy oceanographic sensors, to collect samples, to make cooperative biomass assessments and surveys, to study marine mammal/fishery interactions and methodologies to reduce such interactions. Fishermen, working together with scientists could assist in deployment of acoustic monitors, evaluate non-fisheries activities on fish behavior (e.g. seismic testing), and carry out cooperative marine mammal or seabird monitoring. Fishermen could also, in coordination with other marine resource users, join forces with researchers to document fish and invertebrate distributions, building a citizen-science program to help understand how dynamic climate conditions influence the distribution of commercial and non-commercial fish and invertebrate species.

ii. Oil and Gas industry

Cooperative research with the oil and gas industry should center on the topics listed below. For all topics, priority will be given to studies that take place in the southern Beaufort and Chukchi seas or the near-shore deltas and habitats of particular interest, such as Herald and Hanna shoals.

1. Species of special concern

Of interest are proposals that benefit species of special concern in the Arctic, particularly species of marine mammals and seabirds that are directly impacted by sea ice declines in the Beaufort and Chukchi Seas. Other species of special concern are salmon and other subsistence fish species, sea ducks, and all federal or state listed threatened or endangered marine species and other declining or at risk marine species for which evidence of significant threat and vulnerability can be demonstrated.

2. Monitoring from platforms in the Arctic

Changes in the marine ecosystem in the Beaufort and Chukchi Seas are predicted to take place in the near future. Platforms and vessels used for oil and gas activities could be used as sites to measure changes in the Arctic environment. Potential measurements include atmospheric parameters (air temperature, humidity, wind speed and direction, precipitation, solar radiation, and long wave radiation) and oceanographic parameters (sea surface height, temperature, salinity, currents, nutrients, acoustics, fluorescence, wave height and ice cover). The use of these platforms would ensure that observations would be carried out at appropriate intervals at fixed locations over relatively long periods of time.

3. Oil spill research in Arctic and subarctic marine ecosystems

Proposals to this category should investigate the effects and persistence of dispersants in arctic and subarctic waters, the ability to recover oil spilled under ice and the weathering and persistence of oil in ice conditions. Proposals could also include the baseline assessment of coastal environments and species and their risk to oil exposure in case of a spill, as well as the standardization of scientific methodology and protocols to be used during a response. *Successful proposals under this category could be funded as an OSRI-NPRB collaboration.*

5. Technology development

\$200,000

The NPRB is interested in supporting new technological development in the following areas:

i. Molecular and laboratory based technology development

The NPRB is seeking proposals addressing the development application of existing molecular techniques to particular management problems. One problem is the identification of larval stages of morphologically similar species. Species-specific DNA markers, such as mitochondrial DNA barcode genes or single nucleotide polymorphism (SNPs), might be used with polymerase chain reaction (PCR) techniques to efficiently identify undifferentiated individuals to species. Such techniques could also be used to identify specific disease pathogens and hard to identify alien species.

ii. Marine measurement technology development

The development of technologies to measure a wide variety of variables in the marine environment is needed. Both sensor technologies and their platforms (such as ROVs, AUVs, gliders) need continual evaluation in the face of rapidly advancing engineering. In the interest of promoting marine environmental information needs, which should consider resource management needs, the NPRB is interested in supporting proposals that focus on marine sensor technology development. Examples include, but are not exclusive to, turbidity or pCO₂ sensors, fluorometers, and acoustic technologies for Arctic and subarctic marine environments. The focus of proposals should be on the design and field

testing of such technologies. NPRB funding should not be a substitute for small business development grants.

iii. Resource assessment technology development

Further technology development is needed to improve resource assessment. Examples include: innovations (including camera-based methods) to provide broader systematic sampling of biota and the physical environment, identification of advanced sampling technologies to conduct stock assessment surveys and improvements in acoustic assessments using fixed and mobile gear.

6. Data Rescue

\$50,000

i. Data rescue (2010 RFP, NPFMC)

Marine research in Alaska has produced a lot of new information and insights and large amounts of data have been collected. Many of these datasets have been digitized and submitted to national data centers such as NODC for storage and retrieval by the broader scientific community. Yet a variety of datasets spanning oceanography to fisheries, seabirds, marine mammals and humans are currently in a format not accessible by other researchers (e.g. gray literature reports, paper files, field notes, undocumented local and traditional knowledge) and as a result cannot be used to help answer current research and management questions. In light of limited resources for marine fieldwork and in order to maximize investment into new research, the NPRB is interested in supporting proposals that will rescue datasets that are currently inaccessible and transform them into shared digital formats. Applicants must describe the nature and state of the data to be rescued (location, format, content); ensure that they do not form part of an accessible database; and describe the utility of the dataset in terms of current and relevant science and management questions. Proposals should include integration of the rescued data into appropriate national data centers or databases and could also include subsequent analyses of these data. This year, the NPRB is especially interested in historic data and associated metadata related to the Arctic (e.g. sea ice) and their inclusion into one or more of the currently available data systems that cover marine systems in the Arctic and subarctic such as the Alaska Ocean Observing System (<http://www.aos.org/>), Arctic Ocean Diversity (<http://www.arcodiv.org/>), the North Slope Science Initiative (<http://catalog.northslope.org/>), or the Ocean Biogeographic Information System (OBIS, <http://www.iobis.org/>). *Successful proposals under this category could be funded as an OSRI-NPRB collaboration.*

FOCUS SECTION**\$400,000**

The NPRB is introducing a Focus Section which will highlight pressing research needs for fisheries management or ecosystem understanding. The Focus topic is expected to vary between RFPs and may not be present in the RFP every year. As a start toward a planned increased allocation of NPRB funding to Arctic research, this year's focus is the Arctic.

