

ECOSYSTEM



ECOSYSTEM APPROACHES FOR FISHERIES MANAGEMENT

16th Lowell Wakefield Fisheries Symposium

University of Alaska Sea Grant College Program
Report No. 99-01

Lowell Wakefield Fisheries Symposium



**ECOSYSTEM
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FOR FISHERIES
MANAGEMENT**

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in Fisheries Management, September 30-October 3, 1998,
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Sea Grant is a unique partnership with public and private sectors combining research, education, and technology transfer for public service. This national network of universities meets changing environmental and economic needs of people in our coastal, ocean, and Great Lakes regions.



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About the Symposium

Alaska Sea Grant invited the Alaska Chapter of the American Fisheries Society to hold its 1998 annual meeting jointly with a Wakefield symposium. At the time discussions began, the Alaska Chapter of AFS had proposed to host the 1998 annual meeting of the Western Division of AFS. The proposal was successful and the three meetings were held jointly. The topic, Ecosystem Considerations in Fisheries Management, was jointly chosen by representatives of the three entities.

The meeting was held September 30 to October 3, 1998, in Anchorage, Alaska. Nearly 250 presentations were made, with several plenary speakers to introduce the topic and discuss the partnership of Sea Grant and the American Fisheries Society. Due to the dedication of the following committee members, the meeting was deemed successful and attracted nearly 500 attendees.

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The Lowell Wakefield Symposium Series

The University of Alaska Sea Grant College Program has been sponsoring and coordinating the Lowell Wakefield Fisheries Symposium series since 1982. These meetings are a forum for information exchange in biology, management, economics, and processing of various fish species and complexes as well as an opportunity for scientists from high latitude countries to meet informally and discuss their work.

Lowell Wakefield was the founder of the Alaska king crab industry. He recognized two major ingredients necessary for the king crab fishery to survive—ensuring that a quality product be made available to the consumer, and that a viable fishery can be maintained only through sound management practices based on the best scientific data available. Lowell Wakefield and Wakefield Seafoods played important roles in the development and implementation of quality control legislation, in the preparation of fishing regulations for Alaska waters, and in drafting international agreements for the high seas. Toward the end of his life, Lowell Wakefield joined the faculty of the University of Alaska as an adjunct professor of fisheries where he influenced the early directions of the university's Sea Grant Program. Three Wakefield symposia are planned for 2000-2002.

About This Proceedings

This publication, the 16th in the Lowell Wakefield Fisheries Symposium series, has 49 papers presented in the Wakefield sessions of the combined meeting.

Layout, format, and proofing are by Brenda Baxter, Sue Keller, and Carol Kaynor, and cover design is by David Brenner of University of Alaska Sea Grant. Copy editing is by Catherine W. Mecklenburg, Point Stephens Research Associates, Auke Bay, Alaska.

Opening Comments

R.K. Dearborn

*University of Alaska Fairbanks, Alaska Sea Grant College Program,
Fairbanks, Alaska*

Welcome on behalf of the University of Alaska Fairbanks and its School of Fisheries and Ocean Sciences. Welcome on behalf of the Alaska Sea Grant College Program.

Most importantly I wish to welcome you on behalf of a partnership that for 18 years has brought together scientists on topics chosen by the fishery scientists and managers in this region through the mechanism of the Lowell Wakefield symposia. Although the symposium series is hosted by Alaska Sea Grant, and symposium manager Brenda Baxter works for Alaska Sea Grant, the Lowell Wakefield symposia are really the result of a partnership between the University of Alaska Fairbanks and its Sea Grant Program, the Alaska Department of Fish and Game, the National Marine Fisheries Service, and the North Pacific Fishery Management Council. The program committee always includes members from these five partners. This year's symposium committee includes: Milo Adkison of our School of Fisheries and Ocean Sciences in his first committee assignment; Gordon Kruse of the Alaska Department of Fish and Game, who has served on many of the Lowell Wakefield committees and to whom we all owe a significant debt of gratitude; Patricia Livingston of the National Marine Fisheries Service (NMFS) Alaska Fisheries Science Center; Clarence Pautzke, Executive Director of the North Pacific Fishery Management Council; and this year, because of our special partnership with the American Fisheries Society (AFS) for this meeting, Cindy Hartman of AFS and the NMFS Alaska Region. As for every Wakefield Symposium, this communal effort has been guided by the tender buggy whip of Brenda Baxter. There is no such thing as a non-working assignment to one of Brenda's committees. You will note that every one of these committee members, plus Bob Bilby of NMFS, is also serving as a session chair.

Because the Lowell Wakefield Symposium series is driven by a partnership of university and agency scientists, a retrospective look at the symposium topics also provides a look at our growth and the growth of the science. There are three striking signals in the data:

1. The early symposia addressed the biology of single commercial species—crab, herring, sablefish—but more recently the symposia have addressed topics like the role of forage fishes, combining multiple information sources in stock assessment, and this year, ecosystem considerations in fisheries management. The series has not abandoned

single-species topics, but I think there is a clear signal of the complexities that have entered fisheries management.

2. If one reads the proceedings of one of the very early symposia, and especially the discussions of “where do we go from here,” it is clear that the learning that takes place at these symposia and the resulting discussions influence work over subsequent years. The tremendous progress that is reported in a subsequent proceedings volume is clearly a rewarding extension of the priorities discussed in the early symposium on a related topic. I trust that this year will be no exception to our trek up the learning curve.
3. Last, the symposia reflect an increasingly multinational flavor. We have long recognized that even though Alaska has more than half of our nation’s shoreline and lands half the nation’s fish, we do not have as residents half of the nation’s, and certainly not half the world’s, fishery or ocean scientists. Over the past decades, leaders of the fishing industry have pushed the industry beyond national boundaries and often ahead of our scientific knowledge base. Responsible leaders in the industry, such as Lowell Wakefield, recognized that the development of the industry has moved at a faster pace than knowledge can be developed and encouraged the kind of scientific information exchange that takes place at these meetings. This region’s fisheries are of world scale. Our Canadian colleagues to our south have for many years been contributors to our discussions, and we have valued that tremendously. As the questions addressed by these symposia have become increasingly complex, we have been blessed by a continuing enrichment of talent from around the globe. We welcome with greed this international participation.

