

# Appendix IIA: North Pacific Research Board: Request for Proposal (RFP) Evolution 2002-2009

Requests for proposals have been aligned with the NPRB Science Plan. Project topics summarize original language in each RFP. This file is available at [www.nprb.org/proposals/evolution.html](http://www.nprb.org/proposals/evolution.html).

	2002	2003	2004	2005	2006	2007	2008	2009
<b>Lower Trophic Level Productivity</b> <i>(Science Plan page 41)</i>	<b>Lower trophic level productivity</b> <ul style="list-style-type: none"> <li>Factors affecting marine productivity</li> <li>Influence of climate on ecosystems</li> <li>Unusual events (e.g., coccolithophorid blooms)</li> <li>Ecosystem models for managers</li> </ul>	<b>Ocean monitoring</b> <ul style="list-style-type: none"> <li>Long term monitoring of NPZ</li> </ul> <b>Lower trophic level productivity</b> <ul style="list-style-type: none"> <li>Factors affecting marine productivity</li> <li>Influence of climate on ecosystems</li> <li>Unusual events (e.g., coccolithophorid blooms)</li> <li>Ecosystem models for managers</li> </ul>	<b>Ocean monitoring</b> <ul style="list-style-type: none"> <li>Long term monitoring of NPZ</li> </ul> <b>Lower trophic level productivity</b> <ul style="list-style-type: none"> <li>Factors affecting marine productivity</li> <li>Influence of climate on ecosystems</li> </ul> <i>Also: Special Needs 3, 4</i>	<b>Ocean monitoring</b> <ul style="list-style-type: none"> <li>Determining ecosystem status</li> </ul> <i>Also: Special Need 6</i>	<b>Ocean monitoring</b> <ul style="list-style-type: none"> <li>CPR, M2-M8 buoys, GAK Line (non-RFP)</li> </ul> <b>Lower trophic level productivity</b> <ul style="list-style-type: none"> <li>Research related to Table 3-2, Science Plan</li> </ul>	<b>Ocean monitoring</b> <ul style="list-style-type: none"> <li>Long-term ocean monitoring</li> </ul> <b>Lower trophic level productivity</b> <ul style="list-style-type: none"> <li>Shelf-inland water coupling in ACC; importance of freshwater runoff</li> <li>Seasonal/interannual variation in primary and secondary production in SE GOA</li> <li>Benthos</li> <li>Process driving secondary production</li> </ul>	<b>Oceanography and Lower Trophic Level Productivity</b> <ul style="list-style-type: none"> <li>Coupling between shelf, nearshore and inland waters in the Alaska Coastal Current (ACC) as well as the importance of freshwater runoff</li> <li>Population dynamics, distribution and abundance, productivity and trophic roles of appendicularians and pteropods</li> <li>Oceanic zooplankton species in shelf food webs: on-shelf transport processes</li> <li>Euphausiid biology</li> </ul>	<b>Oceanography and Lower Trophic Level Productivity</b> <ul style="list-style-type: none"> <li>Importance of ocean fronts to ecosystem processes in the GOA</li> <li>Coupling between shelf, nearshore and inland waters in the Alaska Coastal Current (ACC) and the importance of freshwater runoff</li> <li>Changing Arctic food webs</li> </ul>
<b>Fish Habitat</b> <i>(Science Plan page 51)</i>	<ul style="list-style-type: none"> <li>Coral/sensitive substrate habitat maps</li> <li>Factors affecting habitat</li> <li>Impacts of fisheries and other human influences</li> </ul>	<ul style="list-style-type: none"> <li>Coral/sensitive substrate habitat maps</li> <li>Factors affecting habitat</li> <li>Impacts of fisheries and other human influences</li> <li>Fishery management tools to protect habitat</li> </ul>	<ul style="list-style-type: none"> <li>Coral/sensitive substrate habitat maps</li> <li>Factors affecting habitat</li> <li>Impacts of fisheries/human influences</li> <li>Fisheries impacts on prey/predators</li> <li>Fishery management tools to protect habitat</li> <li>Evaluation of fish/habitat associations</li> </ul>	<ul style="list-style-type: none"> <li>Coral/sensitive substrate habitat maps</li> <li>Effects of commercial fishing on groundfish essential habitat</li> <li>Ecosystem function of different habitats</li> </ul>	<ul style="list-style-type: none"> <li>Recovery/resilience of fish habitat</li> <li>Research related to Table 3-3, Science Plan</li> </ul> <i>Also: Special Need 1</i>	<ul style="list-style-type: none"> <li>Recovery/resilience of fish habitat</li> <li>Effects of commercial fishing on groundfish essential habitat</li> </ul>	<ul style="list-style-type: none"> <li>Habitat mapping in the Northern Bering Sea Research Area</li> </ul>	<ul style="list-style-type: none"> <li>Bering Sea canyons: comparison between canyon and slope habitats using existing data</li> <li>Pribilof Canyon benthic habitat mapping</li> <li>Essential habitats for forage fish in the GOA</li> </ul>
