

"Census of the Fishes"
Fishing Industry Workshops, 1997 - 1998
Final Report

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Introduction

Ocean Trust sponsored a series of workshops and meetings with association leaders from the commercial fishing industry between November 1997 and May 1998 on behalf of the Alfred P. Sloan Foundation to determine the level of interest, priorities and concerns with a proposed census of marine life. Ocean Trust also organized a briefing with Congressional staffers.

West Coast Workshop

Ocean Trust organized a morning workshop on November 21, 1997 during FISH EXPO, the largest and only national exposition for commercial fishing industry. The workshop was held at the FISH EXPO site within the Seattle Convention Center complex. Background information on the fish census project was sent to over twenty fishery trade associations. Representatives from the following associations were in attendance: Alaska Draggers Association, United Fishermen of Alaska, *Alaska Fishermen's News*, Oregon Trawl Commission, and Natural Resources Consultants. Following the workshop, a meeting was held with the Pacific Coast Federation of Fishermen's Associations, and a lunch meeting was held with representatives from *Pacific Fishing* magazine, Purse Seine Vessel Owner's Association, Fishing Vessel Owners Association, Alaska Crab Coalition, Alaska Fisheries Development Foundation, Alaska Seafood Marketing Institute, and Alaska Draggers Association. Additional discussions were held on the exposition floor with representatives from *Commercial Fisheries News*, the Groundfish Forum, At-Sea Processors Association, North Pacific Longline Association, *National Fisherman*, and Pacific States Marine Fisheries Commission.

New England Workshop

Ocean Trust made arrangements for a Fish Census presentation on March 6, during the Maine Fishermen's Forum, the largest gathering of fishing associations in New England. Organizations represented included Associated Fisheries of Maine, Maine Sardine Council, Maine Lobstermen's Association, East Coast Tuna Association, Blue Water Fishermen's Association, as well as approximately forty-five individuals representing diverse fishery interests in New England. Comments were also received from the East Coast Fisheries Federation.

Gulf & South Atlantic Meeting

Ocean Trust made arrangements for and gave a Fish Census presentation to the Board of Director's of the Gulf & South Atlantic Fisheries Foundation on December 11, 1997. In attendance were National Blue Crab Industry Association, North Carolina Fisheries Association, Virginia Marine Products Board, Georgia Fishermen's Association, Organized Fishermen of Florida, as well as representatives from South Carolina, Texas, Alabama, and Mississippi.

National Industry Presentation

In order to reach industry representatives not able to attend regional meetings, Ocean Trust arranged for time during the National Fisheries Institute's Resource Access Committee meeting on May 4, 1998 to give a brief presentation on the Fish Census project. A wide cross section of groups were represented such as the National Fisheries Institute, West Coast Seafood Processors Association, National Fish Meal & Oil Association, Northwest Fisheries Association, New Jersey Fish Net, and approximately thirty representatives from private seafood companies.

Capital Hill Briefing

Ocean Trust also scheduled a briefing with Congressional Staff from appropriate committee and member offices. Background material on the Fish Census was hand delivered to over twenty two key committee and member offices with jurisdiction over or significant interest in marine fishery resource issues. The briefing was held in the House Committee on Resources hearing room with several congressional staff representatives from the Senate Commerce Committee and House Resource Subcommittee on Fisheries Conservation, Wildlife and Oceans.

Discussion

Several basic questions were presented to attendees at each workshop. Is a census of the fishes worth doing? Is there enough to learn? Is there a sufficient need for data on the distribution and abundance of marine life to justify a global fish census assessment? Is it technically feasible at a reasonable cost? Do the stakeholders want to participate in the project? Is there enough interest and support from fishery constituencies to proceed with the design of a fish census project?