Thank you for joining us, both for the Wakefield symposium and for the meetings of the Alaska and Western Divisions of the American Fisheries Society.

Let me introduce you to your next speaker. Those of us from Alaska who think of lakes like Becherof and Iliamna as vast and productive lakes are reminded by people like our next speaker, a former executive secretary of the Canada-U.S. Great Lakes Fishery Commission, that there are larger lakes. I have had the privilege of working with him over recent years as a member of the National Review Panel to the Sea Grant College Program. You may know him better as a past president of the American Fisheries Society. At any rate, he is a long and faithful friend of us all. Let us welcome Mr. Carlos Fetterolf.

Sea Grant, the American Fisheries Society, and Essential Fish Habitat: A Developing Relationship

Carlos Fetterolf

National Sea Grant Review Panel, Ann Arbor, Michigan

Carlos Fetterolf is a past president of the American Fisheries Society and a current member of the National Sea Grant Review Panel. This paper contains his unique perspective on these two organizations and how they interact.

Abstract

Dr. Ronald Baird, Director of the National Sea Grant College Program, and Paul Brouha, then Executive Director of the American Fisheries Society (AFS), created an AFS/Sea Grant Intern Program in 1997. A guidance committee decided on aquatic habitat as the focus for the intern, Lee Benaka, thus fitting with the Congressional reauthorization of the Magnuson Fishery Conservation and Management Act. The act calls for designation and special management of "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" as essential fish habitat ("fish" includes other aquatic organisms, e.g., lobsters, clams). The National Marine Fisheries Service (NMFS) will carry out the provisions of the act. Discussions with Rolland Schmitten, NMFS director, resulted in agreement to develop a symposium on essential fish habitat for the 1998 annual meeting of AFS in Hartford, Connecticut. NMFS and Sea Grant agreed to publish the symposium proceedings (25 papers) in the AFS book program with intern Benaka as editor.

Following the symposium, a dozen Sea Grant and NMFS personnel met to decide how to continue their symbiotic relationship, and how the resources of the 29 individual Sea Grant college programs could be brought to bear on the identification, evaluation, and protection of essential fish habitat. In the words of Dr. Baird at this meeting, "Sea Grant has a ready cadre of researchers, educators, communicators, and outreach experts."

A foundation has been established for continued and expanded AFS intern programs with not only Sea Grant, but with NMFS, the National Oceanic and Atmospheric Administration, the Fish and Wildlife Service, the Geological Survey and its Biological Resources Division, the Environmental Protection Agency, the Department of Agriculture (aquaculture), the Forest Service, and others.

Introduction

Many of the attendees at today's plenary session from the United States and Canada are either members of, or familiar with the American Fisheries Society, but we also have attendees and authors from Australia, China, Denmark, Italy, Jakarta, Malaysia, New Zealand, the Philippines, Russia, South Africa, Sweden, and the United Kingdom. While the American Fisheries Society has more than 9,000 members in over 70 countries, it is unlikely our guests are familiar with AFS, the oldest and largest society of fisheries and aquatic scientists in the world.

American Fisheries Society

AFS and its members are dedicated to:

- The advancement of fisheries and aquatic science;
- Communication of scientific and technical information to other professionals, decision makers, and the public;
- Encouraging the teaching of fisheries and aquatic sciences in colleges and universities; and
- Continuing education and development for fisheries and aquatic science professionals.

AFS takes reasonable and informed positions on resource issues that affect aquatic environments and resources. To this end, AFS:

- Supports research to identify and understand fishery resources and ecosystems;
- Publishes four peer-reviewed journals focused on fisheries and aquatic sciences, fish health, aquaculture, and management;
- Supports managing aquatic resources and habitats for sustained yield;
- Supports regulation of aquatic pollutants;
- Supports strong, scientifically defensible government policies and effective interjurisdictional management structures; and
- Organizes science seminars, workshops, and technical meetings.

AFS is structured into 51 chapters, four geographic divisions, and 21 discipline-oriented sections ranging from fisheries management, to fisheries law, to physiology, to socioeconomics. In short, AFS has something for everyone involved with the fisheries profession. AFS is not just about fish.

When elected to the AFS presidential succession in 1988, I had served for many years on the Michigan Sea Grant Policy Committee, and had often thought of the potential win-win relationship if the two organizations could be brought together. Upon retiring from the Canada-U.S. Great Lakes Fishery Commission, which, by the way, is a sister organization to the commissions you are more familiar with on our Northwest Coast—the Pacific Halibut Commission and the Pacific Salmon Commission—I was appointed by the Secretary of Commerce to the National Sea Grant Review Panel in 1993, and the win-win relationship concept returned strongly.

National Sea Grant College Program

Sea Grant is a partnership and a bridge among federal and state government, academia, industry, scientists, and citizens to help Americans understand and sustainably use our precious coastal, ocean, and Great Lakes resources. Through the 29 Sea Grant institutions, which draw on faculty from over 200 colleges and universities, Sea Grant addresses such areas as aquaculture, aquatic nuisance species, coastal economic development, coastal habitat enhancement, coastal hazards, education, fisheries, marine biotechnology, and seafood technology. In the early days of Sea Grant, the programs very often dealt with fisheries and Sea Grant was colloquially known as Fish Grant, but now, as with AFS, it is not just about fish.

The Sea Grant effort is three-pronged: research, outreach, and education. Scientists tackle the important questions and the research. Extension specialists take the information to the users. Communication specialists build public understanding for science-based resource management. Educators, on a fourth front, bring the discoveries to the nation's students.

