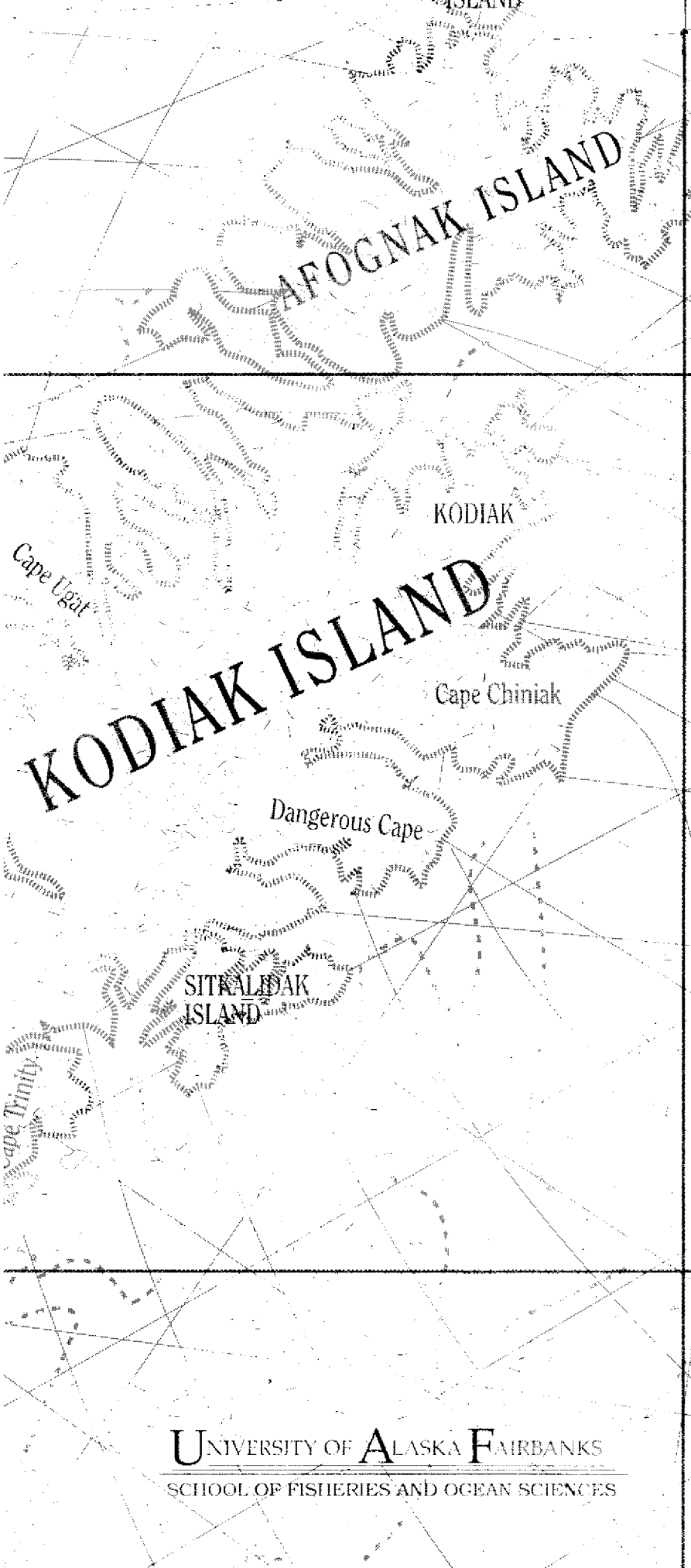


1970-1990

ALASKA SEA GRANT COLLEGE PROGRAM

SINCE Alaska Sea Grant was established in 1970, the program has concentrated on issues connected with the state's largest private employer, the seafood industry. Several events have strongly influenced our research and advisory programs: (1) The prospect of oil exploration and development on the Alaska continental shelf, (2) state efforts in the 1970s to rehabilitate salmon stocks, (3) passage of the Magnuson Act in 1976, and (4) large-scale natural and human-induced influences that changed ecosystem dynamics.

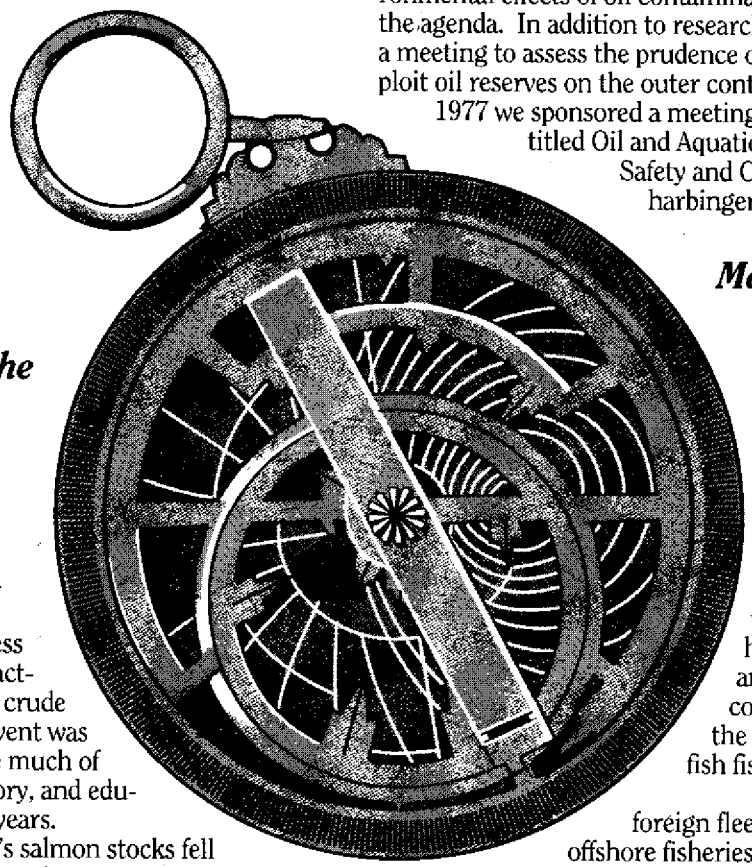
UNIVERSITY OF ALASKA FAIRBANKS
SCHOOL OF FISHERIES AND OCEAN SCIENCES

Serving Alaska for 20 years with

Proposed Offshore Oil Development Calls for Baseline Research

In 1970 plans were under way to drill for oil along the arctic coast and to build a pipeline south across Alaska to the Port of Valdez. Plans also were being formulated to explore for oil on other areas of the Alaska continental shelf.

