Introduction

• Gathering, weighing, responding to and incorporating stakeholder input are essential steps in environmental planning and resource management and are required under various acts including the National Environmental Planning Act, the Magnuson-Stevens Fishery Conservation and Management Act, and the Endangered Species Act.

• This project explores the application and performance of a variant of the Analytical Hierarchy Process, a multiple criterion group decision making technique, as a mechanism for distilling stakeholder input in the context of environmental planning and ecosystem-based management of living marine resources.

• Development of an Aleutian Island Regional Marine Research Plan will serve as a case study to determine the effectiveness of using the Analytical Hierarchy Process for defining research priorities.

Methods

• During January-April 2008, paper and web-based questionnaires were used to gather stakeholder input for research and information needs in the Aleutian Islands.

• Input received from 124 individuals and groups yielded 1,007 unique suggestions of research and information needs organized under the six societal themes identified in the Ocean Research Priorities Plan:

1.) Marine Resource Stewardship
2.) Increasing Resilience to Natural Hazards
3.) Marine Transportation and Safety
4.) The Ocean’s Role in Climate
5.) Improving Ecosystem Health
6.) Enhancing Human Health and Safety

• An expert panel rated the suggested research and information in terms of importance and feasibility using a variant of the Analytical Hierarchy Process.

• Expert panel ranking of priorities will be compared to rankings from public surveys using nonparametric correlation tests.

Preliminary Results

Theme: Human Health and Safety

Figure 1: Objective 1: Reduce risk to people from contaminants

Investigate conditions (natural or anthropogenic) that trigger harmful algal blooms.

Determine if balls of water discharges impact the safety of commercial & subsistence seafoods.

Locate former U.S. military dump sites & determine levels of toxic materials.

Improve monitoring to warn the public or to certify specific shellfish harvest areas as safe.

Determine risks & impacts to human health of harmful algal blooms in the AI. What are the safest times of year to harvest shellfish?

Develop effective warning systems to alert community members to algal blooms, contaminant spills, & other health.

Distribute information on safe consumption levels of contaminants for local & imported seafoods.

Determine the sources & pathways of the major pollutants in the Aleutians.

Determine contaminant loads in commercial & subsistence resources harvested in the region.

Research or information need

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Figure 2: Objective 2: Reduce risk from disease

1.100: Implement a human disease surveillance program in the AI region.
1.101: Implement the human health risks related to boats coming to port (i.e., disease).
1.102: Implementing changes to local diets affect disease incidence.
1.103: Determine what anthraxic pulmonary organisms are in foods such as shellfish, fish & marine mammals.
1.104: Determine the most serious immediate human health & safety needs in the region.
1.105: Promote human health & safety in the AI region through education & outreach.
1.106: Develop protocols for stress-related mental health issues aboard vessels.
1.107: Needs to know the nutritional value of fish & shellfish & if changes over time.
1.108: Need to know how coastal zone development affects health.
1.109: Develop personal, community, & regional emergency response preparedness plans.
1.100: Develop protocols to increase operating safety for government, commerce & military.
1.100: Design research & rescue programs to effectively respond to emergencies throughout the Aleutian Area.
1.100: Need to know if the timing of fisheries could be optimized to minimize human casualties associated with fishing.
1.100: Estimate the human health risks of increased shipping traffic.

Figure 1: Priorities ranked by expert panel for research and information needs under the theme Human Health and Safety and objective Reduce risk to people from contaminants.

Figure 2: Priorities ranked by expert panel for research and information needs under the theme Human Health and Safety.