Background on the NPRB approach to Arctic research-- This Arctic Focus is an initial step toward an overall Arctic approach being developed by the Board. During 2011, the Board aims to develop an Arctic research strategy for NPRB and to help in a coordinating role amongst organizations with research interests in the Arctic. A series of planning and policy documents are being developed over the next 6-12 months by NOAA (5 year Arctic action plan, http://www.arctic.noaa.gov/docs/arctic_strat_2010.pdf), NSF (Blue Ribbon Panel to describe science drivers in Arctic research), the Interagency Ocean Policy Task Force (strategic action plan with special emphasis in the Arctic), IARPC (5-year research program coordinated by the National Science and Technology Council), and USGS (independent evaluation of science needs to understand the resilience of Arctic coastal and marine ecosystems to Outer Continental Shelf resource extraction activities). The NPRB will integrate some of these emerging documents into their planning and will look for partnerships with NOAA, USGS, AOOS, NSF and others to develop a coordinated and integrated Arctic program that could start within the next few years.

The Arctic has profound significance for climate, for global ecosystem function, and for the people of Alaska, yet our knowledge of what regulates ecosystem processes in the Arctic is still very limited. Research has predominantly focused on physical changes and the dynamics of sea ice. While much has been learned in this field, we have yet to understand the biological and human implications of these changes. Targeted research on Arctic marine biology will improve the potential for decisions and actions related to conservation, management and use to be based on sound science, thereby supporting an Arctic with healthy, productive, and resilient communities and ecosystems.

One framework that has been suggested to monitor and study ecological processes in the Arctic is the Distributed Biological Observatory (DBO; Grebmeier et al. 2010, *Eos Online Volume 91, Number 18, 4 May 2010*, http://www.arctic.noaa.gov/docs/arctic_strat_2010.pdf). This approach is gaining much support within NOAA and the broader Arctic research community and may form a general framework for an NPRB Arctic program in the future.

Arctic Focus Section-- The NPRB wants this year's Arctic Focus to produce stand-alone results that answer immediate information needs and also to link to the overall Arctic strategy currently being developed by the Board. Therefore, for this 2011 RFP, ***the NPRB is particularly interested in proposals that address the topic described below and which also link to other activities and/or areas proposed by the DBO.***

The Arctic: fish stocks and habitat with a special emphasis on Arctic cod

The Board is interested in initiating studies associated with activities or areas of the DBO that focus on Arctic fish stocks and fish habitats, especially those centered on Arctic cod-- a keystone species in the Arctic foodweb that appears to depend on ice-related productivity, and is prey for a large number of higher trophic level species. Thus the NPRB is seeking proposals that will focus on the ecological life history characteristics of Arctic cod and its dependence on sea-ice, and proposals that help identify and characterize critical fish habitat areas in the Bering Strait and Arctic Ocean. Proposals could also include or occur in conjunction with baseline assessment of Arctic fish stocks.

PROPOSAL APPLICATION MATERIALS AND PROCEDURES

All applicants should refer to http://www.nprb.org/proposals/current_rfp.html for a copy of proposal application materials. If you need further information please contact the NPRB office by phone at (907) 644-6700, or by email to NPRB staff members Katie Blake (katie.blake@nprb.org), Carrie Eischens (Carrie.Eischens@nprb.org) or Tom Van Pelt (tvanpelt@nprb.org). For technical assistance please contact Igor Katrayev (igor.katrayev@nprb.org).

Please note that if the links to the template documents provided below do not work on your computer due to your internal security settings, you can find all templates at the above-mentioned website.

PROPOSAL SUBMISSION AND DEADLINE

Proposals must be submitted online at http://www.nprb.org/proposals/current_rfp.html. Applicants will need to prepare the following information and documents (described in more detail below). Sections 1-7 (except for names of potential reviewers) will be sent out for technical reviews.

1. Proposal Summary Signature Page including Abstract (250 words maximum) and Community Involvement summary (150 words maximum)
2. List of Proposal Objectives
3. Proposal Classification
4. Contact Information for the Applicant, lead Principal Investigator, Principal Investigators, Co-Investigators, Collaborators, Grant Managers, and Potential Reviewers
5. Research Plan (maximum 12 pages, *use provided template*)
6. Budget Information and Budget Narrative (*use provided templates*)
7. Résumés (maximum 2 pages per principal investigator)
8. Current and Pending Support (*use provided template*)
9. Letters of Support

Online submission for proposals will be available starting in **early November until 4pm AK time on 10 December 2010**. During the submission process you will create an account to which you can return at a later date if needed. Returning applicants can use their existing accounts. You will be asked to fill in a series of forms with information from the list above, and to upload required files (research plan, budget summary and narrative, resumes/CV, and Current & Pending Support forms). **Templates** for the research plan, budget summary, budget narrative and the current and pending support form will be provided (refer to hyperlinks in the appropriate sections below) and **must be used**. Download these templates, complete them, and upload them again in the appropriate places during the submission process. Your information will be saved as you move through this process and you will have the ability to update any information you have provided at any time before your final submission.