Bringing AFS and Sea Grant together

In June 1996, Dr. Ron Baird became Director of the National Sea Grant College Program, and he began building partnerships and working relationships. My AFS/Sea Grant win-win concept came to the front and I wrote a combined letter to Ron Baird and Paul Brouha, then Executive Director of AFS, urging them to meet and consider the potential for a symbiotic relationship which would benefit both organizations and the fishery resource. Both leaders quickly seized the opportunity; a memorandum of understanding was drafted; a guidance committee was formed (Dr. Jeffrey Reutter, Ohio Sea Grant; Dr. Robert Stickney, Texas Sea Grant; and the author); a position description was agreed upon; and AFS/Sea Grant intern Lee Benaka was hired. The committee met at the 1997 AFS annual meeting in Monterey, California, and settled on aquatic habitat as the intern's focus. This fit with the 1996 Sustainable Fisheries Act (P.L. 104-297) which amended the 1976 Magnuson Fishery Conservation and Management Act, in part,

by adding provisions for the care of essential fish habitat. These provisions require the designation and protection of essential fish habitat defined as “those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.” Essential fish habitat (EFH) is destined to be the fisheries buzz phrase of the decade as we work to define it, refine it, and fully understand it. EFH is not just about fish. It’s about other aquatic organisms as well, and living systems. The National Marine Fisheries Service is the agency responsible for carrying out the provisions of the act, which is landmark environmental legislation. The NMFS is to provide the national fishery management councils with ecologically sound guidance that is both feasible and scientifically defensible as required by the act, and has strived valiantly to do so. Much work remains, however, to expand what we know about marine habitats and the interactions of aquatic organisms with them. NMFS clearly needs help to support this breakthrough in marine legislation which adds huge new responsibilities and duties. Early discussions with Rollie Schmitt, NMFS director, resulted in agreement for Lee Benaka and the guidance committee to develop a symposium on EFH at the 1998 AFS annual meeting in Hartford, Connecticut. Further, NMFS and Sea Grant agreed to provide equal funding to publish the symposium proceedings as an AFS book edited by Benaka.

The Resulting Symposium

We titled the symposium “Fish Habitat: Essential Fish Habitat and Rehabilitation” and addressed various viewpoints on EFH by government, industry, and nongovernmental organizations; EFH identification; protecting habitat from fishing impacts; protecting habitat from nonfishing impacts; fish habitat rehabilitation; and socioeconomic issues. The 25 oral presentations plus posters showcased the habitat-related research capabilities of both NMFS personnel and Sea Grant-funded investigators which demonstrated what we know and the vast amounts we do not know. The symposium brought together researchers and policy makers from the Sea Grant network and NMFS under the umbrella of the AFS and further strengthened relations in pursuit of filling in the information gaps.

Despite the facts that the essential fish habitat mandate represents a new recognition by Congress, that Congress overwhelmingly endorsed reauthorization of the act, and Senator Hollings stated that “habitat protection has become a greater concern because coastal development and pollution threaten the environment and subsequently the effect of fish stocks,” the impact of the EFH provisions have not been fully recognized by government, fishermen, developers, and industry—yet. But wait until a few enforcement actions are under way. Essential fish habitat is not glamorous—yet, but it should ultimately shift to those who would alter the habitat the burden of proof to show they will not damage its production potential.

I hope it is not the same old story as when I joined the Great Lakes Fishery Commission staff in 1975. When the sea lamprey control persons talked, the fish folks slept. When the fish folks talked, the lamprey guys slept. And when the habitat guys talked, everyone's eyes glazed over. The situation in the Great Lakes is very different now, but how different it was then from the theme of today's conference: "Ecosystem Considerations in Fisheries Management." Essential fish habitat will suddenly become glamorous when the dollars begin to flow, but what will be the consequences if we begin to call all waters EFH, instead of concentrating on the "essential essential fish habitat"? Will there be a backlash? Has it already started? What will be the outcome?

American Fisheries Society and Future Internships

In Hartford, a dozen ranking Sea Grant and NMFS personnel considered how Sea Grant might undertake a National Strategic Investment for Research, Education, and Outreach on EFH, how the resources of the two agencies could be brought together; how research priorities could be coordinated; how Sea Grant researchers could provide the "scientifically defensible data base" the act calls for; and how Sea Grant communicators and extension agents could be effective in educating and informing stakeholders with regard to compliance, intent, value, and legal aspects.

As Ron Baird stated at the meeting, Sea Grant has "a ready cadre of researchers, educators, communicators, and outreach experts," and as some NMFS regional folks said following the meeting, "It seems like a perfect fit."

Given a successful ending to this initial internship, there is potential for continued and expanded AFS intern programs not only with Sea Grant, but with NMFS, the Fish and Wildlife Service, the Geological Survey and its Biological Resources Division, the Department of Agriculture for aquaculture issues, the Forest Service, the Corps of Engineers, the Environmental Protection Agency, and others in a variety of areas. I am confident NMFS and Sea Grant are pleased with their exposure and the information accrued on a topic of critical current concern under the umbrella of the American Fisheries Society. AFS benefited from the services of a bright young person, and Lee Benaka, the intern, benefited. Most important of all, living marine resources and their habitats will benefit in the future. The internship was a good fit and a good start.

Index

A

- Abundance
 of pelagic biota, using carbon and nitrogen stable isotope measurement (Prince William Sound), 87-95
 of salmon
 coho, swept volume estimates (Strait of Georgia), 9-11
 coho, forecasts using marine survival index and time series (Puget Sound), 97-115
 Pacific, naturally regulated, 1-21
 of threadfin hake, year-class variations (Pacific), 79-85
- Acipenser transmontanus* (Kootenai River white sturgeon), endangerment of (Columbia River basin), 330, 345-346, 348-349
- Ackley, David, 511
- Adkison, Milo D., 33, 37, 59
- Alaska
 Aleutian Islands, groundfish fisheries management in, 315-327
 Becharof Lake, ecosystem modeling of, 685-703
 Bristol Bay. *See* Bristol Bay
 Kachemak Bay, retrospective projection of pink shrimp in, 59-77
 Prince William Sound. *See* Prince William Sound
- Aleutian Islands, groundfish fisheries management in, 315-327
- Alewife (*Alosa pseudoharengus*), and walleye (Lake Erie), 45, 46
- Althen, Craig, 329
- Ammodytes* sp. (sand lance)
 consumption and harvest of, in ecosystem (Georges Bank), 163-186
marinus, effect of harvesting, on seabird populations (North Sea), 407-424
- Anchovy (*Engraulis capensis*), comparing trophic flow models of, in upwelling systems (Benguela), 527-541
- Anoplopoma fimbria* (sablefish), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Assemblage maintenance programs, for maximizing groundfish yield and maintaining diversity, 367-385