Scientists and others were concerned about the environmental health of marine waters wherever oil extraction and transport might occur, and the oil industry and policy makers needed scientific information about the northern marine environment. These factors helped spur a decade of studies by Alaska Sea Grant to determine biological effects of oil contamination in marine ecosystems.



Drastic Decline of Salmon Stocks Set the Stage for Research, Advisory, and Education Efforts

While early research by Alaska Sea Grant scientists focused on baseline studies that would help policy makers assess the wisdom of exploring, extracting, and transporting Alaska's crude oil reserves, another crucial event was taking place that would define much of the program's research, advisory, and education effort over the next 10 years.

In the early 1970s, Alaska's salmon stocks fell to critically low levels. If salmon disappeared, economic disaster would result for the men and women who made their livings from the salmon resource.

To head off the impending calamity, the State of Alaska established the Division of Fisheries Rehabilitation, Enhancement and Development in 1974, within the Alaska Department of Fish and Game. The Legislature authorized regional privately operated non-profit salmon hatcheries, and created a permit system that would limit the number of people allowed to fish for salmon.

By 1976 our program's primary focus was on helping the state develop its salmon aquaculture program. We helped in three ways: economic research on the efficacy of private non-profit salmon hatcheries, biological and environmental research on salmon, and technical training in hatchery production. We also hired an aquaculture specialist versed in salmon enhancement.

Salmon stocks made a dramatic comeback to record levels by the early 1980s. Our salmon research then evolved primarily into research on the genetics and life histories of various Pacific salmon, which remains a cornerstone of our current research program. The objectives of our genetics research have been to explore improvements in aquaculture techniques and to aid in stock identification for fisheries management.

While salmon aquaculture dominated our research and advisory efforts in the mid-1970s, studies of the environmental effects of oil contamination remained high on the agenda. In addition to research, in 1975 we organized a meeting to assess the prudence of a federal plan to exploit oil reserves on the outer continental shelf, and in 1977 we sponsored a meeting in Cordova, Alaska, entitled Oil and Aquatic Ecosystems, Tanker Safety and Oil Pollution Liability, a harbinger of things to come.

Magnuson Act Galvanizes a Multifaceted International Focus

As the state's salmon rehabilitation took hold, we eased out of aquaculture work and plunged headlong into domestic and international issues connected with opening the huge offshore groundfish fishery.

Because unregulated foreign fleets dominated Alaska's offshore fisheries, and East Coast fisheries declined alarmingly, the U.S. Congress in 1976 passed the Fisheries Conservation and Management Act—better known as the Magnuson Act—which dictated a gradual phase-out of foreign fishing fleets from waters 3 to 200 miles from the U.S. coast. This presented a golden economic opportunity for the Alaska seafood industry.

To help the state capitalize on the potential bonanza, Alaska Sea Grant began in 1977 an integrated research and advisory effort to provide fisheries managers and the seafood industry with scientific and technical information essential to wise management and utilization of the offshore fishery resource. This effort dominated much of Alaska Sea Grant's effort for the next 15 years.

While efforts progressed to capitalize on the benefits of the Magnuson Act, Alaska's nearshore fishing fleet was not ignored. The Marine Advisory Program (MAP) contin-

marine research and education

ued to promote shellfish and seaweed aquaculture, the herring roe-on-kelp fishery, and harvesting and processing of underutilized species. MAP educational efforts convinced the Alaska salmon purse seine fishing fleet to convert to a chilled seawater cooling system, which today is the standard cooling system of the fleet.

Fishery Industrial Technology Center Aims to Capture Value of Offshore Fishery

In the 1970s, the University of Alaska implemented a statewide fisheries education program. Part of that effort was a proposal to set up a seafood research and development facility. The facility would perform basic and applied research useful to the fishing and processing industries. Alaska Sea Grant helped develop the proposal, and helped explain the plan to state legislators. They liked the idea, and in 1981 the Legislature authorized creation of the Fishery Industrial Technology Center (FITC) in Kodiak, Alaska.

Since then, FITC has focused on finding new and better ways to use groundfish and underutilized species, and on improving and maintaining seafood quality. Some of the most significant research has been done on surimi development. Work on seafood quality has resulted in a series of MAP bulletins on refrigeration of salmon, quality handling of rockfish and halibut, processing of white fish, and air shipment of fresh fish. In 1991 the FITC staff moved into a new $8 million research and development facility paid for by the State of Alaska, and operated by the University of Alaska Fairbanks.