A link to automatically-generated, complete summary signature pages will appear as soon as you have provided the following information: full address and contact information for each agency or entity that will be legally bound to perform the research if funded, name of the principal investigators and co-investigators that will be associated with the project and their agency/organization affiliation and email address, the abstract, the community involvement summary, and funding amount request. There will be one signature page generated for each institution involved in the project, as well as one overall signature page listing all institutions. Please print these pages and have them signed by the appropriate legal representatives of each institution participating in this research. **The proposal Applicant should sign the overall signature page.** Once you have finalized your submission you will be assigned a reference number. Insert this number in the appropriate place on the signed signature page and mail it to:

**North Pacific Research Board
1007 West 3rd Avenue, Suite 100
Anchorage, AK 99501**

It is acceptable for each authorized representative from the institutions involved in the project to sign their institution's summary signature page and send it to NPRB separately.

Proposals must follow the guidelines and criteria specified herein and **must be submitted online by 4 p.m. Alaska time (5 p.m. Pacific time), 10 December 2010**. In the interest of fairness, **no proposals received after this deadline will be considered for funding**. Please note that it is in your best interest to have fully submitted your proposal well ahead of the deadline, and not wait until the last day. The system will be closed promptly at the time noted above, and even if you are partially done, your proposal submission will be interrupted and no further work allowed. This will lead to immediate rejection of your proposal. If you have trouble submitting your proposal, you may contact NPRB staff (any time prior to 4 p.m. Alaska time on 10 December 2010) for assistance but **you** are still entirely responsible for getting it in on time. Note also that NPRB staff may be constrained in the help they are able to provide if you wait until the last minute.

The signed summary signature page(s) generated by the system at the end of the application process must be received at the NPRB office no more than one week after the proposal submission deadline, i.e. **4 p.m. Alaska time, 17 December 2010**. Please note that courier and express deliveries to Anchorage, Alaska, normally require a minimum of two business days for delivery.

Confidentiality of Proposals

If a proposal is submitted, but not funded, only the following information may be released to the public: proposal title, names of principal and co-investigators, funding amount requested, duration, and the proposal summary. If a proposal is recommended for funding by NPRB and approved by the Secretary of Commerce, then the full proposal (without salary information) will be released to the public. Proposals submitted in response to the joint NPRB-OSRI research priorities will go through a special joint review process and will be distributed to the OSRI Board and its advisory bodies in accordance with their standard operating procedures (<http://www.pws-osri.org>).

I. Proposal Package

The full proposal package consists of nine elements:

1. Proposal Summary Signature Page

The proposal summary signature pages will be created automatically based on the information you provide during the online submission process. It will include a **title, project period, names of applicant organization and principal/co-investigators, an abstract** (250 words or less, see below), a **community involvement summary** (150 words or less; see below), **requested funds and other support**, and a place for the **signature** of an official authorized to legally bind the submitting organization. This page is not confidential and may be made available to the public. Ensure that you have not included any social security numbers in any of the fields. The proposal signature page is not a numbered page and thus does not count towards the 12-page limit of the Research Plan.

Abstract: In 250 words, briefly explain the project goal and value, and why NPRB funds should be used, in language understandable by individuals not familiar with the specific subject area, such as members of Congress and the public.

Community Involvement: While not necessarily required for some research priorities, researchers should recognize that local community knowledge of, and interest in, natural resources extend beyond physical boundaries of the communities themselves, to harvest locations and other important areas. Furthermore, researchers should advise communities and people involved with or affected by the study of the purpose, goals, and time-frame of the research and its potential positive and negative implications. Inclusion of local and traditional knowledge and wisdom is encouraged. Applicants should specify in this section which, if any, communities they plan to interact with during their research and how results will be brought back to the community when the project is completed. In addition, proposals for research on specific Alaska Native communities or health issues must have a letter of support from appropriate community and tribal governing bodies (see section 9 below). If you determine that this community involvement section does not apply to your proposal, please state that, and very briefly explain why it does not apply.

2. Proposal Objectives

During proposal submission you will be asked to list your project objectives. Objectives are the fundamental and measurable goals of your proposed work; the project objectives are what NPRB uses to evaluate progress and completion of the project. Project objectives must be achievable and specific. Note that project objectives entered into the online submission system should be the same as those listed in your research plan (see section 6D below).

3. Proposal Classification

During your submission, you will be asked to provide the following:

- a. *Research Priority:* Identify ONE primary research priority from the 2011 RFP under which your proposal will compete. In Section C of the research plan you may identify up to three secondary research priorities to show the broader responsiveness of your proposals to the RFP, but your proposal will **only** be considered and competed for funding under the primary research priority you indicate in the online system.
- b. *Graduate Students:* Indicate the number of graduate students you intend to make part of your project. Include the degree level (M.Sc., Ph.D.) and duration of their degree in years or list whether you intend to have no graduate students as part of your project. Graduate student participation in NPRB projects is strongly encouraged, but this graduate student listing will not affect the evaluation of your proposal and is intended for informational purposes only.
- c. *Species:* Provide the species name(s) of the focal subjects of your study.
- d. *Large Marine Ecosystem(s) (LME):* Indicate the LME(s) in which your study takes place: Arctic Ocean, Bering Sea and Aleutian Islands, and/or Gulf of Alaska (consult the NPRB Science Plan for LME boundary definitions).
- e. *Places:* List one or more regional geographic locations in which your study will take place; this should be a finer-scale location than the one identified in the LME section.
- f. *GIS Location:* Enter the proper lat/long coordinates for your location or area of study. If necessary, there is a map feature incorporated into the online submission process to assist with this requirement.
- g. *Topical Area:* Identify the topical area of your proposed research based on Tables 3.2 through 3.13 in the Science Plan.
- h. *Ecosystem Components:* Indicate one or more of following ecosystem components addressed in your study: Oceanography & Lower Trophic Level Productivity, Fish and Invertebrates, Fish Habitat, Seabirds, Marine Mammals, Humans, and/or Other Prominent Issues (e.g.,

contaminants, disease, invasive species, climate change, etc.) – see the 2005 NPRB Science Plan for details.

- i. *Keywords:* Describe your project with 5-10 keywords (do not include any words that would apply to items c-h above).
- j. *Research Approach:* Identify which research approach(es) will be used in your study: Monitoring, Process Study, Retrospective Analysis, and/or Modeling.
- k. *Reviewer Expertise Criteria:* Towards the end of your submission you will need to fill in criteria that best describe the expertise needed to properly review your proposal. Filling in this form as accurately as possible will help ensure proper peer review of your proposal.

4. Contact Information

As part of the submission process, you will be asked to provide contact information (name, organization, mailing address, email, phone and fax number) for the Applicant, the lead Principal Investigator, at least one Principal Investigator from each organization, Co-investigators, Collaborators, one Administrative Grant Manager from each organization requesting funds, and potential Reviewers. Note that a Principal Investigator and Administrative Grant Manager are required for each organization requesting funding. Definitions of proposal roles are listed below. It is not required to suggest potential reviewers. If you choose to submit names for reviewers, these will not be disclosed, but please read the [conflict of interest policy](#) before doing so.

Note: Under the contact information section you will also be asked to indicate if any of the principal investigators and co-investigators of the current proposal have previously been awarded funds for NPRB projects. If yes, you will be asked to identify previous project numbers.

Roles:

Proposal Applicant (required): Person who is submitting the proposal, either for themselves or on behalf of the principal investigators. Full contact information is required, but no resume or Current & Pending form is required as part of this role.

Lead Principal Investigator (required): Person with the overall responsibility for the project, both in terms of scientific content, project management and project completion. There can be only one Lead Principal Investigator for the entire proposal. This person must also be listed as a "Principal Investigator".

Principal Investigator(s) (required): Person(s) responsible for the scientific content of the proposal and for completion of the project should it be funded. At least one PI for each organization requesting funds should be provided. Full contact information for all PIs is required. In addition, note that a resume/CV and a Current & Pending form must be submitted for each PI. At least one Principal Investigator is required per Institution requesting funds.

Co-Investigator(s) (if applicable): Researcher(s) responsible for carrying out part of the scientific content of the proposal. Full contact information is required. In addition, a resume/CV and Current & Pending form must be submitted for each Co-Investigator.

Collaborator(s) (if applicable): Person(s) who have committed to work with a project and complete specific tasks, but are not responsible for successful completion of the project. Full contact information is required; no resume or Current & Pending form is required but may be submitted.

Administrative Grant Manager(s) (required): Person(s) responsible for the financial administration of the grant and can provide legally binding authorization (e.g., Office of Sponsored Programs). One

Administrative Grants Manager is required for each organization requesting funds. Full contact information is required, but no resume or Current& Pending form is needed.

Potential Reviewer(s) (optional; maximum of three): Person(s) not associated with this project in any of the groups above, but with sufficient expertise and credentials to review your proposal in an objective manner. No resume is required, but please provide full contact information. Please refer to "Conflict Of Interest Policy" before suggesting a reviewer.

Unacceptable Reviewer (s) (optional): If there is someone who you prefer not review your proposal (for other than conflict of interest reasons), please provide their name only. No reason needs to be provided. We will try to ensure that they are not used for an anonymous technical review of your proposal.

5. Research Plan (use template), 12-page maximum including references, tables and figures; continuous line numbers; upload your plan as a **WORD document (.doc or .docx only)**.

The main body of the proposal will be your research plan, **limited to 12 consecutively numbered pages** and formatted as follows:

- a) All pages (*including the reference section*) must have **1-inch margins** at the top, bottom and sides.
- b) Text (*including tables, figure legends, citations and references*) must be single-spaced, and the font and size must be **Times New Roman 11 point**.
- c) No page in the proposal and supporting material may be formatted to any size other than 8.5x11 inches.
- d) Tables should be created within your WORD document and in Times New Roman 11 point font.
- e) Figure legends should be part of the WORD document in Times New Roman 11 point font and not part of the figure "picture" embedded into your research plan.
- f) Color graphics are allowed, but may be reproduced in black and white and should thus be sufficiently descriptive in black and white form. Note that submitted proposals will be converted to PDFs, and this conversion may impact the quality of your graphics. Please ensure an appropriate resolution is used.
- g) The research plan **must have continuous line numbers** from beginning to end to facilitate review.¹

Failure to comply with any of the formatting specifications above will result in automatic dismissal of your proposal without further review. Please note that the research plan will be reformatted to ensure that the font style, size and margin width specified above are used. If your research plan exceeds the 12 page limit after this reformatting, your proposal will be automatically dismissed without further review.