<b>Fishes and Invertebrates</b> <i>(Science Plan page 65)</i>	<b>Bycatch</b> <ul style="list-style-type: none"> <li>Bycatch assessment and reduction techniques</li> </ul> <b>Stock assessment/recruitment processes</b> <ul style="list-style-type: none"> <li>Stock assessment techniques and larval fish ecology</li> <li>Salmon stock dynamics, mortality and migration</li> </ul> <b>Fishery management/economics</b> <ul style="list-style-type: none"> <li>Fishing capacity reduction</li> </ul>	<b>Bycatch</b> <ul style="list-style-type: none"> <li>Bycatch and mortality assessment and reduction techniques</li> <li>Stock composition research on bycatch species in groundfish fisheries</li> </ul> <b>Stock assessment/recruitment processes</b> <ul style="list-style-type: none"> <li>Improve stock assessment techniques and mortality estimates</li> <li>Interdependence of fisheries or stocks</li> <li>Salmon stock dynamics, mortality, migration</li> <li>Genetic identification of salmon stocks</li> </ul> <b>Fishery management/economics</b> <ul style="list-style-type: none"> <li>Economic impacts of management including capacity reduction</li> </ul>	<b>Bycatch</b> <ul style="list-style-type: none"> <li>Bycatch and mortality assessment and reduction techniques</li> <li>Stock composition research on bycatch species in groundfish fisheries</li> <li>Info on lesser-known, non-target finfish spp.</li> </ul> <b>Stock assessment/recruitment processes</b> <ul style="list-style-type: none"> <li>Improve stock assessment techniques and mortality estimates</li> <li>Factors affecting stock dynamics and dist.</li> <li>Fishing effects on life histories/genetics</li> <li>Delineations of stock boundaries</li> </ul> <b>Fishery management/economics</b> <ul style="list-style-type: none"> <li>Socio-economic impacts, including capacity reduction/habitat protection</li> </ul>	<b>Stock assessment/recruitment processes</b> <ul style="list-style-type: none"> <li>Spatially explicit pollock assessments</li> <li>Life history information gaps</li> <li>Crab life history and ecology</li> <li>Research related to Table 3-4, Science Plan</li> </ul> <i>Also: Special Need 7</i>	<b>Bycatch</b> <ul style="list-style-type: none"> <li>Reduction of bycatch and bycatch rates</li> </ul> <b>Stock assessment/recruitment processes</b> <ul style="list-style-type: none"> <li>Life history, ecology and fluctuations in BSAI crab stocks</li> <li>Shark, skate, squid, sculpin and octopus stock assessment and life history</li> <li>Migration patterns and spatial connectivity</li> <li>Seasonal diets of exploited fish stocks</li> <li>Research related to Table 3-4, Science Plan</li> </ul>	<b>Bycatch</b> <ul style="list-style-type: none"> <li>Bycatch estimation</li> </ul> <b>Stock assessment/recruitment processes</b> <ul style="list-style-type: none"> <li>Life history, ecology and fluctuations in BSAI crab stocks</li> <li>Local impacts of fishing on prey of upper trophic level consumers</li> <li>Squid and shark assessment</li> <li>Research related to Table 3-4, Science Plan and North Pacific Fishery Management Council Research Priorities</li> </ul>	<ul style="list-style-type: none"> <li>Local impacts of fishing on prey availability for top trophic level consumers</li> <li>Stock assessment and life history of sleeper and salmon sharks</li> <li>Skate nurseries</li> <li>Rockfish</li> <li>Efficacy of bycatch mitigation measures</li> <li>Processes controlling recruitment dynamics for all crab species</li> <li>Over-winter survival of Pacific salmon species</li> <li>Pacific cod</li> </ul>	<ul style="list-style-type: none"> <li>Stock assessment, life history and population biology of North Pacific sharks</li> <li>Stock assessment support</li> <li>Fish movement</li> </ul>
