

American Fisheries Society

THE 21ST ANNUAL MEETING
of the ALASKA CHAPTER

November 14–18, 1994
Sitka Centennial Building
Sitka, Alaska

Alaska Chapter, Coming of Age:

1973 - 1994

A Blend of Science and Advocacy?

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1994 ALASKA CHAPTER AFS ANNUAL MEETING

SUMMARY SCHEDULE

Monday 14 November		Tuesday 15 November		Wednesday 16 November		Thursday 17 November		Friday 18 November
Time	Event	Time	Event	Time	Event	Time	Event	Event(s)
8:00-12:00	Excomm Meeting	8:00	Registration	8:00	Aquaculture	8:00	Marine Invertebrates	8:00 - 12:00 Alternative Sitka Tours
		8:15	Welcome					
		8:40	Keynote Address	9:40	Break			
		10:00	Break			10:05	Break	9:00 - Excomm Retreat
		10:15	Management of Wild Stocks	10:00	Contribued Papers	10:15	International Fisheries	
						11:15	Yukon Chum Run Failure	
12:00-1:00	Registration	12:10	Lunch Break	12:00	Lunch and Luncheon	12:15	Lunch and Luncheon	
1:00-5:00	Continuing Education Shortcourse	1:15	SE Alaska Marine Fisheries Allocation	1:00	AFS Business Meeting	1:30	Advocacy in the Alaska Chapter AFS	
12:45-5:00	SITKA TOURS	2:35	Break					
		3:00	Fisheries Enhancement Contributed Papers			3:30	AWARDS	
		4:00	Wild Stocks Discussion			3:45	Adjourn	
		5:00- 7:00	SITKA GALLERY WALK					
6:00-8:00	Registration and Social	7:00	FISH ED Committee mtg.	6:00 - 7:30	Informal Social - Door Prizes			
		7:00- 8:30	Poster Session	7:30- 10:00	BANQUET			

1994 ALASKA CHAPTER AFS ANNUAL MEETING

AGENDA

Theme: ALASKA CHAPTER, COMING OF AGE: A BLEND OF SCIENCE AND ADVOCACY?

Location: All meetings held at the Sitka Centennial Building (unless otherwise indicated).

Notice to Presenters: The slide previewing area is in the Pestchouff Room.

MONDAY, NOVEMBER 14

- 8:00 am - 12:00 pm** EXECUTIVE COMMITTEE MEETING - **Maksoutoff Room - Interested members are welcome**
- 12:00 pm - 1:00 pm** REGISTRATION
- 1:00 pm - 5:00 pm** CONTINUING EDUCATION SHORTCOURSE: **Design of Fisheries Assessment and Enhancement Programs - Ray Hilborn, University of Washington - Maksoutoff Room**
- 12:45 pm - 5:00 pm** SITKA TOURS (must have pre-registered by November 1)
- See page 42 for tour details.
All tours depart from the Centennial Building (except Russian Bishop's House tour)
- 12:45 - 5:00 Baranof Tour, \$18.00
- 1:00 - 2:30 Sitka from the Native Perspective, \$8.00
- 1:30 - 4:30 Medveje Hatchery Tour, approximately \$10.00
- 3:00 - 3:30 Russian Bishop's House, Free, Limited to 12 people. Meet at the Russian Bishop's House, a short walk from the Centennial Building.
- 6:00 pm - 8:00 pm** REGISTRATION and SOCIAL hosted by Northern Southeast Regional Aquaculture Association (NSRAA), TO BE HELD AT NSRAA facilities. Includes sandwiches, drinks, and munchies. FREE. Transportation provided by Baranof Tour bus. Bus departs from Shee Atika Hotel starting at 6:00, 6:30, 7:00, and 7:30 pm, and will depart from NSRAA at 6:15, 6:45, 7:15, and 7:45 pm.

TUESDAY, NOVEMBER 15 - Main Auditorium

- 8:00 am** REGISTRATION
- 8:15 am** WELCOME AND OPENING REMARKS - Joe Webb, Chapter President
- 8:25 am** Carl Burger, Western Division President

1994 ALASKA CHAPTER AFS ANNUAL MEETING

TUESDAY, NOVEMBER 15 (CONTINUED)

8:40 am - 10:00 am KEYNOTE ADDRESSES: The Value of Fisheries Enhancement Programs

8:40 Ray Hilborn (University of Washington)
9:10 Ted Parry (Canadian Salmon Enhancement Program)
9:40 Discussion