- Atheresthes evermanni* (Kamchatka flounder), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Atlantic Ocean (northwest), reconstructing food webs in, 577-584
- Australia (southeastern), managing ecosystem leverage points in multispecies fishery model in, 283-303
- ### B
- Back to the Future (BTF) method, for maximizing fisheries sustainability, 447-466
- Baker, Jason D., 305
- Baltic Sea
 human effects on fisheries ecosystem in, 405-406
 managing cod in, 57-58
- Bathyraja* sp. (skate)
 and crab population relationships (Bering Sea), 143-148
 trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Bax, Nicholas, 283
- Beamish, Richard J., 1, 637
- Becharof Lake (Alaska), ecosystem modeling of, 685-703
- Belayev, V.A., 543
- Benguela (South Africa), comparing trophic flow models in upwelling systems of, 527-541
- Benthophages, trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Bering Sea
 biomass consumption in, 305-314
 ecosystem
 considerations in groundfish fisheries management in, 315-327
 management concerns in, 705-715
 model limitations in, 609-619
 experimental management design for bottom trawling in, 425-446
 groundfish
 assemblage changes in, 370, 373, 375-376, 383
 and crab population relationships in, 143-148
 fisheries management in, 315-327

- Biodiversity
 maintaining, and maximizing groundfish yield, 367-385
 OSMOSE model of multispecies individual-based, 593-607
- Biomass
 consumption related to sustainability management, 305-314
 dynamics model in multispecies interactions (Georges Bank), 187-210
- Boggs, Christofer H., 665
- Booby, red-footed (*Sula sula*), effect of ecosystem shift on, 23, 25-26
- Breton, Yvan, 387
- Bristol Bay (Alaska)
 development of marine habitat protection area in, 511-526
 predictability of returns of sockeye salmon to, 37-38
 spatial and temporal patterns of covariation in recruitment components of sockeye salmon in, 33-35
- British Columbia
 Hecate Strait, groundfish assemblage maintenance program at, 377-379
 spatial and temporal patterns of covariation in recruitment components of sockeye salmon in, 33-35
 Strait of Georgia. *See* Strait of Georgia
- Brown, Evelyn D., 499
- Bulgakova, Tatiana, 149
- Bulman, Cathy, 283
- Butterfish (*Peprilus triacanthus*), consumption and harvest of, in ecosystem (Georges Bank), 163-186
- C**
- Canada
 British Columbia. *See* British Columbia marine fisheries in, 387-389
 Newfoundland. *See* Newfoundland Strait of Georgia. *See* Strait of Georgia
- Capelin, human effects on (Newfoundland), 398, 399-400
- Catharacta skua* (skua), effect of reduced discarding on (North Sea), 483-485
- Cepphus grylle* (black guillemots), effect of reduced discarding on (North Sea), 485
- Charles, Anthony T., 387
- Chionoecetes* sp. (crab), and groundfish population relationships in (Bering Sea), 143-148
- China (Lake Donghu), effects of fish predation on *Daphnia* in, 265-281
- Climate change/variation
 in coho salmon survival (Puget Sound), 97-115
 and critical period-critical size hypothesis, 15
 (Hawaiian Islands), 23-32
 Pacific salmon productivity induced by, 39-41
- Clupea* sp. *See* Herring
- Cod (*Gadus* sp.)
G. morhua
 managing stable catches in unstable environment (Baltic Sea), 57-58
 human effects on (Bering Sea), 405-406
 human effects on (Newfoundland), 391-392, 395, 396, 398, 402
 Pacific (*G. macrocephalus*)
 and crab population relationships (Bering Sea), 143-148
 trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Coded wire tag (CWT) data, for coho salmon survival (Puget Sound), 97, 102-104, 105, 108
- Collie, Jeremy S., 187
- Columbia River basin (Montana), Integrated Rule Curves for, 329-352
- Commercial fishes, trophic relationships of (Kamchatka/Kuril Islands), 231-263
- Competitor strategies, of Pacific herring and walleye pollock (Prince William Sound), 117-127
- Cooney, Ted, 137
- Copepod (*Neocalanus cristatus*)
 and ecosystem fisheries management (Strait of Georgia), 637-664
 monitoring changes in oceanographic forcing using composition of (Prince William Sound), 87-95
- Crab
Paralithodes/Chionoecetes sp., and groundfish population relationships in (Bering Sea), 143-148
 red king (*Paralithodes camtschaticus*), development of habitat protection area for (Bristol Bay), 511-526
- Critical size-critical period hypothesis for Pacific salmon, 1-21
- Cross-validation for predicting returns of sockeye salmon (Bristol Bay), 37-38
- Cury, Philippe, 593

D

- Dam operations (Montana/Columbia River basin), Integrated Rule Curves for, 315-327
- Daphnia* (Lake Donghu/Loch Leven), effects of fish predation on, 265-281
- Davenport, Stevie, 283
- Davies, David H., 43
- Dearborn, R.K., xi
- DeLong, Allison K., 187
- DeMaster, Douglas P., 305
- Demersal fish community, monitoring changes in species composition of (Kodiak Island), 589-592
- deYoung, Brad, 387
- Discarding, effect of reduced, on seabird populations (North Sea), 481-488
- Dobell, A. Rod, 387
- Dynamic constant catch (DCC) strategy for managing cod (Baltic Sea), 57-58

E

- Ecosystem
- consumption and harvest of pelagic fishes and squids (Georges Bank), 163-186
 - dynamics (Hawaiian Islands), 23-32
- Ecosystem fisheries
- human effects on
 - (Baltic Sea), 405-406
 - (Newfoundland), 391-404
 - management, 1-21
 - concepts and strategies (Michigan), 353-366
 - concerns (Bering Sea), 705-715
 - groundfish considerations (Bering Sea/Aleutian Islands), 315-327
 - (Hawaiian Islands), 23-32
 - leverage points in, in multispecies fishery model (Australia), 283-303
 - (Strait of Georgia), 637-664
 - See also* Management
 - model(s)
 - dynamic, of keystone predators (Pacific), 665-683
 - of impacts on reef fishery (KwaZulu-Natal), 211-230
 - of mass-balance trophic flow (Prince William Sound), 621-635
 - of mass-balance trophic levels (Bering Sea), 609-619
 - for maximizing fisheries sustainability, 447-466