<b>Marine Mammals</b> <i>(Science Plan page 83)</i>	<ul style="list-style-type: none"> <li>Stressed/endangered species survival</li> <li>Responses to ocean climate trends and prey availability</li> </ul>	<ul style="list-style-type: none"> <li>Stressed/endangered species survival</li> <li>Responses to ocean climate trends and prey availability</li> </ul>	<ul style="list-style-type: none"> <li>Factors, including fisheries, affecting pinnipeds (excluding Steller sea lions) and cetaceans</li> </ul> <i>Also: Special Need 1</i>	<ul style="list-style-type: none"> <li>Ice seal studies</li> <li>Northern fur seal studies</li> </ul> <i>Also: Special Need 1</i>	<ul style="list-style-type: none"> <li>Ice seal and walrus distribution/abundance</li> <li>Northern right whale distribution/abundance</li> <li>Research related to Table 3-9, Science Plan</li> </ul>	<ul style="list-style-type: none"> <li>Sea otters</li> <li>North Pacific right whales</li> <li>Cook Inlet beluga whales</li> <li>Polar bears</li> <li>Fur seals</li> </ul>	<ul style="list-style-type: none"> <li>Ice seals</li> <li>Steller sea lions</li> <li>Pacific walrus in the Chukchi Sea</li> <li>Polar bears</li> </ul>	<ul style="list-style-type: none"> <li>Study design for quantifying indirect local effects of fisheries on upper trophic predators</li> <li>Small or declining populations</li> </ul>
<b>Seabirds</b> <i>(Science Plan page 97)</i>	<ul style="list-style-type: none"> <li>Stressed/endangered species survival</li> <li>Responses to ocean climate trends and prey availability</li> </ul>	<ul style="list-style-type: none"> <li>Stressed/endangered species survival</li> <li>Responses to ocean climate trends and prey availability</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries and other factors affecting seabirds and seabirds</li> </ul> <i>Also: Special Need 1</i>	<i>Also: Special Needs 1, 5</i>	<ul style="list-style-type: none"> <li>Distribution/abundance of seabirds at sea</li> <li>Demographic parameters</li> <li>Human impacts during migration and overwintering</li> </ul>	<ul style="list-style-type: none"> <li>Seabirds as indicators of forage fish</li> <li>Beached bird monitoring program</li> <li>Stressed and endangered species survival</li> </ul>	<ul style="list-style-type: none"> <li>Seabird-ecosystem relationships</li> <li>Indirect and long-term population effect of contaminants</li> <li>Spectacled eiders</li> </ul>	<ul style="list-style-type: none"> <li>Influence of non-breeding season conditions on population dynamics</li> <li>Seabird-forage fish ecosystem relationships</li> <li>Small or declining populations</li> </ul>
<b>Humans</b> <i>(Science Plan page 113)</i>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>Connecting fisheries, management and science</li> <li>Fisheries management systems and stewardship of living marine resources</li> <li>Conflict elimination in statutes, regulations</li> <li>Strengthening international agreements</li> <li>Impact of public participation in management</li> <li>Fisheries history</li> <li>Regulatory enforcement/compliance</li> <li>Fishing safety measures analysis</li> </ul> <i>Also: Special Needs 8,9</i>	<ul style="list-style-type: none"> <li>Research related to Table 3-13, Science Plan</li> </ul>	<ul style="list-style-type: none"> <li>Research related to Table 3-13, Science Plan and North Pacific Fishery Management Council Research Priorities</li> </ul>	<ul style="list-style-type: none"> <li>Analyses of current determinants of exvessel, wholesale, international, and retail demands for principal seafood products from the GOA and BSAI</li> <li>Pre- and post-implementation studies of the benefits and costs associated with changes in management regimes</li> <li>Prospective and retrospective analyses of changes in the spatial and temporal distribution of fishing effort</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>