10:00 BREAK

SESSION 1 - MANAGEMENT OF WILD STOCKS OF SALMON

10:15 am - 12:10 pm Alex Wertheimer (NMFS), Chair - Main Auditorium

10:15 Management of Wild Stocks of Pacific Salmon In Alaska:
Introduction to the Session - Alex Wertheimer
(NMFS) - Abstract on page 10
10:20 Harvest Management For Wild Stocks Of Pacific Salmon In
Alaska - Doug Eggers (ADF&G) - Abstract on page 10
10:40 Control Mechanisms for the PNP Hatchery
Program{PRIVATE } - Steve McGee (ADF&G) - Abstract
on page 11
11:00 Managing Anadromous Fish Habitat - Ellen Fritts
(ADF&G) - Abstract on page 11
11:20 Effects of Endangered Species Act Listing on Management of
Alaska Salmon - Tamra Faris (NMFS) - Abstract on page 12
11:40 Status of Pacific Salmon and Steelhead in Southeast
Alaska - Tim Baker (ADF&G) and eight coauthors
- Abstract on page 13

12:10 pm - 1:15 pm LUNCH ON YOUR OWN

SESSION 2 - SE ALASKA MARINE FISHERIES ALLOCATION

1:15 pm - 2:35 pm Dolly Garza (MAP-U of A), Chair - Main Auditorium

1:15 Equity and Conservation Under the Pacific Salmon
Treaty - Scott Marshall (ADF&G) - Abstract on page 14
1:35 Efficiency Effects and Conservation Implications of an
Allocation Formula for the Pacific Salmon Treaty - Jeff
Hartman (ADF&G) and Norma Jean Sands
(ADF&G) - Abstract on page 15
1:55 Managing The Changing Chatham Sablefish Longline
Fishery - David A. Gordon (ADF&G) and Barry E. Bracken
(ADF&G) - Abstract on page 15
2:15 Sport Fisheries - Should the State be an advocate? - Paul
Krasnowski (ADF&G) - Abstract on page 15
2:35 **BREAK**

TUESDAY, NOVEMBER 15 (CONTINUED)

SESSION 3 - FISHERIES ENHANCEMENT CONTRIBUTED PAPERS

- 3:00 pm - 4:00 pm** **Cal Casipit (USFS), Chair - Main Auditorium**
- 3:00 Stocking Sockeye Salmon In Barren Lakes Of Alaska - G. B. Kyle (ADF&G) and J. A. Edmundson (ADF&G) - Abstract on page 16
- 3:20 Changes in Population Vital Statistics as an Indicator of Interspecific Competition from Enhancement Activities - B. J. Frenette (USFS) and M. D. Bryant (USFS) - Abstract on page 16
- 3:40 Studies of Alaska's Wild Salmon Stocks: Some Insights for Hatchery Supplementation - Leslie Holland-Bartels (NBS), Carl Burger (NBS), Steven Klein (USFWS) - Abstract on page 17

**OPEN DISCUSSION ON WILD STOCKS AND THE
AFS CHAPTER STOCKS AT RISK PROJECT**

- 4:00 pm - 4:30 pm** **Alex Wertheimer (NMFS), chair - Main Auditorium**

EVENING EVENTS

- 5:00 pm - 7:00 pm** **SITKA GALLERY WALK. Featuring local, Alaska and Native artists. In-store specials and refreshments offered in some galleries.**

FISHERIES EDUCATION COMMITTEE MEETING

- 7:00 pm - 8:00 pm** **Meeting for fisheries educators - Pat Holmes (ADF&G), Chair - Pestchouroff Room - See "abstract" on page 35 for description of meeting**

POSTER SESSION

- 7:00 pm - 8:30 pm** **Molly Ahlgren (Sheldon Jackson College) and Vic Starostka (USFS), Chairs - Exhibit Hall**
- Hidden Falls Hatchery Chum Salmon Program - Bruce Bachen (NSRAA) - Abstract on page 18
 - Intertidal Fishes of Sitka Sound in Southeast Alaska - Erin S. Downey (Sheldon Jackson College) and Paul J. McLarnon (Sheldon Jackson College) - Abstract on page 19
 - Threats to the Kenai River - Larry Dugan (USFWS) - Abstract on page 19
 - Sea Otter Management in Alaska - Dolly Garza (MAP-UAF) - Abstract on page 19
 - GIS Applications in Watershed Analysis - Dan Kelliher (USFS) and John Rickers (USFS) - Abstract on page 19

TUESDAY, NOVEMBER 15 (CONTINUED)

POSTER SESSION (Continued)

- Monitoring of Large Woody Debris Structures Constructed for Salmonid Rearing Habitat at Starrigavan Creek in Southeast Alaska - Greg Killinger (USFS) - Abstract on page 20
- Fisheries Education Around Alaska - Belle Mickelson (Alaska Cooperative Extension) - 20
- Remote Enhancement Projects - Steve Reifensuhl (NSRAA) - Abstract on page 21
- Suntaheen Fish Pass Effectiveness Monitoring - Chris Riley (USFS) - Abstract on page 21
- Terrestrial Invertebrates in Stream Food Webs: Their Importance to Juvenile Salmonids in Five Southeast Alaska Streams within Old- And New-Growth Forest Ecosystems - Mark S. Wipfli (USFS) and John P. Hudson (USFS) - Abstract on page 21
- Management of Bycatch in Hook-and-Line Groundfish Fisheries off Alaska - Janet Smoker (Fisheries Information Services) - Abstract on page 22
- Coho Lake Rearing Project - Dick Crone (NSRAA) - Abstract on page 22
- Coho Salmon Production on Small Streams on Prince of Wales Island - Michael L. Dilger (USFS) and B. E. Wright (USFS) - Abstract on page 23
- The National Biological Survey{PRIVATE } and its Ecosystem Initiatives in Alaska - Joy A. Geiselman (NBS), Karen L. Oakley (NBS), and Leslie E. Holland-Bartels (NBS) - Abstract on page 23

