

MEMORANDUM

TO: Council, AP and SSC Members

FROM: Clarence G. Pautzke  
Executive Director



DATE: January 7, 1991

SUBJECT: Research Priorities

**ACTION REQUIRED**

Review recommendations from Plan Teams and forward to NMFS.

**BACKGROUND**

In October 1988, NMFS requested Council input on research priorities for 1989 to be included in their budget planning process. This has become an annual request and the Council developed a policy for the development of research priorities.

The Plan Teams' list of priority research topics is attached as item C-8(a). Please note that these are areas of general research characterized by a lack of adequate information, as opposed to specific topics. All would require continuing attention and effort over an extended period of time. Consequently, research budgets were not prepared and the cost estimates provided could vary widely depending on the techniques employed and the level of research undertaken.

**PRIORITY RESEARCH TOPICS  
GULF OF ALASKA AND BERING SEA/ALEUTIAN ISLANDS  
GROUND FISH PLAN TEAMS**

The Plan Teams believe strongly that the principal priority for marine fishery research in the North Pacific is to ensure that baseline longline and trawl surveys continue at least at current levels, and that strong consideration be given to enhancement of these vital stock surveys. Greater support for analysis of samples and data collected from previous surveys is also essential. The resources of the Aleutian Islands are in particular need of survey coverage.

The expanded observer coverage and logbook data collection in the Bering Sea/Aleutian Islands and Gulf of Alaska groundfish fisheries which began in 1990 will provide valuable biological and performance information on the fisheries. Data collected from these programs must be expeditiously compiled and actively managed to be of maximum benefit to efforts to manage these fisheries. These programs will provide needed information on bycatch rates, species and size composition of catch, and discards. The Teams expect that these programs will contribute information addressing the following topics on last year's list:

- Bycatch rates by area, species and season for each fishery.
- Incidental catches among rockfish assemblages.

Recognizing that the information collected through the expanded domestic observer program will substantially improve our general knowledge of commercial fish stocks, the following research areas are also recommended by the Teams. The list is not in priority order. These are areas of general research, as opposed to specific research topics. Each area is characterized by a lack of information, but is broad in scope. Consequently, specific research budgets were not developed. The estimated costs associated with research in each area could vary dramatically depending on the techniques employed and the level of research undertaken. Several areas represent long term projects that could be candidates for S-K or Sea Grant funding at various universities. Other topics will likely be carried out at some level under existing programs.

Ecological and Stock Analyses

1. Mortality estimates for bycatch species in each fishery, particularly halibut and sablefish.

An initial approach could consist of analysis of halibut condition data which will be recorded routinely by the new domestic observer program. To include the collection and analysis of condition data for sablefish would require an additional \$10,000 to \$20,000. A more conclusive answer to these questions would best be accomplished by a dedicated research program including tagging programs on survey vessels. Such a program would cost approximately \$150,000.

2. Pollock life history information, especially spawning areas, annual stock production, and egg/larval transport in the Gulf of Alaska and Bering Sea. The Teams strongly support an expanded Fisheries-Oceanography Coordinated Investigation (FOCI) for the Bering Sea/Aleutian Islands.

FOCI programs in the Gulf of Alaska have cost about \$2,000,000 annually for the past several years. The Bering Sea represents a much larger area where spawning occurs over a longer period of time than in the Gulf. Research costs would be proportionately larger.

3. Expanded pollock stock assessments in the Gulf of Alaska, especially expanded annual acoustic surveys and recruitment studies.

Expanded assessments are planned in the Gulf of Alaska for 1990. To continue these studies annually after 1990 would cost approximately \$500,000 per year.

4. Structure and degrees of mixing of pollock stocks; the impact of fishing in international waters of the Bering Sea (the donut hole) on pollock stocks in the U.S. EEZ.

Studies currently underway in the Bering Sea.

5. Techniques and capacity for aging sablefish, pollock, and cod.

Field validation of aging techniques require long term research projects. Costs would be on the order of \$200,000 per year.

