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SEA GRANT 3RD ANNUAL SCIENCE SYMPOSIUM
LOBSTERS AS MODEL ORGANISMS FOR INTERFACING BEHAVIOR, ECOLOGY,
AND FISHERIES: DISCUSSION SESSION SUMMARY ON COOPERATIVE RESEARCH

Edited and reported by

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When J. Stanley Cobb needed a way for his student, Annette Juinio, to collect lobster larvae far offshore from the Rhode Island coast, he turned to a lobsterman. At the time, it was difficult to find fishermen willing to help scientists. However, a few lobstermen did volunteer, and in so doing they began a new era of cooperation between the research and fishing communities. In the early years, the lobstering community was cooperating with scientists, but it was not yet called "cooperative research." Since then cooperative research expanded and evolved throughout New England and the rest of the world as more fishers, scientists, and managers have seen the advantages of working together. This sea change in attitudes spawned numerous collaborations and with them myriad opportunities and challenges. To take stock of these changes and to consider what is possible for future collaborations, this special discussion session was held in the symposium. Bonnie Spinazzola Executive Director of the Atlantic Offshore Lobstermen's Association, led off and facilitated the discussion.

The problems and the promise of cooperative research were evident when Spinazzola interviewed scientists, managers, and fishermen before the symposium. Although details differed, the three groups had curiously similar causes for optimism and for concern. Specifically, scientists wanted to learn something new but wondered if they could trust the data coming from fishermen (and if those data will ever be publishable). The managers wondered what data gaps they could fill with the aid of fishermen, but they too wondered if they could trust the results from fishermen. The fishermen were interested to learn something new, they think improved relationships between stakeholders and managers are worthwhile, but like the other two groups they wondered if they can trust the scientists or managers.

Clearly incentives for working together exist but questions remain on how to communicate among parties, who should pay for the research, how results will be integrated into the management process and what, if any, down-side exists in cooperative research.

Cooperative research is impossible without communication among groups. Kathy Castro of the University of Rhode Island pointed out that the fishing community communicates in fundamentally different ways from the other two groups. Fishers do not generally participate in organized meetings;

they discuss their concerns over the radio while they are at sea fishing. So, for scientists and managers, cooperative research means not only filling data needs, but also effectively communicating. However, as Stuart Cromarty of Assumption College pointed out, in return for their efforts fishermen must receive scientific information they understand. The scientific community may be most comfortable publishing their results, but scientific publications are often hard for the lay public to read. Even managers do not always use the available scientific information "to help the resource" according to Dick Allen.

Elsewhere in the world walls between fishers and scientists are coming down. Canada has developed a new fusion of fishermen and scientists according to Peter Lawton, Department of Fisheries and Oceans (DFO), Canada. This Fisherman Scientist Research Society is a formal semi-independent management agency that is now officially part of Nova Scotia's stock assessment. The Society invites managers to their meetings and uses a website to distribute information. Peter suggested that "this is the sort of thing the US needs to try to do" so they can develop linked regionally distributed cooperative research.

In Australia, the links between the science and fishing communities are strong because to qualify for federal funding, participants must submit a plan for communicating results according to Bruce Phillips, Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia. In that system, Phillips said, "industry invites the scientists to come and talk to them, not the other way around." Spinazzola pointed out that this is also true in the northeastern region of the United States due to the relatively recent development of the federally funded Northeast Consortium (NEC). Fishers initiated several NEC projects and the vast majority of the funds go to them. Win Watson, University of New Hampshire, added, "it really helps to involve the managers. When we did this, we involved them every step of the way". As a result, the managers gave advice on how to set up the program, how to collect, and use the data and how to modify the study to be more useful to them. The NEC program so far has been confined to New England, but fishing industries elsewhere want to see it expanded if federal funding will permit.

The challenge becomes how to keep these programs going long enough to build trust and dissolve suspicions among the

participating groups. John Annala of the Gulf of Maine Research Institute worked in New Zealand in the 1970s and 1980s helping to develop industry-scientist networks for New Zealand's rock lobster fishery. The fishing industry wanted to develop teams of scientists to work on their fishery but funding and suspicions stood in the way. Annala felt the two problems had a singular solution. He "found that one of the key components to gaining trust was the introduction of 'cost recovery'" in which the fishery funds the necessary research and stock assessments. By "1996 the New Zealand rock lobster fishery paid for 95% of the costs of cooperative research. Over the next four years, the industry decided that if they are going to pay [for the research], then they want to control what is being done." This resulted in an industry-initiated team of scientists who successfully won the contract bid to conduct their own stock assessments. These assessments were used in a management model so that the Federal government's role was to simply audit the result results. Effectively the industry became self-regulating.

