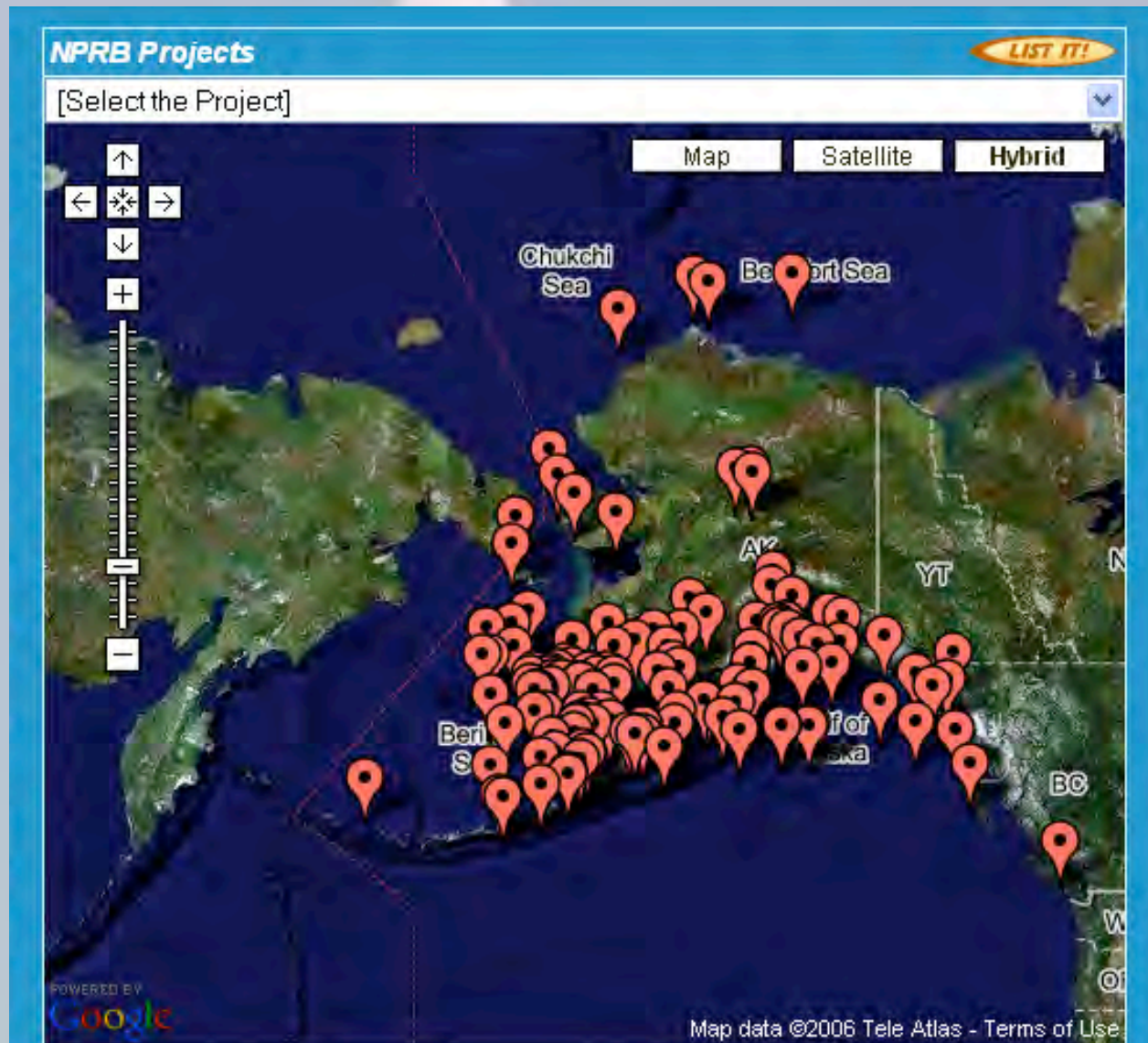# BERING SEA AND ALEUTIAN ISLANDS INTEGRATED