WEDNESDAY, NOVEMBER 16

SESSION 4-AQUACULTURE

8:00 am - 9:40 pm

Bruce Bachen (NSRAA), Chair - Main Auditorium

8:00

A Review of Chinook Salmon Resources in Southeast Alaska and Development of an Enhancement Program Designed for Minimal Hatchery-Wild Stock Interaction - William Heard (NMFS), Robert Burkett (ADF&G), Frank Thrower (NMFS), and Steve McGee (ADF&G) - Abstract on page 24

8:20

Coho Salmon Smolt And Commercial Production From Slippery Creek, Kuiu Island{PRIVATE } - Pamela E. Porter (USFS) - Abstract on page 24

WEDNESDAY, NOVEMBER 16 (CONTINUED)

SESSION 4 (Continued)

- 8:40 The use of induced banding patterns for determining enhanced sockeye salmon (*Onchorynchus nerka*) smolt contributions in two Alaskan Lakes - Gary Fandrei (CIAA) and Jeff Hetrick (CIAA) - Abstract on page 25
- 9:00 Survival And Growth Of Diploid And Triploid Hybrids Between Chinook, Chum, and Pink Salmon - J. Joyce (NMFS and UAS), R. Heintz (NMFS), W. Smoker (UAS), A. Gharrett (UAS) - Abstract on page 25
- 9:20 Update on aquatic farming in Alaska - Jim Cochran (ADF&G) - Abstract on page 26
- 9:40 **BREAK**

SESSION 5- CONTRIBUTED PAPERS

- 10:00 am - 12:00 pm Leslie Holland-Bartels (NBS), Chair - Main Auditorium**
- 10:00 Adaptive Sampling for Hatchery-Marked Salmon Otoliths Using the Likelihood Principle - Harold J. Geiger (ADF&G) and Peter T. Hagen (ADF&G) - Abstract on page 27
- 10:20 Historical Growth Patterns of Sockeye Salmon in the Egegik River, Bristol Bay, Alaska - Alfredo M. Lafarga (UAF) and Ole A. Mathisen (UAF) - Abstract on page 27
- 10:40 Evidence of Genetic Damage in Pink Salmon Inhabiting Prince William Sound, Alaska, three generations after the Exxon Valdez Oil Spill - Brian G. Bue (ADF&G), Samuel Sharr (ADF&G), Gary D. Miller (ADF&G), and James E. Seeb (ADF&G) - Abstract on page 28
- 11:00 Fish and Kids: Our Future Fisheries - Belle Mickelson (Alaska Cooperative Extension) - Abstract on page 28
- 11:20 Migratory Patterns Of Mature Cutthroat Trout From Auke Lake - Cheryl Imboden (ADF&G), Doug Jones (ADF&G), and John Eiler (NMFS) - Abstract on page 29
- 11:40 Habitat Ecology of Juvenile Rainbow Trout/Steelhead in the Upper Gulkana River - Steve R. Brink (UAF) - Abstract on page 29
- 12:00 pm - 1:00 pm LUNCH ON OWN IF NOT SIGNED UP FOR CATERED LUNCH (see below)**
- 12:00 pm - 1:00 pm CATERED LUNCH - MUST SIGN UP BY TUESDAY MORNING - Main Auditorium**

WEDNESDAY, NOVEMBER 16 (CONTINUED)

BUSINESS MEETING

1:00 pm - 4:45 pm **Main Auditorium**
Business Meeting Agenda on page 38

EVENING EVENTS

6:00 pm - 7:30 pm **INFORMAL SOCIAL HOUR (DOOR PRIZES START AT 6:00 pm)** - Main Auditorium. Appetizers (Lumpia, Piroshki, Smoked Salmon, Vegies & Dip). Ethnic Dance Performance by Native and Filipino Dance Groups

BANQUET

7:30 pm - 10:00 pm **BANQUET, BUFFET DINNER - Main Auditorium**
THEME: CULTURAL DIVERSITY. Featuring John Toomer (USFS, Civil Rights Action Group), Keynote Speech: Responding to Diverse Cultures. Also: a presentation regarding York, the Black member of the Lewis and Clark Expedition, and a performance by Sitka's New Archangel (Russian) Dance Group.