Mark Butler of Old Dominion University conducts spiny lobster research in the U.S. Florida Keys. He sees a different funding landscape that limits what is possible. Major funding agencies, such as the US National Science Foundation (NSF), generally do not fund fisheries research. As a result, "many times we cannot work on the things that the fishermen would like to see done." Some of the more applied agencies such as the National Oceanic and Atmospheric Administration's (NOAA) Sea Grant program functionally have become little more than a clearinghouse for ideas since most programs are woefully under-funded for research. Bob Steneck, University of Maine, suggested that it might be unrealistic to look to basic science organizations such as NSF to fund cooperative research. Since it serves the fishing community to invest in research critical to their livelihood, then perhaps they should build their own infrastructure to address scientific questions for which they want answers. Steneck went on to suggest that, what John Annala described for New Zealand might be a useful model for cooperative research in the future. For example, Maine's lobster fishery is the largest fishery in eastern North America, but the lobstering license is relatively inexpensive. Maine lobstermen have stated publicly, that they would be willing to pay a fraction of their license for research that is meaningful to them.

An added value of "cost-recovery," or a license surcharge for research, is that it not only pays for necessary research, but it also buys time get to know one another and to build trust. Steneck thought, "if there are ways of improving connectivity among the fishing community as well as among the science community, it will improve things tremendously." Bonnie Spinazzola agreed and reported that in the past the different groups determined what information was to be shared and what it meant. She went on to indicate "we have gotten to a point now where we [industry] are very comfortable with the exchange of information that takes place. We are in a good place now."

The test of the positive co-evolution among fishermen, managers, and scientists is in how well it works. Bob Miller, DFO, Canada, works closely with Nova Scotia lobstermen, who fund their own research and collect their own data.

He helps them analyze and interpret it. As a result, they concluded that lobstermen must change their management plan, but this did not sit well with industry. Miller asked, "How do you deal with that?" John Annala answered to say that all information must be used. He observed that in the US there is a "disconnect" between "information that is coming in from cooperative research programs and that getting used for management decisions." This breeds "reluctance on the part of industry to release or share information. They worry it will be used against them." However, if all of industry's data are used "there is no reluctance on the part of industry." Steneck asked if there are examples of industry-based data resulting in "draconian cuts to fishing" that was acceptable to industry. "Yes", according to Annala, "in two [New Zealand] fisheries they have done just that. The total allowable catch was reduced in two consecutive time periods".

However, Mike Fogarty of the National Marine Fisheries Service (NMFS) pointed out that New Zealand and other countries have well defined property rights "which are incentives that really help make this a reality and make it an investment in the future with fishermen." Can property rights create incentives for fishers to conserve and thus heighten the need for cooperative research? Annala indicated that, "Certainly having property rights in some cases is a very necessary condition for this to work." However, the industry had property rights for 10 years and it wasn't until cost recovery that industry became actively involved. "The combination of property rights and cost recovery seem to be the key" according to Annala. However, this may only work for larger fisheries that can afford it, according to Bruce Phillips. He suggested that Australia's lobster fishery does not "mind being taxed a small amount" resulting in \$2 to 3 million in revenue, but for small fisheries may have to rely on more direct government control.

The discussion ended on the key topic of trust that Bonnie had introduced. The complexities of the new partnerships create suspicions about motives. Jan Factor, State University of New York at Purchase, wondered if the relationship between science and industry might be perceived as being too "cozy." "Can the data be trusted?" He recalled questions that were raised over the science presented by the energy industry regarding global warming. As the number of interested parties grow, so too will conflicts. Bob Glenn, Massachusetts Division of Marine Fisheries, pointed out that the US lobster fishery is managed as three stocks, seven management zones and with "many different opposing views as to the best way to manage the fishery." Perhaps incentives for being involved are changing as well. As Mike Fogarty pointed out, in the past "scientists have benefited mostly from the fishermen [who] out of the goodness of their hearts, [have taken] them out to sample and collect." Now though the NEC and NMFS funds for cooperative research, there is considerable money available. However, Mike wondered if industry thinks the funds are being well spent. Spinazzola thought the research foci were fine, but she had heard some fishermen feeling that "a few fishermen get all the profit while others get none." She concluded that it was the fishermen most willing

to work with the agencies who profit most. She felt the “good thing about [those] programs . . . is that the scientists . . . are more than willing to work with us.”

Dick Allen thought it is incorrect to think that even within the community of scientists that they all are “on the same page.” From his perspective, fishermen have one point of view, scientists have another (or several) but “certainly in the lobster fishery in New England there is a tremendous difference of opinion concerning lobster science and particularly science as it applies to management.” Rick Wahle of Bigelow Laboratory for Ocean Sciences pointed out that science is often about disagreements. Steneck wondered that if it would be possible to develop a better means for conflict resolution. Such means exist in other public sectors. “For example, power companies have one interest and the public has another.” In every state in the US, “electric rates are ultimately adjudicated by public utilities commissions. I’d like to see a future where we have such a court with an impartial judge or jury to which the fishing

industry and management can bring their scientific data and make their case this panel or commission to have it resolved” but the ultimate resolution should be based on the strength of the science.

Bob Glenn thought, “all of us are willing to sit and have a healthy debate about scientific differences.” However, he pointed out that we should “strive to maintain the independence of the science and the management process” and use scientific data that will serve the overall management goals best.

So perhaps good fences will make good neighbors. However as cooperative research progresses and the neighbors work together and invest their time and resources for the good of the community, the fences may become less important in the future.

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