Following the provided template, your research plan will have the following elements:

- A. Project Title. Include the **long title**, and a suggested **short title** of up to 60 characters.
- B. Proposal Summary. Briefly explain the project goal and value, and why NPRB funds should be used, in language understandable by individuals not familiar with the specific subject area, such

¹ In Microsoft Word, on the **File** menu, click **Page Setup**, and then click **Layout** tab. In **Preview**, apply to **Whole Document**. Click **Line Numbers**, and then select the **Add Line Numbering** check box. In the **From text** box, must be **Auto**. In **Numbering**, click **Continuous**.

as members of Congress and the public. The 250-word Abstract from the Proposal Summary Signature Page would suffice.

- C. Project Responsiveness to NPRB Research Priorities or Identified Project Needs. Identify the specific research priority identified in the RFP to which you are responding **and describe how your proposal addresses this priority.** Note that the priority discussed here **must match** the one selected during the online submission process. In case of discrepancies the priority selected during the online submission process will be used. In this section you may describe and identify up to three secondary research priorities also addressed by your proposed research to show its broader applicability, but note that your proposal will **only** be considered and competed for funding under the primary research priority.
- D. Project Objectives. This should be an annotated listing of your project objectives. Use a numbered, annotated list format, rather than weaving your objectives and hypotheses into paragraphs. Objectives are the fundamental and measureable goals of your proposed work; the project objectives are what NPRB uses to evaluate progress and completion of the project. Project objectives must be achievable and specific. Project objectives listed in the research plan should be the same as those entered into the submission system.
- E. Soundness of Project Design and Conceptual Approach. State what the project will accomplish and why it is important. This should be an expanded version of the objectives listed above in Section D. Demonstrate an understanding of the problem being addressed, the present state of knowledge in the field, the project's relation to previous work and work in progress by the principal/co-investigator(s), and the measurable benefits which will result from the proposed research. If this project builds on a project previously funded by NPRB, describe your progress to date and the objective of the next funding period. Describe the conceptual or statistical model underlying your experimental work. Present a list of clear hypotheses. Describe the experimental design (and associated power analysis) and the analytical approach, including assumptions required, sample size, other relevant information needed to determine the utility and technical feasibility of accomplishing your research, and the expected outcome.
- F. Education and Outreach. Describe in detail the education and outreach component of this project. Principal/co-investigators are required to develop a plan and materials for communicating their research results to non-scientific audiences. **Proposals must include a minimum of \$2,000 for such activities in the proposal budget and give a detailed breakdown of how the money will be spent in the Budget Narrative.** Education and outreach activities should target as many of the audiences identified in the *North Pacific Research Board Science Plan* (2005) as possible, or at least one other audience besides marine researchers. NPRB reserves the option of pooling education and outreach funds from funded projects, where appropriate, to achieve the broadest impact in communicating about research, working closely with the principal investigators. Please note that NPRB **does not** consider graduate student research, or posters or oral presentations at scientific conferences as education and outreach activities. For more ideas, please refer to the Outreach Tools section of our website (<http://www.nprb.org>), where you'll find resources and a sampling of outreach activities from other scientists. Also consider mentoring an Alaska student, teacher or school district in their ocean science fair projects. You can find more ideas and links to marine educators at Alaska's Center for Ocean Sciences Education Excellence (www.coseealaska.net).
- G. Timeline and Milestones. Applicants must demonstrate they can achieve an outcome and product within the requested award period, **including data analysis and submission, metadata and data submission, and timely completion of final reports.** Also include attendance at the Alaska

Marine Science Symposium in the January following the substantial completion of the project (see below). In planning the duration and timeline of your project, do not assume that a no-cost extension will be granted. Provide a clear table, organized by semi-annual reporting period (January-June, July-December), detailing your timelines and associated measurable milestones (objectives achieved, accomplishments and deliverables) that will be used to track and evaluate your project performance through the entire award period. You may additionally describe the product or result that may be used to measure your success (e.g., report, published paper, management implementation) and how you plan to disseminate the research results.

- H. Project Management. Describe the organization and management of the project and the experience and qualifications of the principal and co-investigator(s). Demonstrate how they will coordinate and collaborate with other projects, and leverage their proposals with support from other sources. Applicants must seek to avoid duplication of other research efforts. If there is more than one investigator involved, the applicant must clearly identify which one will be responsible for the overall work (the designated lead principal investigator) as well as the specific responsibilities of each PI/co-PI involved in the project.

If applicable, **permits** that may be required as part of the project should be documented in this program management section. If available, permit applications or granted permit numbers should be provided. Permitting requirements are the responsibility of the applicants and the NPRB will not financially support the permit application process.

Also in this section, list the number of **graduate students** you intend to make part of your project. Include the level (M.Sc., Ph.D), duration, and amount of funding support they would receive. Also list whether you intend to have none. Graduate student participation in NPRB projects is strongly encouraged, but this graduate student listing will not affect the evaluation of your proposal and is intended for informational purposes only.