Need for the Census

In all regions, fishing industry representatives expressed great interest in the fisheries census project. As one representative put it, "The need for a fish census is overdue." The industry's interests were primarily focused on improving data used for fishery management decisions. As reported by industry representatives, the lack of annual surveys and stock assessments has forced fishery managers to make management decisions in the absence of reliable data. As a result, management tends to use the most conservative estimates and models as dictated under the precautionary approach to fisheries management. Thus, in the absence of data, fishable biomass and harvest quotas are set at precautionary levels that underestimate stock size and availability of resource as viewed by the fishing industry. Several examples were given.

On the West Coast, it was reported that assessments were conducted on only sixteen out of eighty stocks that make up the Pacific groundfish complex. Most stock surveys were done on three year cycles as opposed to being conducted annually. Surveys also have been limited in area, but applied to the entire coastal fishery. For example, yellowtail rockfish surveys were conducted off Oregon and Washington, but used in management of rockfish fisheries in California as well.

Lack of information also led to wide estimates for criteria used in developing catch levels. For example, variables such as catchability estimates for the Pacific thornyhead stock varied widely from 0.5 to 1.2 in the current year assessment. Final estimates used were considered to be arbitrary by some industry members. Furthermore, industry confidence in U.S. assessments declined when they were compared to Canadian assessments which produced significantly different conclusions on the status of west coast groundfish. As a result, many individuals in the industry believe that Pacific fisheries are poorly managed because of the lack of data, limited number of surveys, and overly cautious stock assessment models.

Industry concern on the West Coast for better stock data was so great that it financed an independent assessment conducted by Ocean Trust for Pacific sablefish and thornyhead stocks. Similar concerns were raised by the California industry over the lack of management and information on the squid, one of the state's most important fisheries. The industry recently established a \$2.1 million program funded through permit fees to conduct research to support a sustainable management program for the California squid fishery. Other examples of industry sponsored research to address the lack of data include annual herring assessments paid with landing taxes and stamps, and research on the collapse of Dungeness crab in San Francisco Bay.

In the North Pacific, concern was expressed over the lack of information on salmon stocks. Industry representatives identified the need for better data on escapement of salmon. Lack of funding in Alaska's state budget to support escapement monitoring of over a 1,000 salmon streams was specifically mentioned. It was pointed out that the lack of data on river systems could result in having most of the coho salmon river systems listed as threatened. Concern was also expressed over the lack of information on the dramatic decline in the number of sockeye salmon which did not returned to traditional salmon fishing grounds like Bristol Bay. Industry members were concerned with the fact that no one seemed to know what is going on in the open ocean regarding salmon growth and survival. It was pointed out that Japan, Russia, Canada, United States all "pump out" salmon into a common "pasture" to mature (i.e., the North Pacific Gyre). Questions on salmon survivability in the ocean and the smaller size of salmon suggest that we might be approaching the carrying capacity of the North Pacific Gyre.

Variations in assessments for stocks which migrate between nations were also raised as a concern. For example, pollock stock assessments in Russian generated higher catch quotas (475,000 metric tons from an estimated stock biomass of 915,000 mt) compared to U.S. quotas in the eastern north Pacific of 900,000 mt out of a 4,700,000 mt biomass. Thus, the distribution, stock size assessments, and fishing quotas are important for overall success in management of

highly migratory stocks and shared stocks. As one industry member stated, "We need to standardize scientific survey protocols so we don't end up measuring similar things differently."

Concern was also expressed over the size of large stocks such as with Gulf of Alaska arrowtooth flounder stock where its mass is a problem both in terms of how to better utilize a low value resource without exceeding bycatch limits, and in terms of its impact on the ecosystem (i.e., what impact does foraging by the arrowtooth flounder stock have on the status of other resources). In the Gulf of Mexico, the industry expressed great concern over fisheries data on red snapper. It was reported that catch rates for red snapper have increased dramatically and management quotas were being filled in much shorter time frames. Charter and commercial industry members have reported significant increases in abundance of red snapper in the Gulf of Mexico. However, the National Marine Fisheries Service (NMFS) stock data do not show similar positive signs of improvement. These differences led to industry sponsored assessment work to clarify questions regarding fisheries assessments conducted by the NMFS and industry observations. Controversy over red snapper population estimates led to a third assessment conducted by Brian Rothschild at the University of Massachusetts-Dartmouth which did show higher stock levels.