<b>Other Prominent Issues</b> <i>(Science Plan page 123)</i>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Sources, transport, and accumulation</li> <li>Effects on ecosystem structure and function</li> <li>Effects of climate change</li> </ul>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Sources, transport, and accumulation</li> <li>Effects on ecosystem structure and function</li> <li>Effects of climate change</li> <li>Oil spills, logging runoff, coastal development</li> <li>Predictive model development</li> </ul> <b>Invasive species</b> <ul style="list-style-type: none"> <li>Origins and impacts</li> </ul>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Sources, transport, and accumulation</li> <li>Effects on ecosystem structure and function</li> </ul>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Sources, transport, and accumulation</li> <li>Effects on ecosystem structure and function</li> </ul>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Sources, transport, effects and accumulation in subsistence, recreational and commercial spp., and other ecosystem components</li> <li>Shipping risk assessment studies</li> </ul>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Shipping risk assessment studies</li> <li>Other</li> </ul>	<b>Contaminants</b> <ul style="list-style-type: none"> <li>Long-term contamination</li> <li>Point source contamination</li> </ul>	<b>Marine Diseases</b> <ul style="list-style-type: none"> <li>Technology Development</li> <li>Molecular and laboratory-based technology development</li> <li>Marine measurement technology development</li> </ul>
<b>Ecosystem Studies</b> <i>(Science Plan page 133)</i>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<ul style="list-style-type: none"> <li>---</li> </ul>	<b>Aleutian Islands</b> <ul style="list-style-type: none"> <li>Nearshore dynamics of the Aleutian Islands</li> <li>Ecosystem impacts of climate and ocean conditions in the Aleutian Islands</li> <li>Fishing effect interactions</li> <li>Advancing ecosystem approach to fisheries management</li> <li>Development of forecasting tools that incorporate ecosystem indicators</li> <li>Ecosystem indicators incl.retrospective studies</li> </ul>	<b>Aleutian Islands</b> <ul style="list-style-type: none"> <li>Nearshore dynamics of the Aleutian Islands</li> <li>Population structure</li> <li>Impacts of volcanic activity</li> </ul> <b>Ecosystem indicators and data rescue</b> <ul style="list-style-type: none"> <li>Data rescue</li> <li>Ecosystem indicators</li> </ul>

Appendix IIA continued

	2002	2003	2004	2005	2006	2007	2008	2009
<b>Bering Sea IERP</b> <i>(Science Plan page 133)</i>		• ---	<i>Also: Special Need 2</i>	• Bering Sea-Aleutian Islands LME planning <i>Also: Special Need 2</i>	• Response of the Bering Sea ecosystem to climate change: modeling and retrospective studies • BSIERP LME team established	• Response of the Bering Sea ecosystem to climate change: full RFP for BSAI IERP	• Program funded for 2007-2012: BEST/BSIERP partnership, \$35M	• Program ongoing
<b>Gulf of AK IERP</b> <i>(Science Plan page 136)</i>		• ---	• ---	• GOA LME planning	• GOA LME team established	• GOA LME planning with team	• GOA LME implementation and partnerships	• GOA IERP funded for \$9M 2009-2014; Upper Trophic Level component funded
<b>One-Time Special Needs</b>		• ---	1. Develop methods for remote sensing of upper trophic level abundance 2. Evaluate ecosystem indicators 3. Forage Fish stock assessment methodologies (401) 4. Evaluation of ocean circulation models 5. Education and Outreach (402) 6. Alaska Marine Information System (404) 7. Arctic Ocean Synthesis 8. Southeast Alaska Synthesis (406)	9. Develop methods for remote sensing of upper trophic level abundance 10. Evaluate ecosystem indicators (502) 11. Arctic Ocean Synthesis (503) 12. Ecosystem modeling assessment conference (EMC) 13. Evaluate seabirds as ecosystem indicators (516) 14. Evaluate Plankton monitoring methods 15. Analysis of ongoing salmon programs (504) 16. Evaluation of bio-economic models for regulatory impact assessments 17. Synthesis of subsistence data availability and sampling programs	18. Marine habitat mapping technology workshop (615)	19.1 Establish a comprehensive sea ice database for the Bering Sea Bering Strait region 20.2 Compile and analyze chlorophyll data 21.3 Design arctic baseline survey north of Bering Strait	• ---	• ---