THURSDAY, NOVEMBER 17

SESSION 6-MARINE INVERTEBRATES

8:00 am - 10:05 am **Gordon Kruse (ADF&G), chair - Main Auditorium**

8:00 Opening Remarks On "Marine Invertebrates"
Session{PRIVATE } - Gordon H. Kruse (ADF&G) - Abstract on page 30

8:05 Overview of Invertebrate Dive Fisheries of Southeast Alaska - Robert Larson (ADF&G) - Abstract on page 30

8:25 Growth and Life History Traits of Red Sea Urchins - Douglas Woodby (ADF&G) - Abstract on page 31

8:45 Seasonal Patterns of Body Composition in the Red Sea Cucumbers (*Parastichopus californicus*): Implications for the Sea Cucumber Fishery and Aquaculture Industry - Molly Ahlgren (Sheldon Jackson College) - Abstract on page 31

9:05 The Ecology of Invertebrate Life History Strategies: Development Modes and their Implications for Commercial Fisheries, Management - Scott Smiley (UAF) - Abstract on page 32

9:25 Processing and Marketing Invertebrates - Terry Gardiner (Norquest Seafoods, Inc.) - Abstract on page 32

9:45 World Trends and Future Prospects for Alaska - Brian Paust (Marine Advisory Program) - Abstract on page 33

THURSDAY, NOVEMBER 17 (CONTINUED)

10:05 **BREAK**

SESSION 7-INTERNATIONAL FISHERIES

- 10:15 am - 11:15 am Vic Starostka (USFS), chair - Main Auditorium**
- 10:15 Meso-pelagic fishes of the Bering Sea - E. I. Sobolevsky (Institute of Marine Biology, Academy of Sciences, Vladivostok) and Ole Mathison (UAF) - Abstract on page 33
- 10:35 Eurasian activities of the UNESCO/MAB Working Group, Fish and Land-Inland Water Ecotones and their relation to Alaskan fish habitat issues - Jim Reynolds (USFWS) - Abstract on page 33
- 10:55 Cooperative Studies of Char in the Russian Far East - Fred DeCicco (ADF&G) - Abstract on page 34

SESSION 8-YUKON CHUM RUN FAILURE, 1993-1994

- 11:15 am - 12:15 pm Henry Yuen (ADF&G), Chair - Main Auditorium**
- 11:15 The Canadian Point of View - Gerry Coutre (Canadian Fishers Association) - Abstract on page 34
- 11:35 Domestic Points of View - Bob King, Dillingham Fish Journalist- Abstract on page 34
- 11:55 Bering Sea Trawl Catches of Chum Salmon - Bill Krygier (ADF&G) - Abstract on page 34
- 12:15 pm - 1:30 pm LUNCH ON YOUR OWN**
- 12:15 pm - 1:30 pm PAST PRESIDENTS' LUNCHEON, Bill Wilson (LGL), Chair - Held at Shee Atika Hotel**

ADVOCACY IN THE ALASKA CHAPTER, AFS

- 1:30 pm - 2:45 pm Main Auditorium (See Background Information on page 36)**
- Point/Counter-Point debate - Bill Wilson (LGL), moderator**
- POINT:*** The Alaska Chapter can best support the conservation of fisheries resources by promoting professionalism in the membership through scientific exchange and continuing education. **The Chapter should be *less* involved in supporting environmental legislation and public awareness.**
- COUNTER-POINT:*** The Alaska Chapter can best support the conservation of fisheries resources by promoting professionalism in the membership **and by being *more* involved in supporting environmental legislation, public education, and broadening the membership to include all parties interested in fisheries resources.**

1994 ALASKA CHAPTER AFS ANNUAL MEETING

THURSDAY, NOVEMBER 17 (CONTINUED)

2:45 pm **BREAK**
3:00 pm - 3:30 pm **AUDIENCE DISCUSSION - Main Auditorium**
3:30 pm - 3:45 pm **AWARDS - Main Auditorium**
3:45 pm **ADJOURN - Main Auditorium**
4:30 pm **Russian Bishop's House Tour by the National Park Service. Free, limited to 12, sign-up required. Meet at the Russian Bishop's House.**

FRIDAY, NOVEMBER 18

8:00 am - 12:pm **ALTERNATIVE TOUR SCHEDULE (Register on Monday and Tuesday, November 14 & 15) - See page 42 for tour details.**
All tours depart from Shee Atika Hotel (excepting tour of Russian Bishop's House)
8:00 - 12:00 Baranof Tour
8:30 - 11:30 Medvejie Hatchery Tour
8:30 - 9:00 Russian Bishop's House, Free, Limited to 12 people. Meet at the Russian Bishop's House, a short walk from the Centennial Building.
9:00 - 10:30 Sitka Tribe of Alaska - Driving Tour
9:00 am **EXECUTIVE COMMITTEE RETREAT, chapter members invited**
???? - ???? **TRAVEL HOME WITH A SMILE!**
Thank you for visiting Sitka!

