



Economic Leadership

Sea Grant research probes fishing communities' response to change

CRISIS AND CHANGE IN FISHERIES are nothing new to residents of Oregon and the Pacific Northwest. Over more than a decade, the region's salmon fisheries have been cut back again and again in an effort to help recover stocks of wild salmon. Catches of groundfish—over 80 species of flatfish and rockfish—have been significantly curtailed to allow some stocks to rebuild.

The ocean itself has undergone changes wrought by El Niño, La Niña, and other events that affect the availability of food to fish populations. Public attitudes toward fisheries favor broader protections for marine ecosystems. And the economic contributions of fisheries and the performance of fishery management are under scrutiny as never before. There are too many fishing vessels chasing too few fish, fishery earnings are low, and coastal economies are feeling the effects of lost fishing revenues. The task of fishery management—keeping the amount of fish taken out of the sea in balance with what fish populations can produce—is becoming increasingly complicated and costly.

Change is on many minds as fishery managers, the fishing industry, and coastal community residents try to adapt. Managers are developing regulations to end overfishing, rebuild fish stocks, reduce unintended catch—called bycatch—and maintain coastal fishing economies. Industry is



The Adapting to Change program examined how fishers are affected by complicated, ever-changing ocean and regulatory conditions.

looking for ways to reduce the size of fishing fleets and restore profitability. Coastal communities are planning for a future role for fisheries that is different from the past.

How did these important and traditional fisheries decline? What is their future? Can they recover enough to once again contribute to Oregon's coastal economies? How do policies affect coastal communities? How can those most directly hurt by fishery declines be helped?

An unusual Oregon Sea Grant research project, Adapting to Change, brought together teams of researchers from several disciplines to explore these questions and to

assess how fishing regions, communities, businesses, and families have learned to cope with change.

In three of the six research projects, Oregon State University economists investigated different aspects of America's fisheries in an effort to understand what contributes to fishery development and sustainability within an environment of change.

Susan Hanna looked through the lens of history to discover how government policy affects fishing economies. She compared two fishing regions—the Pacific and New England—to understand the role played by government policy in influencing how fisheries have

developed and how they have been managed. Neither region has been successful keeping fishing capacity in balance with resource capacities. Over time, incentives to expand fisheries have led to excess fishing capacity and to complicated rules controlling harvesting. A focus on the short-term has prevented long-term planning and has kept management performance from being evaluated.

Becky Johnson and coinvestigators wanted to understand how changes in fishery regulations affect tax revenues to coastal economies so that managers could choose the least harmful approach to fishery cutbacks. They constructed a Computable General Equilibrium (CGE) model to look at how economic linkages between businesses influence the flow of fishery earnings through a regional economy. They modeled the fishing economies of the Oregon coast and Bristol County, Massachusetts, home of New Bedford, New England's largest port. They looked at similarities and differences between the two communities to analyze the tax impacts of changing regulations.

Bruce Rettig used the backdrop of crisis in Pacific salmon to look at the question of loss and compensation in fisheries. He analyzed compensation to landowners for actions taken to protect salmon habitat and also looked at compensation to salmon fishermen in the form of payments for vessels in a

buyback program. The degradation of salmon habitat involves government as a partner in the causes of habitat degradation as well as in actions taken to fix it. The need to reduce the size of fishing fleets also includes government as both a contributor to the problem and to its solution as it reduces salmon fleets through vessel buyout programs.

The following are some of the researchers' findings about fishery management, the economic impact of regulations, and compensating for economic losses. They all reflect the connection between fishing and fishing economies.

- ▶ Change is a constant condition in fisheries. Fisheries will not continue to grow and expand, but other changes will happen.
- ▶ Flexibility in fishery management contributes to the anticipation and management of change that helps a fishing economy remain healthy.
- ▶ Short-term management actions lead a region down a path to long-term economic effects.
- ▶ Regulations that affect income earned from fishing influence the flow of money through a regional economy.
- ▶ The types of business linkages in fishing communities determine how fishing income flows through a regional economy.
- ▶ Understanding how fishing income contributes to the regional economy means that regulations

can be chosen to create the least damage for households and local governments.

- ▶ Government has a legitimate role in compensating for fishery losses, but many involved in compensation programs like vessel buybacks are skeptical about their cost-effectiveness.
- ▶ Participants in compensation programs have questions about the government's ability to solve the problems it helps create.
- ▶ Many people see a need for major changes if fisheries are to be sustainable in the future.

These and other findings are included in a new Oregon Sea Grant book, *Change and Resilience in Fishing*, edited by Hanna and Madeleine Hall-Arber, an anthropologist at Massachusetts Institute of Technology. Featured authors, along with the three economists, include fellow Adapting to Change researchers Lori Cramer, Anisa Zvonkovic, and Courtland Smith, along with members of the Extension Sea Grant outreach team that complemented the research effort. The book is being marketed to fisheries managers to help them meet their legal requirement to consider human issues along with environmental issues when making decisions that affect America's fisheries.