ECOSYSTEM RESEARCH PROGRAM 2007-2013
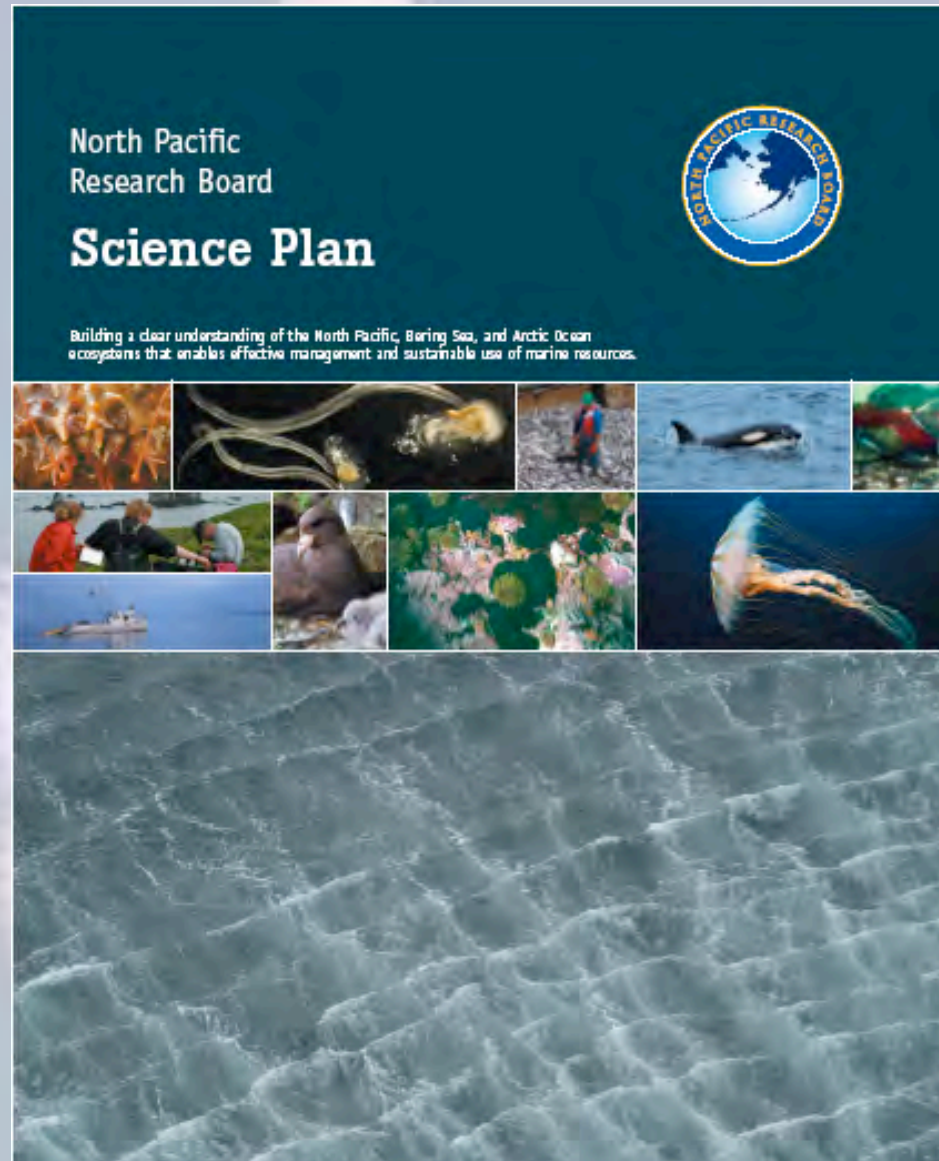