- Ecosystem fisheries models (*continued*)
 - predator-prey, with optimum control, 149-162
 - of trophic flow in upwelling systems (Benguela), 527-541
 - See also* Multispecies model(s)
- Elasmobranchs, in multispecies interactions in fish community (Georges Bank), 187-210
- Energy storage patterns, of Pacific herring and walleye pollock (Prince William Sound), 117-127
- Engraulis capensis* (anchovy), comparing trophic flow models of, in upwelling systems (Benguela), 527-541
- Etrumeus whiteheadi* (redeye), comparing trophic flow models of, in upwelling systems (Benguela), 527-541
- Eutrophication, effects of, on fisheries ecosystem (Baltic Sea), 405-406

F

- Feeding behavior, of Pacific herring (Prince William Sound), 129-135
- Fetterolf, Carlos, xiii
- Fish. *See specific types of fish*
- Fish community structure, effect of urbanization on (Huron River), 467-479
- Fisheries management. *See* Ecosystem fisheries; Ecosystem fisheries management; Management
- Flatfish, in multispecies interactions in fish community (Georges Bank), 187-210
- Flounder, Kamchatka (*Atheresthes evermanni*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Fogarty, Michael J., 387
- Food webs, reconstructing (Atlantic), 571-588
- Forage fish, seasonal spatial scale for ecological analysis of (Prince William Sound), 499-510
- Forecasting methods, for predicting returns of sockeye salmon (Bristol Bay), 37-38
- Fowler, Charles W., 305
- Foy, Robert J., 129
- Fratercula arctica* (Atlantic puffin), effect of reduced discarding on (North Sea), 485
- Frisman, E.Y., 543
- Fu, Caihong, 59
- Furness, Robert W., 407, 481

G

Gadoids, in multispecies interactions in fish community (Georges Bank), 187-210

Gadus sp. (cod)

human effects on (Newfoundland), 391-392, 395, 396, 398, 402

macrocephalus (Pacific)

and crab population relationships (Bering Sea), 143-148

trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263

morhua

managing stable catches in unstable environment (Baltic Sea), 57-58

human effects on (Bering Sea), 405-406

Georges Bank

biomass consumption at, 305-314

consumption and harvest of pelagic fishes and squids in ecosystem of, 163-186

groundfish assemblage changes at, 370, 371, 374

multispecies interactions in fish community of, 187-210

Goby (*Sufflogobius bibarbus*), comparing trophic flow models of, in upwelling systems (Benguela), 527-541

Grand Banks (Newfoundland), groundfish assemblage changes at, 370-371, 372

Greenling, rock (*Hexagrammos lagocephalus*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263

Groundfish

and crab population relationships (Bering Sea), 143-148

ecosystem considerations in fisheries management of (Bering Sea/Aleutian Islands), 315-327

fishery of mixed stock pollock and herring (Sea of Okhotsk), 489-497

maximizing yield and maintaining biodiversity of, 367-385

in multispecies interactions in fish community (Georges Bank), 187-210

Grout, Jeff, 39

Guillemots, black (*Cepphus grylle*), effect of reduced discarding on (North Sea), 485

Gulf of Alaska

crab and groundfish population relationships in, 143-148

monitoring changes in oceanographic forcing in, 87-95

Gulf of Alaska (*continued*)

monitoring changes in species composition of demersal fish community in (Kodiak Island), 591-592

Gulf of Maine, consumption and harvest of pelagic fishes and squids in ecosystem of, 163-186

Gull, black-backed (*Larus marinus*), effect of reduced discarding on (North Sea), 485

Gunn, Iain, 265

Gustafson, Daniel, 329

H

Haas, Robert C., 43

Haggan, Nigel, 447

Haight, Wayne R., 23

Hake (*Merluccius* sp.)

M. capensis and *paradoxus*, comparing trophic flow models of, in upwelling systems (Benguela), 527-541

Pacific (*M. productus*), and ecosystem fisheries management (Strait of Georgia), 643-653, 658-659

Hakeling, threadfin (*Laemonema longipes*), year-class abundance variations of (Pacific), 79-85

Halibut, Pacific (*Hippoglossus stenolepis*)

and crab population relationships in (Bering Sea), 143-148

trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263

Hansson, Sture, 57, 405

Harrington, Gretchen A., 425

Harris, Jean M., 211

Hawaiian Islands (northwestern), climate variation, ecosystem dynamics, and fisheries management in, 23-32

Hayes, Daniel B., 43, 467

He, Xi, 665

Hecate Strait (British Columbia), groundfish assemblage maintenance program at, 377-379

Herring (*Clupea* sp.)

Atlantic (*C. harengus*)

consumption and harvest of, in ecosystem (Georges Bank), 163-186

human effects on (Bering Sea), 405-406

human effects on (Newfoundland), 399

mixed stock fishery (Sea of Okhotsk), 489-497

Herring (*continued*)

- Pacific (*C. pallasii*)
 - and ecosystem fisheries management (Strait of Georgia), 643-653, 656-657
 - feeding behavior of related to zooplankton availability (Prince William Sound), 129-135
 - first-year energy storage patterns of (Prince William Sound), 117-127
 - monitoring changes in oceanographic forcing using composition of (Prince William Sound), 87-95
 - processes affecting mortality of, during spring bloom (Prince William Sound), 137-138, 139, 142
 - seasonal spatial scale for ecological analysis of (Prince William Sound), 499-510
- Hexagrammos lagocephalus* (rock greenling), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Hippoglossus stenolepis*. See Halibut, Pacific
- Hjerne, Olle, 57
- Hobbs, Roderick C., 305
- Hong Kong (South China Sea), ecosystem modeling at, 458
- Huang, Xiangfei, 265
- Huron River (Michigan), effect of urbanization on fish community structure in, 467-479
- Hyer, Karen, 137