Alaska Sea Grant Moves to Help Protect Marine Environmental Quality

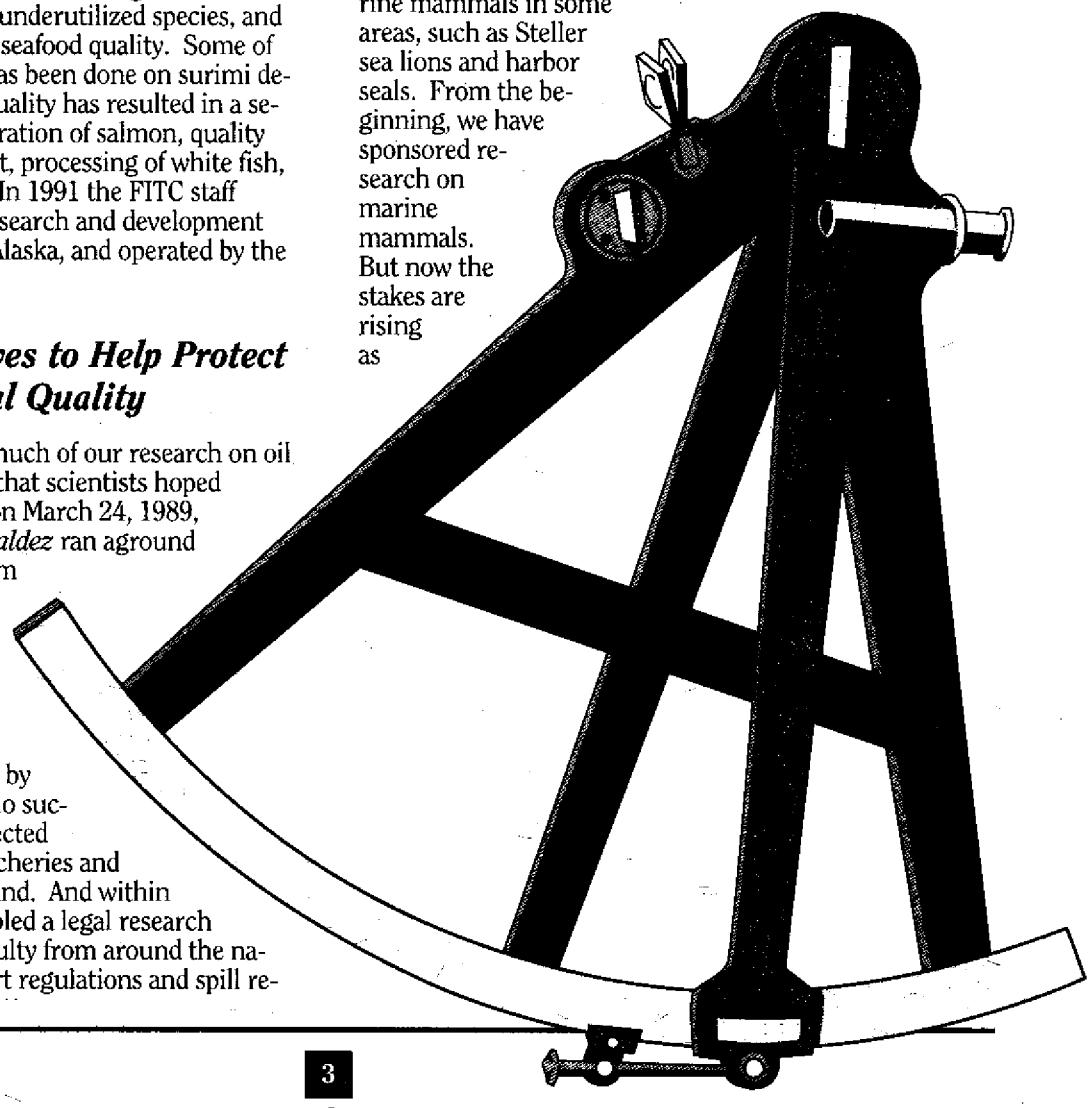
The disastrous event that much of our research on oil contamination anticipated but that scientists hoped would never happen occurred on March 24, 1989, when the supertanker *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound. Alerted by our Cordova MAP agent, we organized and dispatched to the disaster site the first emergency research team. The Cordova agent helped organize and lead an extraordinary effort by hundreds of local fishermen who successfully cordoned off and protected multimillion dollar salmon hatcheries and estuaries in Prince William Sound. And within weeks of the disaster we assembled a legal research team, composed of four law faculty from around the nation, that examined oil transport regulations and spill response procedures. The legal research team produced a report that formed the basis of new state laws regulating the oil transport industry in Alaska.