<b>Local and Traditional Knowledge</b> <i>(Science Plan page 144)</i>	• Need for LTK emphasized in text	• Need for LTK emphasized in text	• Need for LTK emphasized in text	• Need for LTK emphasized in text	• LTK encouraged in text • LTK related to other priorities <i>Also: Community Involvement</i>	• LTK encouraged in text • LTK related to other priorities <i>Also: Community Involvement</i>	• LTK encouraged in text • LTK related to other priorities <i>Also: Community Involvement</i>	• LTK encouraged in text • LTK related to other priorities <i>Also: Community Involvement</i>
<b>Coordination and Partnerships</b> <i>(Science Plan page 147)</i>	• ---	• ---	• ---	• ---	<b>Oil Spill Recovery Institute</b> • Forage fish	<b>Oil Spill Recovery Institute</b> • Socio-economics: modeling community impacts • Tracking and monitoring marine organisms <b>Alaska Ocean Observing System</b> • Evaluation of buoy locations	<b>Oil Spill Recovery Institute</b> • Socio-economics: modeling community impacts • Contaminant baseline assessment • Forage fish and near-shore habitat associations	<b>Oil Spill Recovery Institute</b> • Prince William Sound NPZ model validation • Rockfish habitat association in Prince William Sound • Larval drift, transport and distribution in Prince William Sound
<b>Cooperative Research with Industry</b> <i>(Science Plan page 148)</i>	• ---	• ---	• ---	• ---	• Cooperative research encouraged in text	<b>Fishing Industry</b> • Gear modification • Fisheries monitoring • Bycatch remediation • Ecosystem monitoring <b>Oil and Gas Industry</b> • Seaduck migration and impacts • Walrus in Chukchi Sea • Polar bears in Chukchi Sea • North Slope salmon	<b>Fishing Industry</b> • Gear modification • Fisheries monitoring • Bycatch reduction • Ecosystem monitoring and research • Whale entanglement avoidance and deterrents • Habitat mapping <b>Oil and Gas Industry</b> • Polar Bears • Marine mammal acoustic studies • Shoreline change • Ice Seals • Salmon distribution • Influence of oil and gas development on marine bird distribution, migration and habitat use	<b>Fishing Industry</b> • Fisheries monitoring and improved estimation of total bycatch • Electronic monitoring • Gear modification • Bycatch reduction and reduction in bycatch mortality • Avoidance of interactions between fishing gear and whales • Regulatory compliance and effectiveness of fishery enforcement services <b>Oil and Gas Industry</b> • Polar bears • Species of special concern • Shoreline change • Invertebrate distribution and abundance
<b>Education, Outreach and Community Involvement</b> <i>(Science Plan page 150)</i>	<b>Education and Outreach</b> • Minimum \$500 per project <b>Community Involvement</b> • Encouraged in text	<b>Education and Outreach</b> • Minimum \$1,500 per project <b>Community Involvement</b> • Encouraged in text	<b>Education and Outreach</b> • Minimum \$2,000 per project <b>Community Involvement</b> • Encouraged in text	<b>Education and Outreach</b> • Minimum \$2,000 per project <b>Community Involvement</b> • Encouraged in text	<b>Education and Outreach</b> • Minimum \$2,000 per project <b>Community Involvement</b> • Pilot project for community-based observation system	<b>Education and Outreach</b> • \$60,000 to outreach professionals (BSIERP) • Minimum \$2,000 per project (non-BSIERP) <b>Community Involvement</b> • Community-based research	<b>Education and Outreach</b> • \$100,000 (BSIERP) • Minimum \$2,000 per project (non-BSIERP) • Graduate research awards (\$100,000) • Student awards at Symposium <b>Community Involvement</b> • Community-based research	<b>Education and Outreach</b> • \$100,000 (BSIERP) • Minimum \$2,000 per project (non-BSIERP) • Graduate research awards (\$100,000) • Student awards at Symposium • State Science Fair awards <b>Community Involvement</b> • Community-based research