Other stock assessments for species in the Gulf and South Atlantic identified by the industry as problematic include King and Spanish mackerel, red grouper, amberjack, red snapper, red drum, striped bass, vermillion snapper, and bluefin tuna. Industry expressed concern about relationships between spawning potential ratios (SPR), overfishing designations, and stock abundance. Examples were given demonstrating how changes in SPR could shift fisheries into overfished classifications even though assessments showed increases in stock abundance. Weakfish was mentioned as a fishery considered overfished even though there is no fishing pressure. Concern was also expressed in the use of landings as an index of abundance. Landings were considered the poorest measure of abundance because landings are influenced by environmental fluctuations that impact movement of fish as well as market changes that impact demand for fish product. As one industry member put it, "Just because landings are down or quotas are not met doesn't mean stock is down. These conditions also occur when stocks are not being fished."

In New England, great interest was expressed in the need to integrate fishermen's first-hand knowledge and information into the data collection and management process. As an example, New England fishermen have long supported sea sampling as the most useful tool for cooperative management between fishermen and regulatory bodies to address shortcomings of the two traditional sources of information on stock conditions. From the industry's perspective, landings information only indicates short term economic state of the industry. Landings do not provide good data on where and how the fish were caught, and what fishermen discarded. Furthermore, landings data can be completely misinterpreted. As one representative asked, "Do high landings mean a healthy stock, or one that is being fished too heavily?" Scientific surveys on the other hand were viewed as providing statistically valid data over time about the relative state of the resource from year to year (i.e., trend data for areas sampled). But the information was viewed as not timely for quick reaction by managers to short-term phenomena.

Fishermen from New England reported that they were promoting a third component to fisheries research, sea sampling. Industry representatives believed sea sampling can indicate, in a timely fashion, when areas should be closed because of concentrations of juvenile fish. Sea sampling

data was viewed by the industry as the only means of providing information about discard rates, or adjusting possession limits to minimize discards while still protecting the stock. An example from 1990 was given during which an enormous body of juvenile yellowtail flounder was located by fishermen near the Nantucket Lightship, on the edge of a closed nursery area which was scheduled to open shortly, as it did every year. Fishermen went to the management council and NMFS to keep the area closed. Unfortunately, the fishermen's information was not acted on because it was not "scientific" but considered "anecdotal." According to the industry the resulting discard rates were terrible. Landings rose dramatically for a brief period, but as much as 80% of the stock was discarded as undersized fish. Given the volatility of the yellowtail stock, the one year class in a decade which could have restored the fishery was squandered.

Concern over these past occurrences has led East Coast fishermen to offer hundreds of thousands of dollars in in-kind contributions of vessel time for sea sampling in the New England fisheries. From their perspective, fish near the Nantucket Lightship were wasted with no good conservation purpose. Only adult fish were found in the area in question. Juvenile mortality and discards could have been prevented by adjusting the closed area. The issue led to a lawsuit which was dropped when the regulations were changed to reflect the science. Discards were dramatically reduced, the economic health of the fleet enhanced, and juvenile fish protected. What began as an extremely acrimonious situation was quickly resolved because a common ground of science and data was established, incorporating fishermen's empirical knowledge into the process. The approach demonstrated the principle of "co-management" which has been highly touted as the key component for sustainability in fisheries. In New England, several industry groups including the East Coast Fisheries Federation, New Bedford Seafood Coalition, Offshore Mariners Association, Gloucester Fisheries Commission, and Associated Fisheries of Maine have proposed a joint sea sampling program in conjunction with the University of Massachusetts-Dartmouth.