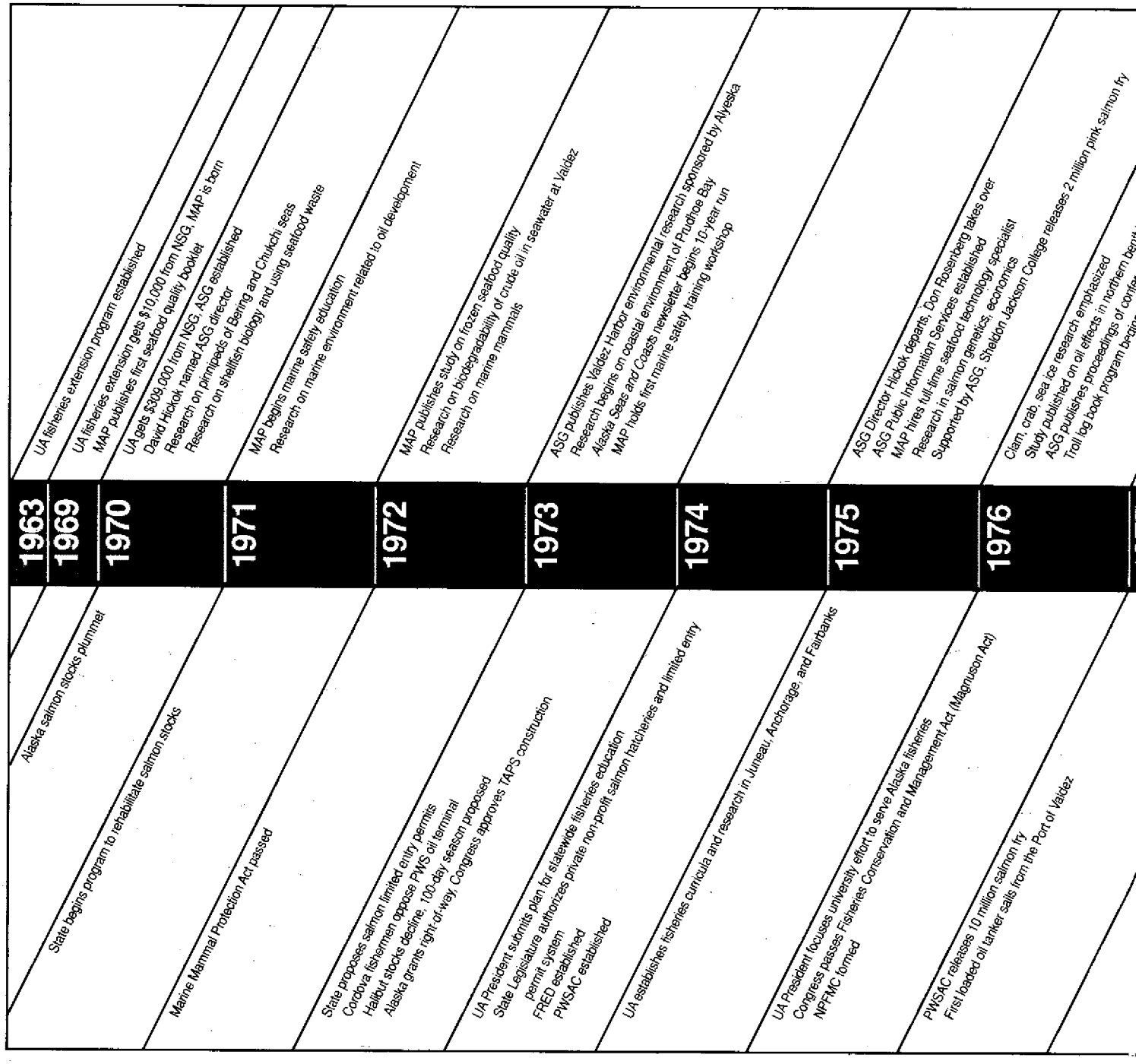
Regional Research Reflects Global Concerns

World and regional climates are affected by polar influences. Of particular interest to Alaska Sea Grant is how large-scale environmental changes affect commercial fish and shellfish populations.

The task is a daunting one, and demands an integrated approach to research. Alaska Sea Grant is responding with a research program in fisheries oceanography that combines disciplines such as oceanography, physics, chemistry, and biology to learn how combinations of natural forces ultimately affect the environment. As the clamor grows for concrete scientific data on the effects of global warming, Alaska Sea Grant fisheries oceanography research will help fill the information void.

Large-scale environmental changes and human influences may be causing the decline of marine mammals in some areas, such as Steller sea lions and harbor seals. From the beginning, we have sponsored research on marine mammals. But now the stakes are rising as





Above the timeline: Selected events supported by Alaska Sea Grant with funds or expertise. **Below the timeline:** Events external to Alaska Sea Grant.

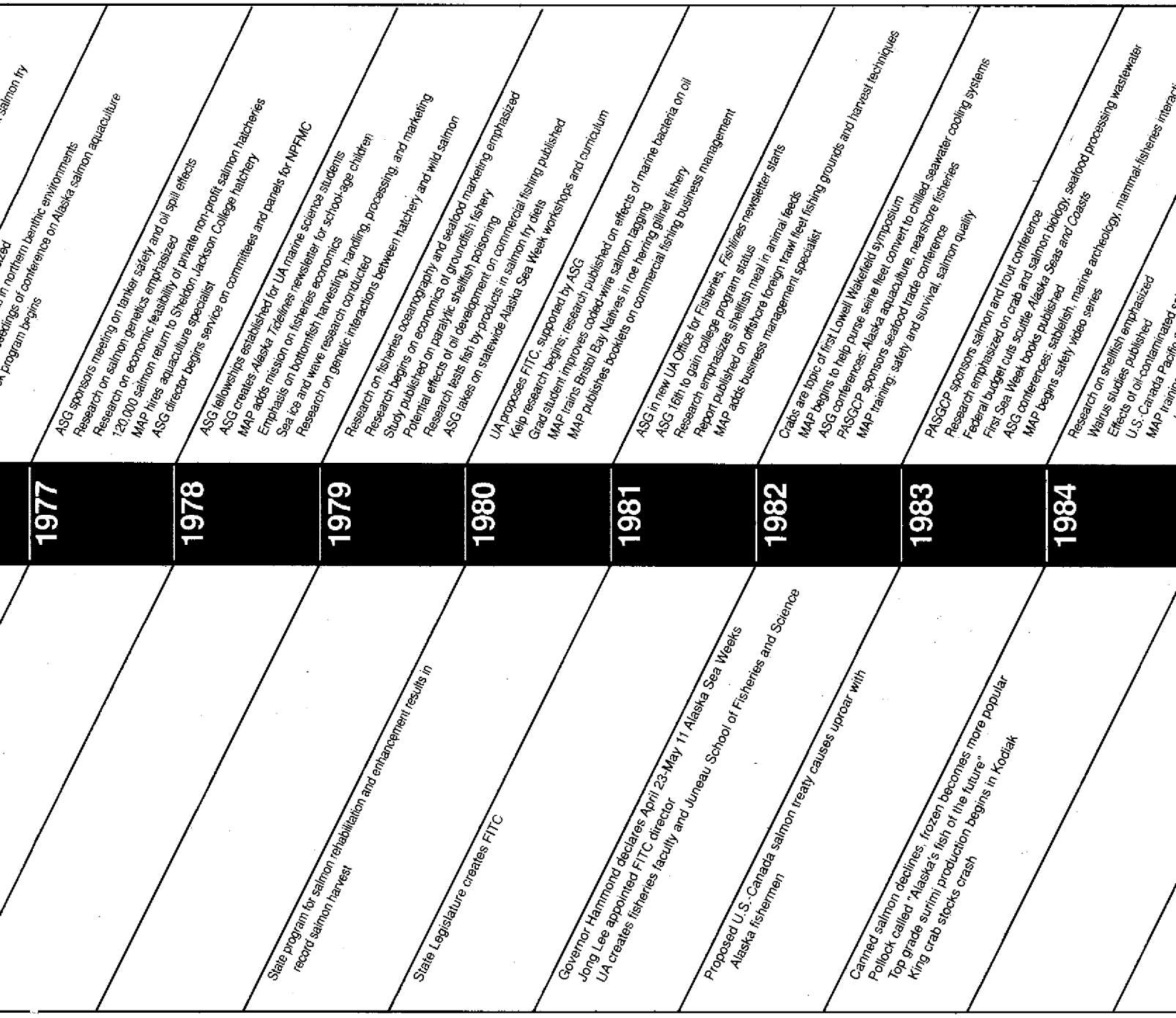
marine mammal-commercial fishing interactions are being scrutinized as a possible explanation for the decline of the marine mammals.