ABSTRACTS

SESSION 1

**MANAGEMENT OF WILD STOCKS OF PACIFIC SALMON IN ALASKA:
INTRODUCTION TO THE SESSION**

**Alex Wertheimer
National Marine Fisheries Service
Auke Bay Laboratory
11305 Glacier Highway
Juneau, Alaska 99801**

Pacific salmon in Alaska are at unprecedented levels of abundance. Harvests have regularly exceeded 100 million fish per year since 1980, and have approached 200 million fish in recent years. The status of salmon in Alaska is in stark contrast to the decline of the resource in the Pacific Northwest. This session reviews the management strategies that are being applied to maintain the productivity and diversity of Alaska salmon, and presents an update on the Alaska Chapter's project to evaluate the current status of salmon in the State at the management unit and watershed level.

**HARVEST MANAGEMENT FOR WILD STOCKS OF PACIFIC SALMON IN
ALASKA**

**Douglas M. Eggers
Alaska Department of Fish and Game
Commercial Fisheries Management and Development Division
P.O. Box 25526
Juneau, AK 99801-5526**

Pacific Salmon Fisheries in the State of Alaska by constitutional mandate are managed for sustained yield. For salmon fisheries with stable fishing effort, sustained yield can be achieved by conservative management practices such as limited catch quotas and limited scheduled fishing periods. However, for fisheries with expanding levels of fishing effort or excessive fishing power, sustained yield management requires that the department assess the number of salmon that spawn on an annual basis. The Alaska Department of Fish and Game has the authority to establish the annual level of salmon spawning stock required to maintain a sustainable harvest and also to manage commercial, sport, personal use and subsistence fisheries to ensure that annual spawning escapement requirements are met.

The definitions and concepts relating to; criteria, procedures for establishing and modifying; and the process for facilitating public review of allocative issues associated with establishing and modifying escapement goals are articulated in the department's escapement goal policy. Unless otherwise directed by regulation, the department will manage Alaska's salmon fisheries, to the extent possible, for maximum sustained yield. To this end, the department will aggressively pursue the further development of escapement enumeration programs, in-season fishery management programs, and scientific methods to determine escapement levels which produce maximum sustained yield.

Alaska's strategy of harvest management for wild stocks of Pacific salmon is illustrated in the evolution of the fishery management system for western Alaska chum and sockeye salmon.

ABSTRACTS (CONTINUED)

SESSION 1 (Continued)

CONTROL MECHANISMS FOR THE PNP HATCHERY PROGRAM{PRIVATE }

Steve McGee

**Commercial Fisheries Management and Development Division
Alaska Department of Fish and Game**

The Private Nonprofit (PNP) hatchery program in Alaska is required to be operated "...without adversely affecting natural stocks of fish in the state and under a policy of management which allows reasonable segregation of returning hatchery-reared salmon from naturally occurring stocks." The following permitting mechanisms and reporting requirements are used to control the hatchery program. Initial permit review includes extensive technical review by governmental staff and the Regional Planning Team for genetics, pathology, fish culture, commercial and sport fisheries management, and habitat protection. In conjunction with PNP permit, a basic management plan for the proposed hatchery is developed that describes the long-term plan for the facility's operation. Each hatchery has an annual management plan developed for each year of operation. These plans contain specific limits on the number of eggs to be taken for that year, the goal for cost recovery harvesting, and requirements for specific studies, such as numbers of fish to be tagged. With accumulated experience, hatchery operators may ask for modifications to their permits to add new green egg capacity, new species, and/or new release sites. These permit alteration requests (PARs) are reviewed in much the same manner as a new permit.

Specific transports of eggs, fry and smolts for broodstock and release are controlled with a Fish Transport Permit (FTP). FTPs are intended as genetics and pathology control devices. Each PNP hatchery permit holder must submit an annual report to the department that details that hatchery's production records for the past year. Specific numbers of eggs taken, fish released, fish harvested for sale and for broodstock for each species and stock must be reported. In addition, any unusual mortality must be reported to the department within 15 days. The PNP Hatchery Program is highly regulated. Operators are required to have specific permission to do almost everything. In fact, most operators have indicated the program is over-regulated.

MANAGING ANADROMOUS FISH HABITAT

Ellen I. Fritts

**Alaska Department of Fish and Game
Habitat and Restoration Division**

P.O. Box 25526

Juneau, AK 99802-5526

Alaska state law, as administered by the Habitat and Restoration Division of the Alaska Department of Fish and Game (ADF&G), provides protection for some anadromous fish habitat resources. Three primary statutes guide these efforts. The Anadromous Fish Act and the Fishways Act (AS 16.05.870 and AS 16.05.840, respectively) require persons interested in conducting activities within the high water marks of anadromous fish-bearing fresh waters, or persons whose actions can create a blockage to fish passage, to receive authorization from the department. The state's Forest Resources and Practices Act (AS 41.17) requires that ADF&G participate in on-site inspections of timber harvest operations to evaluate forest practices and proposals for harvest of trees within streamside buffers for their effects on fish habitat. Finally, the federal Coastal Zone Management Act and the Alaska Coastal Management Program (ACMP) direct that fish habitat in the coastal zone be protected by comparing proposed project plans against agency statutes plus the habitat and water quality protection standards of the ACMP. Selected successes and failures of these laws to protect anadromous fish habitat, and the responsibilities of other land and water management agencies to manage and protect anadromous fish habitat, will be discussed.