Francis K. Wiese
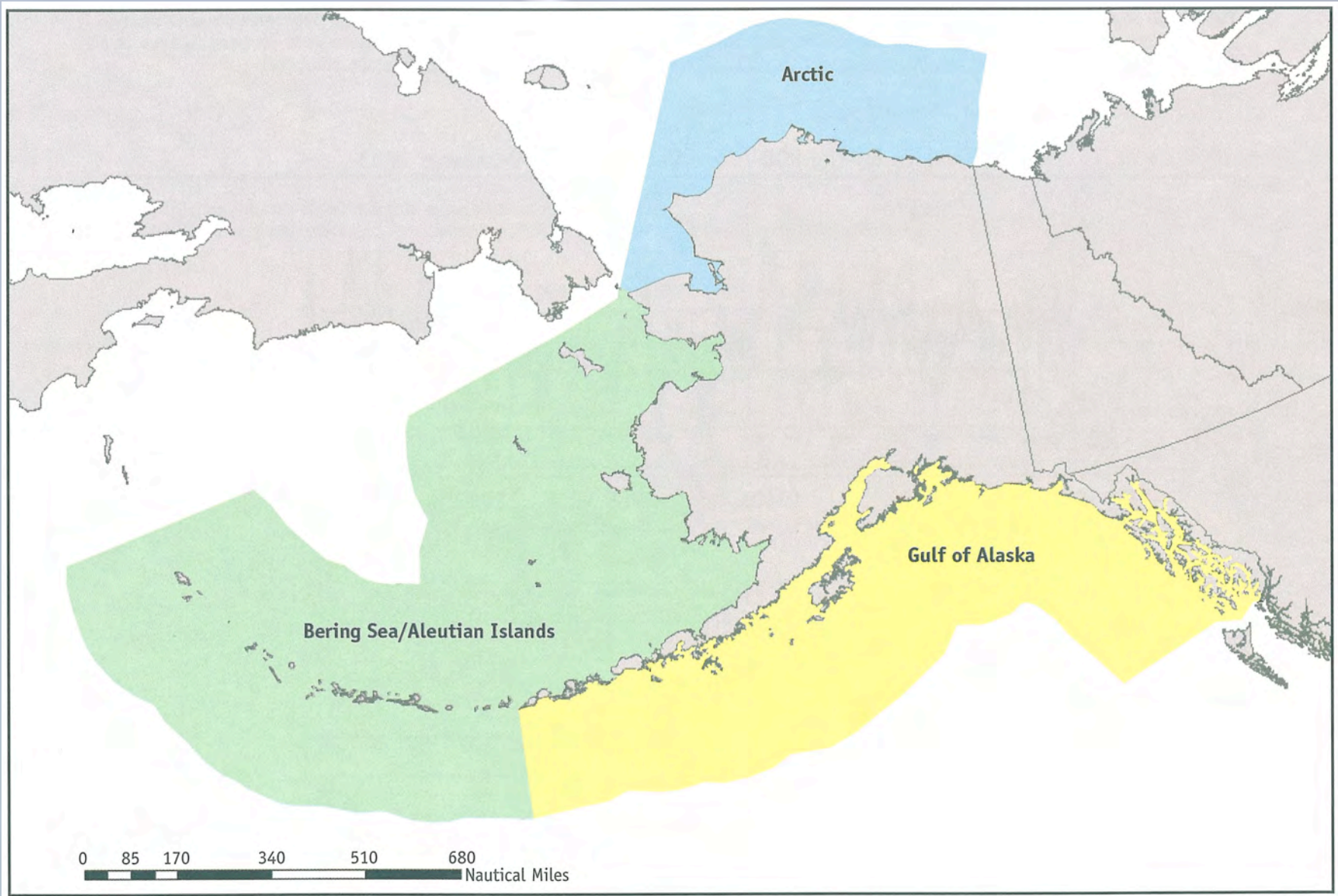
Francis.Wiese@nprb.org

2002 – 2006: 138 projects, $24.2M

http://project.nprb.org/

NRC Report and NPRB Science Plan

Arctic

Gulf of Alaska

Bering Sea/Aleutian Islands

0   85   170   340   510   680
Nautical Miles

NPRB 2005. Science Plan

Development of BSIERP

- 2002 – 2006: 38 projects, $24.2M

- NRC Report and NPRB Science Plan

- March 2005 – Bering Sea Interagency Working Group

- Adopt 6 questions from BIAW as suggested by SP, expanded to climate change

- September 2005 Board meeting – 2006 RFP

- Develop an Implementation Plan for the BSIERP by August 2006 for incorporation into 2007 RFP
  – Establish and Ecosystem Modeling Committee (EMC)

Six broad questions

1. Are the distributions (range, spawning and breeding locations) and abundances of species in the Bering Sea ecosystem changing in response to climate change? If so, how?
2. Are the physical and chemical attributes of the ecosystem changing in response to climate change? If so, how?
3. Is lower trophic level production (quantity and form) changing in response to climate change? If so, how?
4. What are the principal processes controlling energy pathways in the Bering Sea? What is the role of climate change in these processes?
5. What are the linkages between climate change and vital rates of living marine resources in the Bering Sea?
6. What are the economic and sociological impacts of a changing ecosystem on the coastal communities and resource users of the Bering Sea?

Development of BSIERP

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Ecosystem Modeling Committee

- Dan Goodman-chair, Kerim Aydin, Tim Barnett, Dick Beamish, George Hunt, Phil Mundy, Andre Punt, and Tom Royer

  – Determine model use and provide backbone and guidance for IERP

  – Establish model design criteria

- Next meeting August 17-18, 2006, in Seattle

EMC modeling criteria

- What kind and amount of data will be used to drive, calibrate, and test the models?

- What future data are to further drive, calibrate, and test the models within the time frame of your project?

- What is the model attempting to predict and why is this important?