I

- Illex illecebrosus* (short-finned squid), consumption and harvest of, in ecosystem (Georges Bank), 163-186
- Integrated Rule Curves (IRCs) (Montana/Columbia River basin), 329-352

J

- Jarre-Teichmann, Astrid, 527
- Juvenile fishes, processes affecting mortality of, during spring bloom (Prince William Sound), 137-142

K

- Kachemak Bay (Alaska), retrospective projection of pink shrimp in, 59-77
- Kamchatka (Russia), trophic relationships of commercial fishes at, 231-263
- Kitchell, James F., 665

- Kittiwake, black-legged (*Rissa tridactyla*)
 - effect of reduced discarding on (North Sea), 484, 485
 - effect of sand lance harvesting on populations of (North Sea), 407-424
- Kline Jr., Thomas C., 87
- Kodiak Island (Gulf of Alaska), monitoring changes in species composition of demersal fish community at, 591-592
- Kruse, Gordon H., 143
- Kuril Islands (Russia), trophic relationships of commercial fishes at, 231-263
- KwaZulu-Natal (South Africa), model of ecosystem impacts on reef fishery in, 211-230

L

- Lake Donghu (China), effects of fish predation on *Daphnia* in, 265-281
- Lake Erie, influence of physical processes on early life history stages of walleye in, 43-55
- Lakes, eutrophic (China/Scotland), effects of fish predation on *Daphnia* in, 265-281
- Laemonema longipes* (threadfin hake), year-class abundance variations of (Pacific), 79-85
- Lapointe, Michael F., 33
- Larus marinus* (black-backed gull), effect of reduced discarding on (North Sea), 485
- Laysan Island (Hawaiian Islands), effect of ecosystem shift at, 23, 25-26, 27, 29, 31
- Leverage points in ecosystem, managing, in multispecies fishery model (Australia), 283-303
- Link, Jason S., 163, 571
- Liu, Jiankang, 265
- Livingston, Patricia A., 609
- Loch Leven (Scotland), effects of fish predation on *Daphnia* in, 265-281
- Lobster, spiny (*Panulirus marginatus*), effect of ecosystem shift on, 23, 25-31
- Loligo pealei* (long-finned squid), consumption and harvest of, in ecosystem (Georges Bank), 163-186
- Lonon, Bill, 329
- Lynch, Kristine D., 353

M

- McFarlane, Gordon A., 637

- Mackerel
 Atka (*Pleurogrammus monoptyerygius*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
 Atlantic (*Scomber scombrus*), consumption and harvest of, in ecosystem (Georges Bank), 163-186
 chub (*Scomber japonicus*), modeling, during annual migration cycle, 543-569
 horse (*Trachurus trachurus capensis*), comparing trophic flow models of, in upwelling systems (Benguela), 527-541
- Mackey, Scudder D., 43
- Mackinson, Steven, 609
- Mahnken, Conrad, 1
- Management
 of cod with DCC strategy (Baltic Sea), 57-58
 experimental, design for bottom trawling (Bering Sea), 425-446
 implications of sustainability for, 305-314
See also Ecosystem fisheries management
- Mann, Bruce Q., 211
- Marine
 fisheries (Canada), 387-389
 pen rearing studies, of coho salmon (Washington), 11-12
 survival (MS) index and time series, for climate variables affecting coho salmon (Puget Sound), 97-115
 upwelling systems, comparing trophic flow models of (Benguela), 527-541
- Maro Reef (Hawaiian Islands), effect of ecosystem shift at, 23, 25-31
- Marotz, Brian L., 329
- Mass-balance model(s)
 of ecosystem impacts on reef fishery (Kwa-Zulu-Natal), 211-230
 limitations of trophic (Bering Sea), 609-619
 of trophic flows (Prince William Sound), 621-635
See also Ecosystem fisheries model(s)
- Mathisen, Ole A., 685
- May, Linda, 265
- Merluccius* sp. *See* Hake
- Michigan
 ecosystem concepts in fisheries management strategies in, 353-366
 Huron River, effect of urbanization on fish community structure in, 467-479
- Migration models, annual, of chub mackerel and sardine, 543-569
- Moloney, Coleen L., 211
- Monk seal, Hawaiian (*Monachus schauinslandi*), effect of ecosystem shift on, 23, 25-26, 31
- Montana, Columbia River basin reservoirs, Integrated Rule Curves for, 329-352
- Monte Carlo simulation, for pink shrimp (Kachemak Bay), 59-77
- Morone americana* (white perch), and walleye (Lake Erie), 46
- Mueter, Franz J., 589
- Multispecies model(s)
 managing ecosystem leverage points in (Australia), 283-303
 in multispecies interactions (Georges Bank), 187-210
 OSMOSE as, 593-607
 for virtual population analysis (MSVPA), 188, 207
See also Ecosystem fisheries model(s); Mass-balance model(s)
- Munro, Gordon R., 387
- N**
- Namibia (Benguela), comparing trophic flow models in upwelling systems of, 527-541
- Newfoundland
 Grand Banks, groundfish assemblage changes at, 370-371, 372
 human effects on fisheries ecosystem of, 391-404
- Newlands, Nathaniel, 391
- Newman, Kurt R., 467
- Norcross, Brenda L., 129, 499, 589
- North Sea
 effect of reduced discarding on seabird populations in, 481-488
 effect of sand lance harvesting on seabird populations in, 407-424
- Notropis* sp. (shiner), and walleye (Lake Erie), 45, 46
- O**
- Oceanic/oceanographic conditions
 affecting coho salmon (Puget Sound), 98, 99, 100-101, 102
 monitoring changes in forcing (Prince William Sound), 87-95
 in natural regulation of Pacific salmon, 8, 16-17, 18