ABSTRACTS (CONTINUED)

SESSION 1 (Continued)

**EFFECTS OF ENDANGERED SPECIES ACT LISTINGS ON MANAGEMENT OF
ALASKA SALMON**

**Tamra Faris
National Marine Fisheries Service
Alaska Regional Office
P.O. Box 21668
Juneau, AK 99801**

Endangered Species Act (ESA) listed Snake River sockeye and chinook salmon stocks have been added to the eight marine mammal species that comprise the NMFS list of ESA species that are present in Alaskan waters. Portions of these listed salmon stocks are presumed to range into the Gulf of Alaska. Those salmon, therefore, are subject to the considerations and protections afforded ESA listed species. Fishery management activities have been required to consider effects of the fisheries (takes) on listed fish under Section 7 of the ESA. Conservation measures, such as the 1993 five-day closure of the salmon troll fishery in Southeast Alaska, were required to minimize the take of listed Snake River fall chinook salmon in Alaskan waters.

No stock of salmon originating in Alaska is currently listed or under consideration for listing under the ESA. The facts that salmon are at record levels of abundance in Alaska overall, and that the habitat base for anadromous fish is generally intact and undeveloped, however, do not exclude the potential for specific stocks of salmon being placed in jeopardy by overfishing or localized habitat degradation. It has become almost commonplace for conservation agendas to be effected by petitioning a species or stock for ESA listing. It would not be surprising to receive petitions to list salmon stocks in Alaska given the present popularity of petitioning for ESA listing and the vulnerability of the small salmon runs that comprise the total abundance of salmon.

If ESA listings are pursued, mixed stock fisheries intercepting the subject stock(s) and activities on the habitat will be subject to protections afforded ESA listed species. The ESA prohibits irreversible or irretrievable commitment of resources that would eliminate the feasibility of alternatives to the proposed action while the petition is under consideration and, if the species is listed, while consultations are underway. The ESA mandates a timely consideration of the petition and requires use of the best scientific and commercial data available. The costs, shifts, and increases in workload associated with ESA listing has been considerable throughout the northwest. Considerations new to management agencies include: determination of evolutionarily significant units, deferential fishery management actions, artificial enhancement considerations, and habitat conservation measures. Lawsuits and appeals are common; new and difficult policy questions keep unfolding.

ABSTRACTS (CONTINUED)

SESSION 1 (Continued)

STATUS OF PACIFIC SALMON AND STEELHEAD IN SOUTHEAST ALASKA

Tim Baker, Project Manager
Alaska Department of Fish and Game
Division of Comm. Fish. Management and Development
333 Raspberry Road
Anchorage, Alaska 99518-1599

Co-Authors: Alex Wertheimer (NMFS), Bob Burkett (ADF&G-CFMD), Ron Dunlap (USFS), Doug Eggers (ADF&G-CFMD), Ellen Fritts (ADF&G-H&R), Tony Gharrett (UAF-JCFOS), Rocky Holmes (ADF&G-SF), Dick Wilmot (NMFS).

A cooperative project between the American Fisheries Society and Alaska Department of Fish and Game was initiated in July 1993 to evaluate the available information on the status of Pacific salmon and steelhead in the State of Alaska. The objectives of the project were to: (1) prepare a list of Pacific salmon and steelhead by escapement location in Alaska; (2) identify and evaluate the salmon and steelhead that are at risk of extinction; and (3) list the factors that may be contributing to the decline of salmon and steelhead identified at risk. The project went beyond the tabulation of salmon and steelhead identified at risk. The project also provided a contextual background by including healthy stocks, and by gathering data on the formation of new stocks. The information was used to construct a database that will assist in maintaining the health and diversity of Pacific salmon and steelhead populations in Alaska. We want to avoid the situation observed in the Pacific Northwest where populations have declined to such a degree that certain populations have gone extinct and others are now being considered for listing as threatened or endangered under the Endangered Species Act.

In this presentation, the results of the project will be presented for Southeast Alaska. In addition, an overview of the project will be presented along with several important scientific issues that were of concern to the project including the criteria used to evaluate the risk of extinction to salmon and steelhead.

ABSTRACTS (CONTINUED)

SESSION 2

EQUITY AND CONSERVATION UNDER THE PACIFIC SALMON TREATY

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Alaska Department of Fish and Game
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Douglas, AK 99824
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The Pacific Salmon Treaty between the United States and Canada was ratified in 1985 after nearly 20 years of negotiation. Among other provisions, the Treaty establishes three principles.

1. An obligation for each Party to manage its fisheries and enhancement programs so to:
 - (a) prevent overfishing and provide for optimum production; and
 - (b) provide for each Party to receive benefits equivalent to the production of salmon originating in its waters.
2. An obligation to cooperate (cooperation means working together for mutual benefit) in management, research and enhancement.
3. An obligation to take the following into account when implementing item one above:
 - (a) the desirability of reducing interceptions;
 - (b) the desirability of avoiding undue disruption of existing fisheries;
 - (c) the annual variations in abundance of the stocks.