- I. Figures and Tables. Figures and Tables are part of the 12-page limit and should be embedded in the text of the research plan.
- J. References. References are part of the 12-page limit. Avoid using long strings of references for the same statements. List all references used in the Research Plan in a format appropriate for a major journal such as *Fisheries Oceanography*, *Transactions of the American Fisheries Society*, *ICES Journal of Marine Science*, etc.

(Note: This is the end of the research plan and the 12-page limit. Line numbers are not required and should not be included beyond this part of the proposal package.)

6. Budget Summary and Budget Narrative (use templates)

Amounts specified in the research topics above are for the full duration of the project, and are not to be interpreted as “per year” funding. Please check your final budget before submission to ensure that the addition of indirect costs as a percentage or some other revision to your budget does not cause your total budget to exceed the individual proposal funding cap for the research priority addressed. **If your proposal exceeds the cap by even \$1, it will be returned without further processing.**

Your budget must be approved according to your organization’s standard proposal approval process.

Your budget must include costs of preparing all required reports, publication of results in appropriate scientific journals, providing metadata and data records to NPRB and a minimum of \$2,000 for education

and outreach (see above). The plan for your education and outreach funds should be described in your research plan as indicated above. In the Budget Narrative, describe the cost breakdown of the education and outreach funds, and include them under the appropriate budget category. It is not sufficient to list \$2,000 without itemizing costs for the proposed activities.

Your budget must include travel costs for at least one representative of the project to attend the annual January Alaska Marine Science Symposium in Anchorage for each year during the period of the project, **plus the annual symposium in the January following the substantial completion of the project**, to present your results. Participation at the Symposium does not guarantee an oral presentation. Please ensure that your project end date incorporates attendance at this final symposium. *Please note that travel to and presentations at the annual symposium **do not** fulfill the education and outreach requirement.*

Budget Summary. The **Budget Summary** Excel file is a series of spreadsheets (one for each institution/organization requesting funds) that detail by year (where year 1 is the first 12 months starting from your proposed start date) the following mandatory budget categories: salaries, fringe benefits, travel, equipment, supplies, contracts/consultants, other expenditures, indirect costs (F&A), and other support/cost sharing with other programs. The template Budget Summary includes a summary page that automatically combines all information for up to four different organizations. You may revise this template to include more institutions if necessary. Please note that each organization requesting funds must designate one **Principal Investigator** to be responsible for that component of the project, and this person's name must be entered on the Budget Summary worksheet for that organization. **You must ensure that your total budget requested in the Budget Summary matches the one entered online. If discrepancies are found between the two we will assume the lower amount is the correct one.**

Budget Narrative. Guided by the example in the template for the **Budget Narrative**, **each institution requesting funds must provide** a detailed description of costs listed under each budget category in the Budget Summary Excel file. You are encouraged to include supporting spreadsheets and other materials if applicable, and the narrative text need not duplicate information that is clearly presented in spreadsheet form. *The details of the Budget Narrative must match exactly to the numbers entered in the Budget Summary.*

In the Budget Narrative, clearly state whether or not your project will require any **international travel**, including any travel to or from any location outside of the United States. Inclusion of international travel will not impact the review process, but approval of international travel after the approval of the proposal will require a special application that may take up to 3 months to process. Please note that it will be the funded investigator's responsibility to initiate the foreign travel request, and note that the Fly America Act will apply.

Please be explicit whether your budget includes ship time, or, if it does not, how required ship time (if any) and costs will be covered by other guaranteed funds.

Please attach a quotation for any individual item of equipment costing \$20,000 or more.

Other support. Applications must reflect the total budget necessary to accomplish the project, including contributions from federal or non-federal grants, base organizational budgets, and/or donations. Cost-sharing is not required, but encouraged. If an applicant chooses to cost-share and if that application is selected for funding, the applicant will be bound by the percentage of the cost share reflected in the grant award. Please be advised that although EIRF (Environmental Improvement and Restoration Fund) funds which support NPRB awards are not appropriated, the U.S. Department of Commerce has made a finding that EIRF funds should be considered to be federal funding since an authorization act created the "fund" in the U.S. Treasury.

Indirect Costs (sometimes referred to as overhead or F&A). The budget summary may include an amount for indirect costs if the applicant has an established indirect cost rate with the Federal government. The total dollar amount of the indirect costs proposed in an application under this program **must not exceed the indirect cost rate negotiated and approved by a cognizant Federal agency prior to the proposed effective date of the award, or 100 percent of the total proposed direct cost dollar amount in the application, whichever is less.** If applicable, a copy of the current, approved, negotiated indirect cost agreement with the Federal government must be included. It will be retained in the office and not distributed to reviewers.

7. Resumes/CV (limited to 2 pages per principal/co-investigator)

The resumes of all principal/co-investigators and other senior personnel involved in the proposal must be provided (collaborators do not need to submit their resumes). Each resume is limited to two consecutively numbered pages and must include the following information:

- a. A list of professional and academic credentials, mailing address, and other contact information including work phone number and email address.
- b. A description of current activities relevant to the proposed project.
- c. A list of up to five of your most recent/relevant publications most closely related to the proposed project and up to five other significant publications as appropriate. Please highlight publications that are based on research supported by NPRB funds.
- d. A list of all persons (including organizational affiliations) in alphabetical order with whom you have collaborated on a project or publication within the last four years. If none, this should be indicated.