Questions over abundance of protected marine species such as marine mammals and sea turtles were also of interest to fishing industry representatives. Due to requirements under the Endangered Species Act which can limit commercial access to fishery resources depending on the potential incidental impact fishing activities may have on endangered or threatened species, great interest was expressed over improvements in data on stock size and distribution of endangered or threatened species. For example, the Seattle based pollock fishing industry established a Marine Mammal Research Consortium in conjunction with several universities to conduct research on threatened Steller sea lions. Likewise, the Texas shrimp industry has supported scientific assessments on the status of endangered Kemp's ridley sea turtle.

Additional areas of concern include stock assessments used to determine incidental take levels of marine mammals protected under the Marine Mammal Protection Act. One concern regarding marine mammals has to do with the lack of information on historic stock levels used to determine various levels of protection. The industry was also concerned with bycatch restrictions based on assessments of important recreational species like red snapper. Concern over red snapper bycatch has led to the introduction of bycatch reduction devices in shrimp trawls. Industry members also expressed interest in better information on the predator/prey relationships. Reference was made to models demonstrating how bycatch reduction impacted stock abundance in directed shrimp fisheries. The example given was that a 50% reduction of finfish bycatch in

the shrimp fishery might lead to a 20% reduction in shrimp due to increased foraging on shrimp by released finfish.

Census Issues

Industry support for the fish census project was tempered by statements of concern over the use of new fisheries data from the fish census, the involvement of fisheries scientists from the National Marine Fisheries Service (NMFS), and the integration of exiting NMFS stock assessments into a global fisheries assessment project.

Several fishery representatives expressed a lack of confidence in the NMFS and concern with its potential involvement in the fish census project. As one representative from the Gulf and South Atlantic put it, "If NMFS is in control of the project, we don't want anything to do with it." Concern was expressed with the potential preoccupation of NMFS scientist's in justifying past assessments and scientific analysis. Industry members recommended that the census be conducted in a manner so that it would not be influenced by scientists' personal interests in validating or protecting their past work and reputation.

Allegations were also raised that the NMFS arrives at political answers or solutions to fishery management problems (e.g., allocation of resources, bycatch restrictions, etc.), and then finds a way to justify it scientifically. If "political science" enters into the census project where mathematical models and hypotheses are manipulated to reach a desired and predetermined outcome, then the project will be flawed. However, if the project goals are to ground truth facts and get the best assessment on status of fisheries, then the industry will support it.

Among additional concerns expressed were the potential for continued use of negative stock modeling assumptions resulting in long-term assessments that slope downward. For example, if the proposed census used "non-existing" research on West Coast groundfish with current assumptions it would only further exacerbate problems in the data base. Support would not be forthcoming for the fish census if current assessments are accepted without an independent review and consideration of alternative stock assessment models.

Concern was also expressed over the access and use of new data. Would the fish census data be used to add regulations to what many believe is an already over-regulated industry? As reported by one industry member, "There are two views in the industry regarding submission of fishing vessel data." One view supports the need for better information in fisheries management, voluntary submission of data to management authorities, and a worldwide accessible database. The other industry perspective argues against sharing industry information with managers because of concern about the potential use of data to close or further restrict fisheries. Many industry members also question how the data would be used by competing gear fishermen, recreational fishermen, environmental groups, and other non-governmental organizations to further agendas contrary to equitable access and sustainable use of living resources as a food source.

Several other questions were raised by workshop participants. How would the census survey be integrated into existing research at national and international level? What impact would the

proposed program have on current efforts to improve data in U.S. jurisdictional areas? Would the fish census divert funding from existing research priorities based on fisheries management needs to a more global project and broader set of priorities? It was suggested that the census integrate technologies into current systems on a small scale within the EEZ, rather than take on broad international project? As one workshop participant put it, "Why sponsor a global, international project when we don't know what's going on in U.S. waters?"

Technical & Survey Issues

Several comments were offered regarding technical and design aspects of conducting a fish census. It was suggested that the census start with discrete areas and establish a demonstration model that works before embarking on a global assessment. The census might concentrate initially on one of the most important commercial species or one the most pressing questions from the industry (e.g., Russian pollock stocks status).