- Oceanic/oceanographic conditions (*continued*)
 and year-class abundance variations of
 threadfin hake (Pacific), 79-85
- Okey, Thomas A., 425, 621
- Okhotsk, Sea of (northern), mixed stock pollock and herring fishery in, 489-497
- Oncorhynchus* sp. *See* Salmon; Trout
- Optimal stability window hypothesis for coho salmon (Puget Sound), 99-100, 112
- Oregon, groundfish assemblage changes in, 370, 371, 373
- Orlov, Alexei M., 231
- OSMOSE (Object-oriented Simulator of Marine Biodiversity Exploitation) model, of multispecies individual-based biodiversity, 593-607
- Overholtz, William J., 163
- P**
- Pacific Ocean
 central, keystone predators in, using ecosystem model, 665-683
 Kamchatka/Kuril Islands, trophic relationships of commercial fishes, 231-263
 northwestern, year-class abundance variations of threadfin hake in, 79-85
- Pandalis borealis* (pink shrimp), retrospective projection of (Kachemak Bay), 59-77
- Panulirus marginatus* (spiny lobster), effect of ecosystem shift on, 23, 25-31
- Paralithodes* (crab)
camtschaticus (red king), development of habitat protection area for (Bristol Bay), 511-526
 sp., and groundfish population relationships in (Bering Sea), 143-148
- Paul, A.J., 117
- Paul, Judy, 117
- Pauly, Daniel, 447, 609, 621
- Pavlychev, Mikhail V., 543
- Pavlychev, Vadim P., 79, 543
- Pelagic fish/biota
 comparing trophic flow models of, in upwelling systems (Benguela), 527-541
 consumption and harvest of, in ecosystem (Georges Bank), 163-186
 monitoring changes in oceanographic forcing using composition of (Prince William Sound), 87-95
 in multispecies interactions in fish community (Georges Bank), 187-210
- Pennoyer, Steven, 705
- Peprilus triacanthus* (butterfish), consumption and harvest of, in ecosystem (Georges Bank), 163-186
- Perca flavescens* (yellow perch), and walleye (Lake Erie), 46
- Perch
 Pacific ocean (*Sebastes alutus*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
 and walleye (Lake Erie), 46
- Peterman, Randall M., 33, 37, 39, 387
- Phaethon ruficauda* (red-tailed tropicbird), effect of ecosystem shift on, 23, 25-26
- Pinkerton, Evelyn, 387
- Pinnix, William D., 97
- Pitcher, Tony J., 447
- Plaice, Alaska (*Pleuronectes quadrituberculatus*), and crab population relationships (Bering Sea), 143-148
- Planktophages, trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Pleuronectes* sp.
asper. *See* Sole, yellowfin
bilineatus. *See* Sole, rock
quadrituberculatus. *See* Plaice, Alaska
- Pollock
 limitations of ecosystem models for (Bering Sea), 609-619
 mixed stock fishery (Sea of Okhotsk), 489-497
See also Walleye pollock
- Polovina, Jeffrey J., 23
- Population dynamics model, length-based, for pink shrimp (Kachemak Bay), 59-77
- Power, Melanie D., 391
- Precautionary approach, to groundfish fishery management (Bering Sea/Aleutian Islands), 315-327
- Predator(s)
 in multispecies interactions in fish community (Georges Bank), 187-210
 as piscivorous fish of pelagic fish and squids (Georges Bank), 163-186
 -prey model based on two-species exploited ecosystem, 149-162
 trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Preikshot, David, 447

- Prince William Sound
 feeding behavior of Pacific herring in, 129-135
 mass-balance model of trophic flows in, 621-635
 monitoring changes in oceanographic forcing in, 87-95
 processes affecting mortality of juvenile fishes during spring bloom in, 137-142
 seasonal spatial scale for ecological analysis of herring and other forage fish in, 499-510
- Puffin, Atlantic (*Fratercula arctica*), effect of reduced discarding on (North Sea), 485
- Puget Sound (Washington), climate variables in coho salmon survival in, 97-115
- Pyper, Brian J., 33, 39
- Q**
- Quinn II, Terrance J., 59
- R**
- Radchenko, Vladimir, 489
- Recruitment components, for sockeye salmon, 33-35
- Redeye (*Etrumeus whiteheadi*), comparing trophic flow models of, in upwelling systems (Benguela), 527-541
- Reef fishes, ecosystem impacts on (Hawaiian Islands), 23, 26 (KwaZulu-Natal), 211-230
- Regimes, defined, 3-4, 5-6
- Reinhardtius hippoglossoides* (Greenland turbot), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Reservoirs, Integrated Rule Curves for (Montana/Columbia River basin), 315-327
- Rissa tridactyla* (black-legged kittiwake)
 effect of reduced discarding on (North Sea), 484, 485
 effect of sand lance harvesting on populations of (North Sea), 407-424
- Robertson, John M., 353
- Rockfish, shorttraker (*Sebastes borealis*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Rock greenling (*Hexagrammos lagocephalus*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Rock sole (*Pleuronectes bilineatus*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Roseman, Edward F., 43
- Rue, Frank, 705
- Russia
 Kamchatka/Kuril Islands, trophic relationships of commercial fishes at, 231-263
 Sea of Okhotsk, mixed stock pollock and herring fishery in, 489-497
- S**
- Sablefish (*Anoplopoma fimbria*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Salmon (*Oncorhynchus* sp.)
 chinook (*O. tshawytscha*), Snake River, endangerment of (Columbia River basin), 330
 coho (*O. kisutch*)
 climate variables in survival of (Puget Sound), 97-115
 critical size-critical period hypothesis for, 4, 6-9
 and ecosystem fisheries management of (Strait of Georgia), 643-653, 654-655
 marine pen rearing studies of (Washington), 11-12
 swept volume abundance estimates of (Strait of Georgia), 9-11
- Pacific
 critical size-critical period hypothesis for, 4, 6-9
 detecting climate-induced changes in, 39-41
 natural regulation of, 8, 16-17, 18
 pink (*O. gorbuscha*), processes affecting mortality of, during spring bloom, 138, 140-142
- sockeye (*O. nerka*)
 ecosystem modeling of (Becharof Lake), 685-703
 endangerment of (Columbia River basin), 330
 growth and survival of first-year, 12-14, 16
 predictability of returns of (Bristol Bay), 37-38
 spatial and temporal patterns of covariation in recruitment components of, 33-35