Since at least 1971, Canada has asserted that United States salmon fisheries intercept too many fish bound for Canadian Rivers. Canada's view stems from an interception accounting scheme that simply attempts to balance the interceptions of salmon between United States and Canadian Fisheries. In 1990, Canada heated-up the equity debate in the Pacific Salmon Commission. In response, the United States has tabled various proposals to resolve the issue, but the proposals have been rejected. The United States has rejected the Canadian view of how the equity principle should be implemented for many technical and policy reasons. Several factors, including poorly defined Treaty principles, closure of many coho and chinook fisheries in the Pacific Northwest, and the balance of power of the various U.S. bargaining units have provided Canada a forum to press its historic view to the highest levels in the United States government.

To press the United States into accepting its view of the equity principle, Canada has refused to negotiate fishery regimes to conserve U.S. stocks, imposed transit fees on fishing vessels exercising their right of innocent passage through Canadian waters and other unilateral actions.

The United States Section is actively involved in discussing framework algorithms for implementing the equity principle in yet another effort to seek a long term solution with Canada. In this presentation, I briefly describe the important features of various algorithms proposed by Canada and under consideration in the United States. Following my presentation, Norma Jean Sands and Jeff Hartman will show you the results of a simulation model analysis that illustrates the possible management and economic consequences of relying on the accounting approach proposed by Canada versus algorithms that consider conservation and optimum production as the primary considerations for implementing Treaty principles.

ABSTRACTS (CONTINUED)

SESSION 2 (Continued)

**EFFICIENCY EFFECTS AND CONSERVATION IMPLICATIONS OF AN
ALLOCATION FORMULA FOR THE PACIFIC SALMON TREATY**

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ABSTRACT NOT RECEIVED AT PRESS TIME FOR PROGRAM BOOKLET.

MANAGING THE CHANGING CHATHAM SABLEFISH LONGLINE FISHERY

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Fishing effort in the sablefish longline fishery in Chatham Strait increased rapidly in the early 1980's. The State of Alaska adopted a limited entry program beginning with the 1985 season. Under that program, only licensed fishermen who had landed sablefish from within the area prior to January 1, 1985, were eligible for future participation. The long-term goal was to restrict the total effort to the 1984 level of 73 permit holders through implementation of a point system. The program has not been successful in restricting total effort or promoting a more orderly fishery. The annual season was shortened from 5 days in 1984 to 24 hours beginning in 1987. Despite the short seasons, the annual harvest objectives have been consistently exceeded. The average number of hooks set and pounds landed per vessel per day have increased dramatically. In 1993, the ninth year of the limited entry program, the number of participants (118) was still well above the target level (73) and 3.6 million pounds of sablefish were landed in 24 hours. This far exceeded the newly adopted increased harvest objective of 3.0 million pounds. Consequently, the industry was forced to consider alternate management measures or be faced with a fishing time of less than 24 hours. The Board of Fisheries, with input from the permit holders, radically changed the nature of the fishery by adopting regulations dividing the annual quota evenly between all permit holders.

SPORT FISHERIES - SHOULD THE STATE BE AN ADVOCATE?

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ABSTRACTS (CONTINUED)

SESSION 3

STOCKING SOCKEYE SALMON IN BARREN LAKES OF ALASKA

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Stocking sockeye salmon (*Oncorhynchus nerka*) fry into barren lake systems, which are systems that previously did not have a major population of fish preying on zooplankton, is relatively new in Alaska. The stocking of barren lake systems has resulted in inconsistent responses within the zooplankton community. Current rearing models derived from systems with an established run of sockeye do not appear to be appropriate for stocking barren lakes. For example, zooplankton biomass in some of the barren lakes stocked at levels based on current rearing models remained relatively stable while others decreased by as much as 75%. Major reasons for the disparity of response to stocking barren lakes include: 1) the inherent (usually low) productivity of these lakes, 2) zooplankton diversity, 3) stocking density, and 4) morphometric factors. The instability of the zooplankton community in barren lakes when faced with predation necessitates stocking programs based on a conservative and gradual approach with close evaluation, and experimenting with stocking strategies that ameliorate significant impacts to the zooplankton community structure.

**CHANGES IN POPULATION VITAL STATISTICS AS AN INDICATOR OF
INTERSPECIFIC COMPETITION FROM ENHANCEMENT ACTIVITIES**

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Changes in the population dynamics of resident cutthroat trout has changed over the past 8 years as a response to enhancement activities of anadromous salmonid stocks introduced into Margaret Lake. Stocking and fishpass construction have allowed anadromous species to successfully colonize the upper watershed of Margaret Lake which had been isolated from the marine environment for thousands of years. Interspecific competition has been observed not only in the lake ecosystem, but in the tributaries and off-channel areas (such as beaver ponds and sloughs) that are key to rearing juvenile salmonids (both anadromous and resident). Those interactions will be explored through comparisons of vital statistics such as growth, survival, and abundance.