A theory currently favored by many experts suggests that a loss of traditional forage species may be sapping the strength of young marine mammals and some seabird species. To explain the population declines, some scientists believe large-scale environmental changes are adversely affecting survival of forage fish such as eulachon and capelin, which are staples in the diet of marine mammals and seabirds.

Through fisheries oceanography research and studies of marine mammal interactions with the fishing industry, Alaska Sea Grant scientists hope to find answers.

Marine Advisory Program Relentless in Pursuit of Safety

Helping fishermen do their jobs better and assisting the seafood processing industry improve quality and efficiency are the hallmarks of the Alaska Sea Grant Marine



Advisory Program, but the history of MAP cannot be reviewed without mentioning marine safety and survival. Commercial fishing is Alaska's most dangerous industry, and MAP agents witness first-hand the tragedy of men lost at sea.

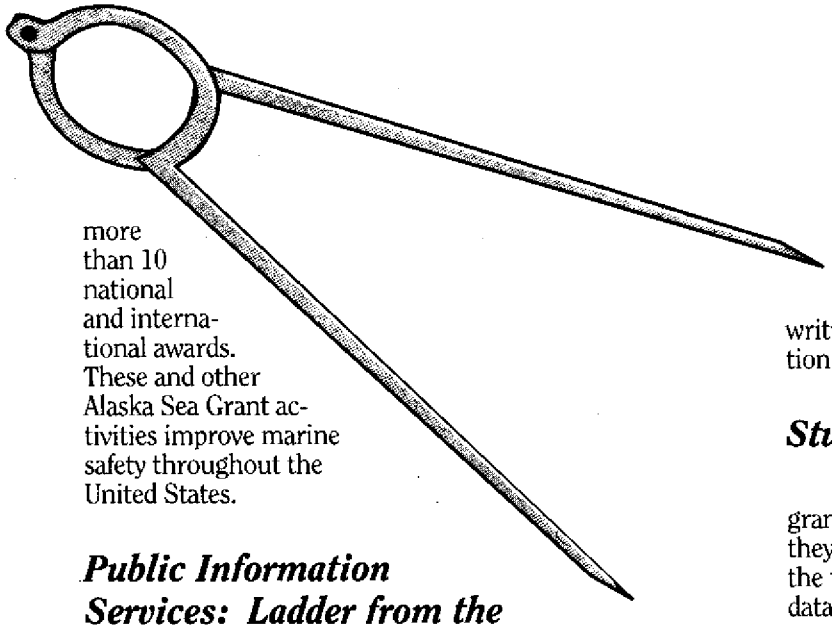
Ideas were discussed for marine safety education as early as 1968, and in 1973 MAP conducted its first safety training workshops. Workshop attendees who later experienced accidents at sea reported that the MAP safety training helped them survive their ordeals.

Soon MAP realized the workshops were limited in scope and resources, and formed in the early 1980s the Alaska Marine Safety Education Association (AMSEA), an association of groups that would support marine safety training. In 1987-88, AMSEA trained more than 100 volunteer instructors, who in turn trained over 7,000 people nationwide.

In 1982, MAP created a video safety training series, the Marine Safety and Survival Series. Complete with workbooks, these instructional materials are updated as necessary and remain an important contribution to marine safety in Alaska. MAP safety videos have garnered

Abbreviations

ASG	Alaska Sea Grant
FITC	Fishery Industrial Technology Center
FRED	Alaska Department of Fish & Game Division of Fisheries Rehabilitation, Enhancement and Development
MAP	Marine Advisory Program
NOAA	National Oceanic and Atmospheric Administration
NPFMC	North Pacific Fishery Management Council
NSG	National Sea Grant Office
PASGCP	Pacific Sea Grant College Program
PICES	Pacific International Council for Exploration of the Sea
PWS	Prince William Sound
PWSAC	Prince William Sound Aquaculture Corporation
SFOS	School of Fisheries and Ocean Sciences
TAPS	Trans-Alaska Oil Pipeline System
UA	University of Alaska
UAF	University of Alaska Fairbanks



more than 10 national and international awards. These and other Alaska Sea Grant activities improve marine safety throughout the United States.