- Salvelinus confluentus* (bull trout), endangerment of (Columbia River basin), 330, 332, 349
- Sand lance (*Ammodytes* sp.)
A. marinus, effect of harvesting, on seabird populations (North Sea), 407-424
 consumption and harvest of, in ecosystem (Georges Bank), 163-186
- Sands, Norma Jean, 685
- Sardine (*Sardinops sagax*)
 comparing trophic flow models of, in upwelling systems (Benguela), 527-541
S. melanosticta, modeling, during annual migration cycle, 543-569
- Savin, Andrew B., 79
- Scotland (Loch Leven), effects of fish predation on *Daphnia* in, 265-281
- Seabirds
 effect of ecosystem shift on (Hawaiian Islands), 23, 25-26
 effect of reduced discarding on populations of (North Sea), 481-488
 effect of sand lance harvesting on populations of (North Sea), 407-424
- Sebastes* sp., trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Sebastolobus macrochir* (broadbanded thornyhead), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Shad, gizzard (*Dorosoma cepedianum*), and walleye (Lake Erie), 46
- Shannon, Lynne Jane, 527
- Shelden, Kim E.W., 305
- Shellfish, human effects on (Newfoundland), 398-401, 402
- Shin, Yunne-Jai, 593
- Shiner (*Notropis* sp.), and walleye (Lake Erie), 45, 46
- Shortraker rockfish (*Sebastes borealis*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Shrimp
 northern, human effects on (Newfoundland), 398-399
 pink (*Pandalis borealis*), retrospective projection of (Kachemak Bay), 59-77
- Simpson Bay (Prince William Sound), feeding behavior of Pacific herring in, 129-135
- Skate (*Bathyraja* sp.)
 and crab population relationships (Bering Sea), 143-148
 trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Skua (*Catharacta skua*), effect of reduced discarding on (North Sea), 483-485
- Smith, Kelley D., 353
- Sockeye salmon. *See* Salmon, sockeye
- Sole (*Pleuronectes* sp.)
 rock (*P. bilineatus*)
 and crab population relationships in (Bering Sea), 143-148
 trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
 yellowfin (*P. asper*), and crab population relationships in (Bering Sea), 143-148
See also Plaice, Alaska
- South Africa
 Benguela, comparing trophic flow models in upwelling systems of, 527-541
 KwaZulu-Natal, ecosystem impacts on reef fishery, 211-230
- South China Sea (Hong Kong), ecosystem modeling in, 458
- Spatial scale, seasonal, for ecological analysis of herring and other forage fish (Prince William Sound), 499-510
- Species composition, monitoring changes in, of demersal fish community (Kodiak Island), 589-592
- Sprat (*Sprattus sprattus*), human effects on (Bering Sea), 405-406
- Springer, Alan M., 609
- Squid, consumption and harvest of, in ecosystem (Georges Bank), 163-186
- Steelhead (*Oncorhynchus mykiss*), endangerment of (Columbia River basin), 330, 349
- Stizostedion vitreum* (walleye), influence of physical processes on early life history stages of (Lake Erie), 43-55
- Strait of Georgia (British Columbia)
 ecosystem, fisheries management in, 637-664
 ecosystem modeling in, 458-459
- Sturgeon, Kootenai River white (*Acipenser transmontanus*), endangerment of (Columbia River basin), 330, 345-346, 348-349

- Sufflogobius bibarbatatus* (goby), comparing trophic flow models of, in upwelling systems (Benguela), 527-541
- Sula sula* (red-footed booby), effect of ecosystem shift on, 23, 25-26
- Suslowicz, Lynette E., 163
- Sustainability
 management implications of, 305-314
 fisheries (Canada), 387-389
 fisheries, maximizing with Back to the Future method, 447-466
- T**
- Taggart, Christopher, 387
- Taylor, William W., 43, 353, 467
- Theragra chalcogramma*. See Pollock; Walleye pollock
- Thornyhead, broadbanded (*Sebastolobus macrochir*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Toral-Granda, M. Verónica, 211
- Trawling
 bottom, experimental management design for (Bering Sea), 425-446
 development of habitat protection from (Bristol Bay), 511-526
- Trites, Andrew W., 609
- Trophic
 flow models
 comparing, for upwelling systems (Benguela), 527-541
 mass-balance (Prince William Sound), 621-635
 interactions, multispecies, in fish community (Georges Bank), 187-210
 levels
 in fisheries ecosystem (Newfoundland), 391-404
 limitations of mass-balance model for (Bering Sea), 609-619
 relationships, of commercial fishes (Kamchatka/Kuril Islands), 231-263
- Tropicbird, red-tailed (*Phaethon rubricauda*), effect of ecosystem shift on, 23, 25-26
- Trout (*Oncorhynchus* sp.), endangerment of (Columbia River basin), 330, 332, 349
- Turbot, Greenland (*Reinhardtius hippoglossoides*), trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
- Tyler, Albert V., 367
- U**
- Urbanization, effect of, on fish community structure (Huron River), 467-479
- V**
- Vasconcellos, Marcello C., 609
- Vaughan, Shari L., 499
- W**
- Wade, Paul R., 305
- Walleye (*Stizostedion vitreum*), influence of physical processes on early life history stages of (Lake Erie), 43-55
- Walleye pollock (*Theragra chalcogramma*) and crab population relationships (Bering Sea), 143-148
 first-year energy storage patterns of (Prince William Sound), 117-127
 monitoring changes in oceanographic forcing using composition of (Prince William Sound), 87-95
 processes affecting mortality of, during spring bloom, 137-138, 139, 142
 trophic relationships with other commercial fishes (Kamchatka/Kuril Islands), 231-263
 See also Pollock
- Walters, Carl J., 33, 665
- Wang, Jia, 499
- Washington
 groundfish assemblage changes at, 370, 371, 373
 Puget Sound, climate variables in coho salmon survival in, 97-115
- Whelden, Kim E.W., 305
- Willette, T. Mark, 137
- Williams, Alan, 283
- Williams, Deborah, 705
- Witherell, David, 315, 511
- Y**
- Yang, Yufeng, 265
- Z**
- Zheng, Jie, 143
- Zooplankton availability and feeding behavior of Pacific herring (Prince William Sound), 129-135