- What are the metrics you will use to evaluate skill of the models?

- How will existing data be used for retrospective estimation (hindcast skill)?

- How will the aggregate of existing and anticipated future data be used for estimating forecast skill?

- How are you planning to use data assimilation?

- Identify simpler alternative models and describe how you will progressively compare their achieved forecast skill with your model.

Development of an Implementation Plan

Recommendations on structure and content:

1. Bering Sea Interagency Working Group – Jan 06
2. BSIERP workshop – MSS Jan 06

   – Scientific Planning Team (scientists and managers)
   – Public input
   – Pre-Proposals
   – Start with synthesis-define gaps
   – Three main themes
   – Integrate modeling
   – Topics…

Next Steps

- Public Review Period 21 July - 11 August
- Science Panel meeting 29-31 Aug
- Advisory Panel meeting 11-12 Sep
- Board meeting 20-22 Sep
- Release RFP 6 Oct

GOALS of BSIERP

What processes regulate the production, distribution and abundance of marine organisms, how will these quantitatively change under various natural and human-induced scenarios and what are the associated economic and sociological impacts?

GOALS of BSIERP

Provide managers with data, tools and information to predict the responses of the BS/AI ecosystem (including socio-economic impacts) to changes in mean state and variability in global climate and/or management policies.

GOALS of BSIERP

Based on the most probable climatic scenarios (e.g. those from Global Climate Models) on one side, **and management scenarios** on the other side, the successful BSIERP will be a vertically integrated program that will significantly increase our understanding of:

1. the major processes that regulate the distribution and abundance of upper trophic level organisms, with an emphasis on commercial/subsistence fish species;
2. quantitative changes of these processes under various natural and human-induced scenarios;
3. the resultant economic and sociological impacts; and
4. the interaction between management decisions and ecosystem processes .
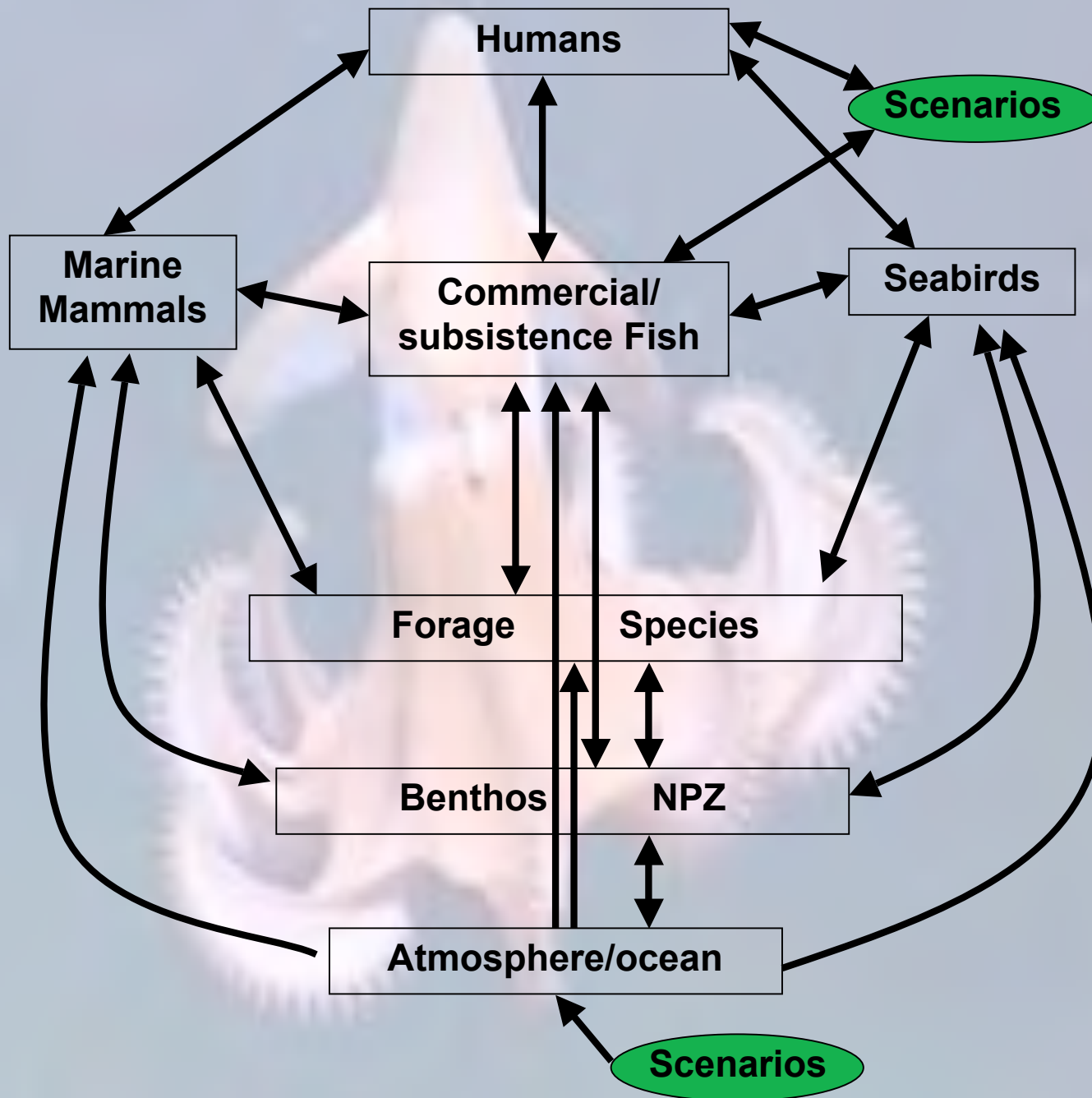
Humans