Public Information Services: Ladder from the Ivory Tower

Alaska Sea Grant Public Information Services translates and transmits information from the university and other authoritative sources to many user groups. Since 1970, Alaska Sea Grant's communications component has evolved from a small publication production and newsletter service into a multifaceted operation that organizes international conferences; produces scientific, technical, and lay publications; distributes news stories that are widely and frequently published in state and regional news and trade media; and conceives special activities that involve the University of Alaska in local community projects.

One of the most successful communications activities began in 1973, with the inaugural issue of *Alaska Seas and Coasts*. For 10 years, this newsletter was a respected forum for information exchange among the fishing industry, management agencies, and the university.

Research and technical publications and MAP bulletins are the dominant publication types. The kingpins of our publication list are the proceedings that stem from our national and international conferences, workshops, and symposia. These reference documents are widely used by scientists and policy makers, wringing maximum value out of meetings sponsored by Alaska Sea Grant.

The most popular of our MAP bulletins—how-to manuals for the seafood industry—is a color-illustrated field guide to Northeast Pacific rockfishes. First published in 1986, it now is scheduled for a fourth printing.

Other educational materials are produced for students and the general public. Noteworthy among them is an award-winning multi-volume set of grade school curriculum books on Alaska's coastal environment begun in 1979, the Alaska Sea Week Series. More recent educational materials include a book on the *Exxon Valdez* oil spill, a colorful photographic calendar, and a booklet on the national problem of marine debris. The latter publication was selected by the American Library Association as one of the nation's 20 best state-produced publications for 1989.

In 1982, Alaska Sea Grant added a media relations component, and in 1988 hired a science writer. In 1991, a magazine feature story that stemmed from an Alaska Sea Grant conference on fish by-products won the grand prize in a national writing competition sponsored by a professional organization of university communicators.

Student Today, Scientist Tomorrow

A central effort of the Alaska Sea Grant College Program has always been support of graduate students as they polish their problem-solving skills and perpetuate the time-honored tradition of collecting and analyzing data under the watchful eye of veteran faculty scientists.

Prior to 1984, graduate trainees were funded within research projects. This sometimes left graduate students without funding to complete their work when a research project was finished. To provide greater flexibility for us, and greater security for the students, in 1984 we began to fund a separate project for graduate traineeships.

Many of our graduate students have moved on to productive careers in their chosen fields, while their graduate research has contributed to the much needed scientific information on arctic and subarctic marine resources.

From 1978 through 1981, we funded a special fellowship program for undergraduate and graduate students studying marine resources at UA. Some of these students have academic positions and others have gone on to careers in marine-related fields outside the university. The Sea Grant traineeship project begun in 1984 has produced remarkable results. Over half of the trainees have found employment in resource management, mostly in state and federal agencies in Alaska. The other half have found work in private industry or remained in academia. Some have research positions at UAF, and are passing the academic torch on to other aspiring scientists.

Another contribution to graduate education was our success at recruiting two UAF graduate students who were awarded Dean John A. Knauss Marine Policy Fellowships in 1990.

Conclusion

Alaska Sea Grant prides itself on its reputation as a reliable, unbiased sponsor of marine research and purveyor of information. Our track record shows that our research and outreach have anticipated and effectively responded to evolving needs of various constituencies. As we near the twenty-first century, we look forward to providing continued service to our traditional audiences, while identifying and working with new partners and audiences who share our goals of wise management, use, and conservation of marine resources.

Alaska Sea Grant College Program

Education Publications

Alaska Seafood Industry Study: A Summary, SG-ED-02, 1989, McDowell Group, 22 pp., A/75-01

A Guide to Cleaning up Beach Debris in Alaska, SG-ED-03, 1989, 16 pp., A/75-01

Marine Debris . . . In Alaska? SG-ED-04, 1989, Brochure, A/75-01

MARPOL Poster, SG-ED-05, 1989, A/75-01

Marine Survival Equipment and Maintenance, SG-ED-06, 1990, H. Pennington, 28 pp., A/71-01

Frostbite and Other Cold Injuries, SG-ED-07, 1990, D. Mercy, 19 pp., A/71-01

Lessons of the *Exxon Valdez*, SG-ED-08, 1990, R. Steiner and K. Byers, 36 pp., A/71-01

Commercial Fishing Survey Results 1989, SG-ED-09, 1990, L. Sporleder, Compiler, 66 pp., A/75-01

Cold Water Near-Drowning, SG-ED-10, 1990, 19 pp., A/71-01

Sea Survival, SG-ED-12, 1990 , 41 pp., A/71-01

Marine Advisory Bulletins

Surviving on the Foods and Water from Alaska's Southern Shores, MAB-38, 1989, D. Garza, 24 pp., A/71-01

Central Kenai Peninsula Commercial Fishing Study, MAB-39, 1989, D. Coughenower, 35 pp., A/71-01

Salmon Quality: The Effects of Ice and Chilled Seawater Storage, MAB-40, 1990, C. Crapo, B. Himelbloom, E. Brown, J. Babbitt, and K. Reppond, 15 pp., A/71-01

Halibut Quality: Chilled Seawater Storage of Dressed and Round Fish, MAB-42, C. Crapo and E. Brown, 12 pp., A/71-01

Sea Gram

Seafood Shelf Life as a Function of Temperature, ASG-30, 1989, J. Doyle, 6 pp., A/71-01

Technical Reports

U.S. Salmon Markets: A Survey of Seafood Wholesalers, AK-SG-90-01, 1990, M. Herrmann, B.-H. Lin, and R.C. Mittelhammer, 30 pp., A/75-01

A Comparison of Two Rearing Sites of the Giant Kelp *Macrocystis integrifolia* in Sitka Sound, Alaska, AK-SG-90-02, 1990, S.H. Rabung, 21 pp., A/75-01

Fatality Rates in the Alaska Commercial Fishing Industry, AK-SG-90-03, 1990, G. Knapp and N. Ronan, 21 pp., R/20-03