6. Field studies of recruitment in all major groundfish species, particularly Pacific cod, sablefish, and Greenland turbot in the Gulf of Alaska and Bering Sea/Aleutian Islands areas.

Field studies of recruitment are very expensive. FOCI is in large part a recruitment study and has been budgeted at approximately \$2,000,000 per year. An estimate of annual costs for recruitment studies in the eastern Gulf of Alaska is approximately \$1,500,000.

7. Surveys and assessments of forage species important to commercially valuable fish and shellfish species, seabirds, and marine mammals.

Expanded survey and assessment work focused on forage species could be incorporated into expanded surveys addressing commercially valuable species. Costs would be on the order of several hundreds of thousands of dollars annually.

8. Biomass estimates for rockfish throughout the Gulf of Alaska, Bering Sea and Aleutian Islands.

The development of new techniques for rockfish biomass assessment would probably require survey vessels dedicated to rockfish (rather than the current multi-species surveys that are carried out triennially). Cost would be on the order of \$500,000 to \$700,000 annually.

9. Techniques for better assessment of Atka mackerel in the Aleutian Islands.

As with #7 above, costs for a dedicated research effort would likely be on the order of \$500,000 annually.

10. Expanded ecosystem studies of the Bering Sea/Aleutian Islands and the Gulf of Alaska, especially predator-prey studies such as Pacific cod predation on crab and other commercially important species.

Collection of stomachs could be carried out by the observer program. The cost of examining stomach contents and analyzing data depends upon numbers of species of interest. Approximately \$50,000 to \$150,000 would have to be added to annual funding for existing programs.

11. Marine mammal investigations focusing on marine mammal dependence on commercial fish stocks and quantification of the impacts of commercial fishing on marine mammal populations through direct mortality, disturbance, and commercial harvesting of marine mammal prey species.

Substantial costs could be expected to be incurred by the commercial fisheries if experiments incorporating various reductions in current levels of exploitation are designed. Additional programmatic costs would include expanded field surveys to accurately assess changes in mammal populations and additional analytic personnel. These costs would be in the range of \$50,000 to \$250,000 annually.

12. Improved bathymetric mapping in the Gulf of Alaska, especially the eastern portion, to assist rockfish stock survey planning and implementation. The National Ocean Service should be requested to undertake this work as this agency is best equipped to do so.

#### Economic and Fisheries Analyses

1. Economic studies of the total value of Alaskan fishery products, including processing, marketing and retailing.

Such a study could probably be conducted over an 18 month period at a cost of approximately \$100,000.

2. Compile and analyze data contained in Daily Fishing Logs to provide fishery performance information to the industry.
3. Operation cost data for all groundfish fisheries in the Bering Sea/Aleutian Islands and Gulf of Alaska.

Such research has already been initiated for some segments of the trawl fleet. A dedicated research effort over the course of one year would require a budget of approximately \$60,000.

4. Continued examination of the institutional problems associated with limited access schemes in the Bering Sea/Aleutian Islands and Gulf of Alaska groundfish fisheries.
5. Economic impact of Alaskan harvests on the world market, including price impacts of changes in foreign and domestic supplies and demand.

This topic could be approached through a variety of techniques. A current project, similar in scope, is looking at groundfish prices and is contracted out through S-K funding with a total budget of \$180,000 over a 2 year period.

6. Economic evaluation of the consequences of various bycatch management alternatives.

7. Develop modifications to fishing gear, including hook-and-line, pot, and trawl gear, that would reduce bycatch of prohibited species.
8. Net fishing efficiency studies, including effectiveness of various trawl operations in terms of area swept versus retained catch, fish avoidance, etc.
9. Effects of trawl mesh size on catch and size composition of pollock and other species in order to minimize catch of undersize fish.
10. Economic effects on groundfish fisheries of marine mammal competition, marine mammal incidental take, and marine mammal avoidance regulations.