Where natural science is weak, social science is strong, and vise versa

(Flyvbjerg 2003)

Natural and social sciences each have a distinct complementary contribution to make, which, combined with the realistic dimension of management would provide fisheries management with a less fragmented, more holistic and balanced knowledge base (Jentoft 2006)

BSIERP Key Elements

- Focus on climate change and ecosystem impacts within BSAI LME

- Focus on quantitative predictions and continuous interaction between field work and modeling, with definitive evaluative criteria for models

- Vertical integration up through food web, including human impacts

- Integrated modeling component

- Multi-disciplinary and multi-institutional research teams with academic and agency scientists and managers

- Clear schedule and milestone

- Data management plan

Issues

- Self-sustained program
  – collaboration and horizontal expansion
- Baseline monitoring

Implementation Plan

Funding

Pre-proposals

Full Proposals

Review

Timing

Future

Funding

- $12-13 million (including ship time) over 6 years
  - $3-3.5M max. per year
- One spin-up year, 3 major field seasons, 2 years for analysis and synthesis

Pre-proposals

- 5 pages (inclusive of figures, tables and budget, exclusive of references and PI descriptions

- Elements:

  1. Overview (2 pages):

  - Describe how the proposed research will significantly enhance the understanding of each of the following: ***(1) the major processes that regulate the distribution and abundance of upper trophic level organisms, with an emphasis on commercial/subsistence fish species; (2) quantitative changes of these processes under various natural- and human-induced scenarios; (3) the resultant economic and sociological impacts; and (4) the interaction between management decisions and ecosystem processes.*** This must include a clear description of why and how the program will be relevant to management.

  - For each element in Figure 1 that is applicable to your project, briefly justify the species, parameters, and measurements to be addressed, the geographic location, and the spatial and temporal scales to be investigated.

Pre-proposals

- Elements:
    2. *Approach (2 pages):*
        - Clearly describe the research approaches (monitoring, process, retrospective, and modeling) to be employed for each element and/or quantifiable process identified above.

    3. Budget and coordination (1 page):
        - Identify the overall program manager, the lead PI for each major component of the proposed research, as well as the data manager.
        - Describe, as appropriate, how the program will collaborate, coordinate, supplement and/or be leveraged with current programs of the NPRB and/or other organization

Full proposals

- To support the development of full proposals, the Board is prepared to entertain written requests by invited teams for up to $5K to help support travel and meeting arrangements.

- 20 pages

- Regular requirements
  - Graduate Student Fellowships

Proposal Review

- Pre-proposals: Staff, Science Panel, EMC, Board

- Full proposals: Staff, Technical Reviews, EMC, Science Panel, Board

Program Review

- Annual Review at Science Symposium

  - Science Review Panel

  - EMC

  - Input into next field season (regular RFP)

- Regular Progress Reports

- Semi-annual or annual presentation to the Board (March/ September)

Timing

Action	BSIERP proposals	Regular Proposals
Release of 2007 RFP	6 October 2006	6 October 2006
IERP Pre-Proposals due	22 November 2006	
Regular Proposals due		8 December 2006
Invite full IERP proposals	15 December 2006	
Full IERP proposals due	2 March 2007	
Decision on regular proposals		23-26 April 2007
Decisions on IERP proposals	23-26 April 2007	

The Future

- Long-term climate change questions
- First of many 6 year modules