Proceedings of the International Symposium on King and Tanner Crabs, AK-SG-90-04, 1990, 633 pp., A/75-01

Marine Mammal Interactions with the Salmon Drift Gillnet Fishery on the Copper River Delta, Alaska 1988 and 1989, AK-SG-90-05, 1990, K. Wynne, 36 pp., RR/90-02

Making Profits out of Seafood Wastes: Proceedings of the International By-Products Symposium, AK-SG-90-07, 1990, S. Keller, Editor, 248 pp., A/75-01

Research on Pacific Salmon Biology: Mini-Symposium Abstracts, AK-SG-90-08, 1990, 22 pp., A/75-01

Administrative Publications

Publications Catalog 1989, AK-ADMIN-17, 1989, 43 pp., A/75-01

Report from the Alaska Sea Grant College Program 1985-1988, AK-ADMIN-18, 1989, 48 pp., A/75-01

Pacific Sea Grant College Program Project Directory 1990, AK-ADMIN-19, 1990, 91 pp., A/75-01

Project Directory 1990-1991, AK-ADMIN-20, 1990, 20 pp., A/75-01

Publications Catalog 1990, AK-ADMIN-21, 1990, 36 pp., A/75-01

Publishing Alaska Sea Grant Sponsored Work, AK-ADMIN-22, 1990, 12 pp., A/75-01

Journal Reprints

Causes of Interannual Variability in the Sea Ice Cover of the Eastern Bering Sea, RP-89-01, Geojournal 18(1):45-59, 1989, H.J. Niebauer and R.H. Day, R/50-01

The Demand and Supply of Norwegian Atlantic Salmon in the United States and the European Community, RP-89-02, Canadian Journal of Agricultural Economics 36:459-471, 1988, M. Herrmann and B.-H. Lin, R/14-09

Bioenergetics of the Alaskan Crab *Chionoecetes bairdi* (Decapoda: Majidae), RP-89-03, Journal of Crustacean Biology 9(1):25-36, 1989, A.J. Paul and A. Fuji, R/06-18

Gastric Evacuation in Walleye Pollock, *Theragra chalcogramma*, RP-89-04, Canadian Journal of Fisheries and Aquatic Sciences 46(2):489-493, 1989, R.L. Smith, J. M. Paul, and A.J. Paul, R/06-23

Genetic Relationships of Even-Year Northwestern Alaskan Pink Salmon, RP-89-05, Transactions of the American Fisheries Society 117(6):536-545, 1988, A.J. Gharrett, C. Smoot, A.J. McGregor, and P.B. Holmes, RR/83-04

Specifying a Functional Form for the Influence of Hatchery Release on Adult Salmon Production, RP-89-06, Fishery Bulletin 86(4):655-662, 1988, B.-H. Lin and N.A. Williams, R/14-09

Energy Sources for First-Feeding Zoeae of King Crab *Paralithodes camtschatica* (Tilesius) (Decapoda, Lithodidae) Harvests, RP-89-07 , Journal of Experimental Marine Biology and Ecology 130:55-69, 1989, A.J. Paul, J.M. Paul, and K.O. Coyle, M/81-01

Time Series Analysis: Quantifying Variability and Correlation in SE Alaska Salmon Catches and Environmental Data, RP-90-01, Canadian Special Publication of Fisheries and Aquatic Sciences 108:67-80, 1989, J.T. Quinn II and R.P. Marshall, R/06-26

Biennial Report 1989–1990

Seasonal Changes in Energy and the Energy Cost of Spawning in Gulf of Alaska Pacific Cod, RP-90-02, Journal of Fish Biology 36:307-316, 1990, R.L. Smith, A.J. Paul, and J.M. Paul, R/06-23

Consumption, Growth and Evacuation in the Pacific Cod, *Gadus macrocephalus*, RP-90-03, Journal of Fish Biology 37:117-124, 1990, A.J. Paul, J.M. Paul, and R.L. Smith, R/06-23

Energy Ingestion and Conversion Rate in Pollock (*Theragra chalcogramma*) Fed Different Prey Types, RP-90-04, Journal du Conseil International pour l'Exploration de la Mer 46:232-234, 1990, A.J. Paul, J.M. Paul, and R.L. Smith, R/06-23

Growth of Stage I King Crab Larvae of *Paralithodes camtschatica* (Tilesius) (Decapoda: Lithodidae) in Natural Communities, RP-90-05, Journal of Crustacean Biology 10(2):175-183, 1990, A.J. Paul, J.M. Paul, and K.O. Coyle, M/81-01 and RR/87-05

Breeding Success of Sublegal Size Male Red King Crab *Paralithodes camtschatica* (Tilesius, 1815) (Decapoda, Lithodidae), RP-90-06, Journal of Shellfish Research 9(1):29-32, 1990, J.M. Paul and A.J. Paul, R/06-27

Distribution of FMRFamide-like Immunoreactivity in the Brain, Retina and Nervus Terminalis of the Sockeye Salmon Parr, *Oncorhynchus nerka*, RP-90-07, Cell and Tissue Research 261:403-418, 1990, T. Ostholm, P. Ekstrom, and S.O.E. Ebbesson, R/08-01

Threshold Management Policies for Exploited Populations, RP-90-08, Canadian Journal of Fisheries and Aquatic Sciences 47:2016-2029, 1990, T.J. Quinn, R. Fagen, and J. Zheng, RR/87-06PD

Marine Advisory Videos

It Could Have Been Prevented, MAPV-18, 1990, 17 min.

Ocean Ranching, MAPV-19, 1990, 29 min.