8. Current and Pending Support Form (use the [provided template](#))

Upload Excel documents using the online submission system. For each principal/co-investigator and other senior personnel involved in the proposal, use the provided template to disclose any current and pending financial resources that are intended to support research related or similar to that included in the proposal, or that would consume the time of the proposer(s). The proposer must also disclose if they have submitted the proposal to other funding sources.

9. Letters of Support

Letters of support from relevant management agencies, communities, including Alaska Native communities and tribal governing bodies (if applicable) or others potentially impacted by project activities (e.g., seabird colony work at times of subsistence activities) or benefiting from the projects results, should be provided. Letters should be specific about the role of collaborators and indicate how the results will be of use or benefit. Upload these letters, if any, in the appropriate place during the online proposal submission.

PROPOSAL REVIEW PROCESS

Initial Screening of Applications. Upon receipt, the NPRB staff will screen applications for conformance with requirements set forth in this notice. This review will consider not only whether the proposal meets the format and structure requirements in this RFP, but also whether it is responsive to NPRB's enabling legislation and criteria and adequately addresses the research priorities selected from this RFP. If necessary, the Executive Director will request an ad hoc committee of available Science Panel members

to help in the initial screening. **Proposals that are found to not comply with the requirements of the RFP will be rejected without further processing.**

Consultation with Interested Parties. NPRB may consult with NOAA and other Federal and State agencies, the North Pacific Fishery Management Council, and other entities, as appropriate, who may be affected by or have knowledge of a specific proposal or its subject matter.

Independent Technical Evaluations. All proposals that pass the initial screening will undergo independent, anonymous, technical peer review, conducted by regional, national and international experts. Reviewers will be asked to provide comments and qualitative assessments of the technical aspects for each proposal, as indicated below (percentages indicate the weight that the subsequent review by the NPRB Science Panel will give to the criteria), and an overall summation. The overall summation will include five tiers: poor, fair, good, very good and excellent.

- a. Soundness of Project Design/Conceptual Approach (60%): Is there a clear statement of project objectives, and explanation of what the project will accomplish and why it is important? Have the applicants demonstrated a clear understanding of the problem being addressed, the present state of knowledge in the field, the project's relation to other work, including their own, and the measurable benefits which will result from the proposed work? Is there sufficient information to evaluate the project technically? What are the strengths and/or weaknesses of the technical design relative to securing productive results? Is there a clear hypothesis to be tested and well-defined expected outcomes? Is there a clear description of a detailed experimental design with associated power analysis as appropriate, including assumptions required, sample size, and other relevant information needed to determine the utility and technical feasibility of accomplishing the research? Is there a list of data sources or requirements? Reviewers will give the following approximate weights to components within this criterion: 10% for background and need; 10% for statement of problem or question; 20% for study design; and 20% for analysis.
- b. Education and Outreach (5%): Is the education and outreach plan clearly defined? Are the planned education and outreach activities/materials aimed at audiences other than the scientific community? Are the costs itemized in the budget narrative and realistic for the proposed activities?
- c. Timeline and Milestones (10%): Is there a clear table detailing appropriate timelines and associated measurable milestones, objectives, accomplishments and deliverables that can be used to track and evaluate project performance through the entire award period? Is there a description of the product or result that may be used to measure project success (e.g., report, published paper, management implementation) and how the research results will be disseminated?
- d. Project Management (15%): The organization and management of the project, and the project's principal/co-investigator(s) and other personnel in terms of related experience and qualifications will be evaluated. Applicants must demonstrate how they will coordinate and collaborate with other projects and leverage their proposals with support from other sources. Applicants must seek to avoid duplication of other research efforts.
- e. Project Costs (10%): The justification and allocation of the budget in terms of the work to be performed will be evaluated. Is the project cost unreasonably high or low?

Science Panel Review. All proposals and their accompanying technical evaluations will be submitted to the NPRB Science Panel for review and evaluation based on the above criteria.

Board Review. The North Pacific Research Board will review responsive proposals, consider technical evaluations, Science Panel recommendations, and other factors as appropriate, and decide which proposals to fund. Other factors may be considered including, but not limited to, overlap with other ongoing programs, timeliness of the research proposed, and previous performance of applicants. Evaluation of previous NPRB funded projects will involve project management, adherence to project budgets, timelines, and reporting requirements, as well as achievement of previously funded project objectives. Public comment will not be taken from current applicants when the Board makes final funding decisions. The exact award period will depend upon the requested duration of funding, the decision of the NPRB on funding amount, the results of post-selection negotiations between the applicant and NPRB officials, and review by NPRB and Department of Commerce officials.

Secretary of Commerce Review. By law, all recommendations of the Board are subject to final approval by the Secretary of Commerce, who must ensure that there is no duplication with other projects funded by NOAA or other Federal organizations, and that the projects selected for funding are those that best meet the objectives of this solicitation. The review will include a determination of compliance with federal regulations, including the National Environmental Policy Act and permitting, and may result in additional requirements as a condition for funding (see General Condition 4 below).