One industry member remarked that the proposal "deals with pelagic, not demersal" species. The industry reported that there were no satisfactory methods to survey demersal species. Survey by capture, was not consider a good way to count fish. Swept area bottom surveys currently used for rockfish, for example, are considered "hit or miss" efforts. Regular surveys can spot trends, but don't serve as indicators of absolute abundance. It was suggested that tagging would give better results.

Some industry members mentioned specific fish scopes, navy electronics, and acoustics that show bottom species. It was reported that sidescan sonar could "pick up" crabs on the bottom. In regards to hydro-acoustics, the Norwegians, United States, Canada, Russian were reported to have the best technology.

It was also suggested that before new surveys were designed or conducted, all available data be examined. The United Nations Food and Agriculture Organization reports data by species groups. It was recommended that the data be collated by gear type. One workshop participant reported that years of observer data had been collected in the NMFS North Pacific groundfish observer program, but never analyzed or used. It was also noted that some past surveys, such as for whale stocks, were designed for potential capture purposes, not for stock assessments. Additional sources of fisheries data exist within NMFS, regional fishery management councils, state government agencies, interstate fishery commissions, regional data banks, and private research organizations. Some of these organizations prioritize and publish research needs annually.

Finally, there were questions over whose vessels would be used to conduct census surveys and to what extent the census observational system would be based on the use of ships of opportunity.

Conclusions

The industry's interest in improved fishery stock data appeared to be directly associated with stock assessment use in determining allowable catches, bycatch limits, and quota allocations among gear types and user groups. The most common concern was over low stock assessments

which might reduce annual catch quotas directly or indirectly through bycatch limits on non-targeted species. Low stock assessments aggravated arguments within the industry among gear types regarding the absolute numbers and the way fish was counted because it directly impacted quota allocations and access to the resource.

Commitment of funds for independent stock assessments was one of the strongest statements that demonstrate the industry’s interest in better data. Industry funded stock assessment research has occurred in many fisheries. In some regions, dedicated funds have been established to support long-term assessment work with fishery scientists employed by the industry on a full-time basis to participate in the NMFS stock assessment process.

Industry interest in cooperative data collection also exists on all coasts. A growing sentiment in support of co-management was present particularly in New England. Several examples were given during the workshops on the fishing industry’s use of its vessels and resources to assist in the collection of marine fisheries data. This included surveys conducted or proposed by fishing groups for sea sampling, areal surveys, fish tagging, and logbook analysis in Atlantic, Pacific and Gulf fisheries.

Within each region of the U.S., there were specific needs for improved fishery data and/or stock assessments. Concerns ranged from basic lack of data, problems with current survey designs, fishery data interpretation, survey area of coverage, and infrequency of surveys. These cumulative deficiencies were viewed as having a direct impact on stock assessments, management decisions, and quota allocations among gear types and different user groups. As a result, there was unanimous support from all meetings and workshops for any effort to improve the existing data base on the abundance and distribution of marine life, and great interest in participating in the design and implementation of a fish census.

In response to the initial questions asked at the industry workshops, the following conclusions are presented:

Is a census of the fishes worth doing?	YES
Is there enough to learn?	YES
Is there a sufficient need for data to justify a global fish census assessment?	YES
Is it technically feasible at a reasonable cost?	? (No conclusion)
Do the stakeholders want to participate in the project?	YES
Is there enough interest and support from fishery constituencies to proceed with the design of a fish census project?	YES

Recommendations

Based on the industry workshop results, we strongly recommend that the "Census of the Fishes" proceed with the design of a multi-year program to conduct a comprehensive assessment of the global distribution and abundance of marine life.

We recommend that the census project establish a standing committee of representatives from the fishing industry to provide comment and guidance in establishing priorities, objectives and scope of the census; practical assistance in the design of proposed surveys and in the application of technology; help in identifying opportunities for collaboration with industry and use of ships of opportunity for survey work; and a link to the commercial industry at large.

We also recommend that as part of the survey design all existing fishery data bases be identified and evaluated in terms of its application and use in the "Census of the Fishes" project.

Submitted by:

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