Graduate Students

Student	Degree	Project
Jill Anthony	M.S.	RR/90-02
Kevin Brownlee	M.S.	E/70-10
Paul Burns	M.S.	E/70-10
Benjamin Carney	M.S.	R/02-16
Michael Carroll	Ph.D.	E/70-10
Kathleen Craig	Ph.D.	E/70-10
Peter Hagen	Ph.D.	R/06-28
Tom Henderson	M.S.	R/02-15
Thomas Kline	Ph.D.	E/70-10
Robert Marshall	Ph.D.	R/06-26
Mary Milkovich	Ph.D.	R/50-01
Joan Mitchell	M.S.	E/70-10
Franz Josef Mueter	M.S.	RR/87-19
Pamela Porter	M.S.	R/35-06
Marc Prichett	M.S.	E/70-10
Peter Ribbens	M.S.	E/70-10
Charles Russell	M.S.	R/02-13
Andrew Smoker	M.S.	R/02-14
Elizabeth Stockmar	M.S.	R/07-12
Kathy Turco	M.S.	E/70-10
Zehua Xia	M.S.	E/70-10
Jie Zheng	Ph.D.	E/70-10

Symposia, Conferences, and Workshops

Public meetings have been developed, sponsored, hosted, convened, coordinated, organized, and held to varying degrees by Alaska Sea Grant since its inception, usually in concert with one or more other organizations. Topics addressed have been: aquaculture, seafood trade, fisheries management, marine mammals and commercial fisheries, maritime commerce and port development, marine archeology, fishery access control programs, fishing vessel insurance and safety, fisheries-generated marine debris, tanner crab, sablefish, Dungeness crab, king crab, rockfish, pollock, and seafood quality determination.

During the past two years Alaska Sea Grant has in part or in whole supported the following meetings:

International Symposium on King and Tanner Crabs, November 1989, Anchorage, 111 participants

Making Profits out of Seafood Waste: Alaska's Billion Pounds of Protein, April 1990, Anchorage, 190 participants

Training and Technology for Safety at Sea, September 1990, Sitka, 65 participants

International Herring Symposium, October 1990, Anchorage, 90 participants

Is It Food? A Workshop to Look at Population Declines in Marine Mammals and Seabirds, March 1991, Fairbanks, 77 participants

Research Projects

R/02-13, Broodstock Improvement in a Pink Salmon Hatchery, W.W. Smoker

R/02-14, Artificial Selection for Run Timing in Salmon Culture, W.W. Smoker

R/02-16, Application of Molecular Biology in Aquaculture and Management of Salmonids, A.J. Gharrett

R/06-30, Energetics of Halibut, Yellowfin Sole, and Flathead Sole, R.L. Smith and A.J. Paul

R/06-31, Behavior and Vocalizations of Transient Killer Whales, J.J. Kelley and F.H. Fay

R/07-13, Cooperative Fisheries and Oceanographic Studies (CFOS), R.T. Cooney

R/07-14, The Herring Project, J.S. Collie, et al.

R/08-01, Effects of Thyroid Hormone Smoltification in Salmon, S.O. Ebbesson

R/26-02, Attaining Suitable Water Supplies for Salmon Hatcheries, R.A. Johnson

R/35-09, Good Manufacturing Practices for Alaska Seafood Processing Industry, J.S. Lee

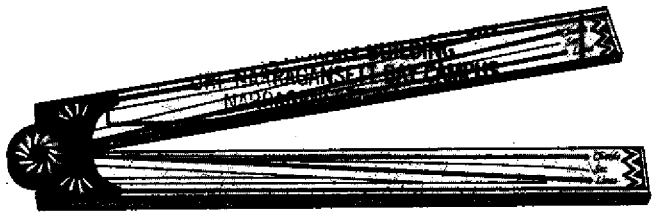
R/35-10, Control of Surimi Functionality through Modification of Protein Composition, J.S. French

R/35-12, Salmon Bone Meal as a Fertilizer, S.D. Sparrow

Media Relations *(January 1989-May 1991)*

News releases written and distributed	44
Releases used by news and trade media	39
Articles printed resulting from releases	78
Periodicals that used releases	39
Circulation of periodicals that used releases	628,944
Average circulation for each release	51,349*

*Alaska's total population is 550,043 people.



Budget 1989-1990

Program Activity	NA86AA-D-SG041 1989		NA90AA-D-SG066 1990	
	Federal	Matching	Federal	Matching
Information and Advisory	517,216	279,681	517,249	546,098
Management	174,800	244,360	124,458	191,684
Education and Training	104,814	0	122,000	0
Research	503,835	69,820	536,958	144,663
Total	**1,300,665**	**593,861**	**1,300,665**	**882,500**

Cost Category	NA86AA-D-SG041 1989		NA90AA-D-SG066 1990	
	Federal	Matching	Federal	Matching
Salaries	704,075	326,342	704,075	635,643
Benefits	122,272	77,325	122,272	154,280
Permanent Equipment	8,718	0	8,718	0
Expendable Supplies	51,993	5,257	51,993	7,500
Travel	138,368	8,046	138,368	13,800
Contractual Services	150,308	15,617	150,308	23,000
Indirect	124,931	161,274	124,931	48,222
Total	**1,300,665**	**593,861**	**1,300,665**	**882,500**

Sea Grant is a national university-based program created by Congress in 1966 that funds research, education, and advisory and information services to promote the wise development and conservation of marine and Great Lakes resources. Sea Grant programs are located in each ocean and Great Lakes coastal state and Puerto Rico. Alaska Sea Grant is based at the University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, and draws on academic and professional expertise throughout Alaska. Alaska Sea Grant is supported by the University of Alaska with state funds and by the U.S. Department of Commerce, NOAA Office of Sea Grant and Extramural Programs, grant no. NA90AA-D-SG066. The University of Alaska is an affirmative action/equal opportunity educational institution.

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