D. Tentative Schedule

The tentative schedule is as follows (except for the proposal deadline, the schedule is subject to change):

<u>Schedule Item</u>	<u>Tentative Timeline</u>
Release of RFP	October 8, 2010
Online Submission Opens	early November 2010
Deadline for Proposals	December 10, 2010 at 4 p.m. Alaska time
Deadline for Signature Pages	December 17, 2010 at 4 p.m. Alaska time
Technical Evaluations	January – March 2011
Science Panel Review	March – April 2011
NPRB Selection	late April 2011
Submission to Secretary of Commerce	May 2011
Final Notification of PIs	late May 2011
Grant Agreements to PIs	May – June 2011
Commence Research	July 1, 2011 (earliest)

The exact amounts of funds awarded to a project will be determined in pre-award negotiations between the applicant and NPRB. Projects should not be initiated in expectation of Federal funding until a fully executed Subaward Agreement or Memorandum of Understanding is received. Applicants should not request a project start date before **July 1, 2011**. Please note that if your project includes funds for a NOAA organization, a formal MOU must be in place and fully executed between NPRB and NOAA before the NOAA agency will allow work to begin on the project. This will generally result in a later start date of approximately **September 1, 2011**.

GENERAL CONDITIONS

This RFP is only a solicitation of offers and should not be construed as an expectation of award, or as any reasonable basis for detrimental reliance. NPRB is not obligated to award any specific project or any available funds. There is no guarantee sufficient funds will be available to make awards for all acceptable projects, and NPRB may choose to reject all proposals. No oral statement by any person can supersede or modify the terms of this RFP.

1. All Federal, State, private, and foreign organizations are eligible. Recipient organizations must have a DUNS number (<http://fedgov.dnb.com/webform>) and be registered in the Central Contractor Registration (CCR) system (www.ccr.gov) before any award can be made. Recipient organizations required by OMB Circular A-133 to have a single or program-specific audit will be required to submit a copy of their most recent single or program-specific audit for review before any award is made.
2. Responding proposals are firm offers and shall remain open for the NPRB to accept any time before July 1, 2011 in accordance with a standard NPRB agreement for the performance of the work proposed. A proposal is accepted only when NPRB sends the applicant written approval and has a fully executed agreement. A proposal accepted for funding does not obligate NPRB to provide additional future funding.
3. NPRB's [Subaward Compliance Policy](#), finalized in March 2009, is based on Federal law that governs award agreements and on comments received on an interim compliance policy from NOAA's Federal Law Assistance Division, the National Science Foundation, and grants managers from five major research institutions. This policy will be part of all awards made as a result of this RFP.
4. The applicant is responsible for obtaining all Federal, State, and local governmental permits and approvals for projects or activities to be funded under this announcement. This includes, as applicable, certification under state Coastal Zone Management Plans, section 404 or section 10 permits issued by the Army Corps of Engineers; experimental fishing or other permits under federal fishery management plans; scientific permits under the Endangered Species Act and/or the Marine Mammal Protection Act; and assistance to the Federal government in developing analysis to meet the requirements of the National Environmental Policy Act. All experiments must be conducted in compliance with law, and only pursuant to mandatory permitting duly granted by the appropriate federal and state agencies. Requirements for special permits, for example, those required for taking marine mammals, should be clearly described and whether the permit is in possession or not. The Secretary of Commerce may withhold final approval or stipulate additional conditions on projects to ensure compliance with the above.
5. Projects that require at-sea research using research vessels must comply with all research vessel safety standards in accordance with the guidelines for the operation of oceanographic research vessels owned, operated or chartered by members of the University-National Oceanographic Laboratory System (UNOLS), to ensure that research at sea is conducted to the highest practicable standards of safety and prudence. Those standards also apply to chartered non-institution vessels. (See: http://www.gso.uri.edu/unols/saf_stand/contents.htm.)
6. Funded participants are wholly responsible for the conduct of research, submission of required reports, and preparation of the results for publication. Participants will be required to submit semiannual progress reports and a final report to be posted on the NPRB website and in other databases. Final reports may be submitted for peer review at the discretion of the NPRB. Failure to submit timely reports or to respond to peer review comments on final reports, or to meet project

objectives due to problems in program management, may result in withheld payments. Every effort should be made to submit research results for publication in an appropriate scientific journal within one year of the completion of study. The NPRB Executive Director may in his/her sole discretion grant written exceptions if requested timely. All manuscripts shall acknowledge that funds were provided by the NPRB.

7. Successful applicants will be required to provide metadata and data records to NPRB at the completion of their project in accordance with the NPRB Metadata and Data policy (<http://www.nprb.org/projects/metadata.html>). Submission of metadata and data records constitutes part of the final project reporting requirements. Failure to submit such records may result in withheld payments. Among other requirements, this policy specifies the storage media and format(s), month and location for reporting, and other relevant information that may be required by the circumstances of the project.
8. Full execution for newly approved projects may be delayed if investigators involved in previous completed NPRB projects have not fulfilled all their reporting requirements, including metadata and data delivery.
9. Researchers applying to do research involving human subjects are expected to demonstrate compliance with regional protocols for researcher/community interactions or the specific human subjects screening done by most academic institutions and agencies. The purpose is to ensure that privacy is protected, data are collected in a suitable manner, data are maintained in a secure environment, and results of any study are made available to participants if they indicate their interest.
10. In accordance with federal statutes and regulations, no person on grounds of race, color, age, sex, national origin, religion, marital status, pregnancy, parenthood, or disability shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under this program.