ABSTRACTS (CONTINUED)

SESSION 3 (Continued)

STUDIES OF ALASKA'S WILD SALMON STOCKS: SOME INSIGHTS FOR
HATCHERY SUPPLEMENTATION

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Pacific salmonid (*Oncorhynchus* sp.) populations throughout much of their range are in serious decline: desired levels of allocation to all users can not be maintained and several populations are officially designated as threatened or endangered. Hatchery supplementation of wild stocks, one tool used for restoration, has met with varying success. Adverse effects have been documented, including 1) straying of hatchery fish into nontarget streams, 2) loss of genetic diversity, 3) changes in competitive interactions in stream communities, and 4) alterations in characteristics such as run timing, behavior, and subsequent changes in metapopulation and system characteristics. Alaska has large numbers of wild salmonid stocks that have not been significantly altered by hatchery supplementation. As such, characteristics of these stocks may provide insight into improved methods for restoring depleted stocks or constraints to restoration efforts. Research completed by NBS on chinook (*Oncorhynchus tshawytscha*) and sockeye (*O. nerka*) salmon populations of the Kenai Peninsula, Kodiak Island and Bristol Bay areas of Alaska shows a variety of complex characteristics of wild stocks, including ecological discreteness and adaptations to home stream thermal regimes. Several examples exist of geographically proximal stocks that vary genetically among each other. At least two examples exist where early and late runs of chinook salmon spawn in close proximity, but are genetically distinct. Despite observed 6-week differences in peak spawning between early and late runs, embryos from both groups emerge at approximately the same time in the spring when food sources are plentiful. If genotypically controlled, alterations in these thermally adapted patterns could significantly affect resultant outmigration from the system. Also, within one system (Tustumena Lake, Kasilof River), five spawning areas examined for mtDNA and allozyme variations resulted in at least two genetically distinct populations of sockeye salmon within a <300 km² lake. The distance among streams that were not genetically distinct and distance between genetically discreet groups were about equal (≈7 km). Also, cases exist where present genetic tools do not indicate discreteness, when evidence suggests a recent time scale for local adaptation exists. Examples of these situations demonstrate the value of studies of Alaska's wild stocks in efforts to reestablish viable salmon populations, as well as outlining areas of caution in applying hatchery techniques.

ABSTRACTS (CONTINUED)

POSTER SESSION

HIDDEN FALLS HATCHERY CHUM PROGRAM

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Reacting to low salmon abundance in the 1970's, Alaska used some of its oil wealth to establish a public and private non-profit salmon enhancement program to provide more stable returns. Regional Planning Teams drew up Comprehensive Salmon Plans for specific areas of Alaska that identified harvest goals and enhancement opportunities. Chum salmon were identified in the Southeast Regional Plan as the most preferred species for major hatchery production from a fishery management perspective. Summer stocks were specifically identified as desirable, provided adequate terminal harvest areas could be found.

The Hidden Falls Hatchery was built as a summer chum salmon facility in 1978, By 1994, approximately 10.4 million chum salmon have returned to the facility. including 3.2 million in 1994. The total value of the commercial chum salmon harvest through 1994 was \$27.1 million. In addition, enough fish are sold each year to generate about \$1 million to pay for hatchery operations. Chum salmon returns to Hidden Falls exceed those of any facility outside of Japan. In 1994, Hidden Falls produced 34.5% of the southeast Alaska commercial chum salmon catch and helped to make the catch the highest in nearly 70 years.

The success of the Hidden Falls Hatchery program is partially due to the consideration of interactions between returning hatchery-produced adults and wild stocks. The broodstock selected for use at Hidden Falls is an early summer stock and is harvested prior to the time when most pink salmon migrate through the terminal harvest area. The temporal separation between hatchery returns and most wild stocks allows aggressive harvest on hatchery fish without apparent harm to wild stocks. The Hidden Falls return allows fishery managers to schedule commercial openings throughout southeast Alaska knowing that the hatchery harvest area will usually attract between 20-80% of the boats and thereby reduce fishing pressure in wild stock harvest areas.

An important factor in the decision to site a hatchery at Hidden Falls was proximity to salmon-producing streams. The Hidden Falls area has little wild production nearby due to the limited freshwater habitat available. The nearest chum salmon producing stream to Hidden Falls Hatchery is Clear River, about 13 water miles away. Return per spawner data for pink and chum salmon to Clear River show no significant correlation with chum salmon production at Hidden Falls. By locating a hatchery away from wild stocks, adverse impacts of juvenile competition between hatchery and wild stocks as well as from excessive harvest of returning wild stock adults are minimized.

By incorporating wild stock concerns in the design of this enhancement project, managers have greater flexibility to utilize harvest strategies that generate maximum public benefit. The relatively large terminal harvest area, available because of the temporal separation between hatchery and wild stocks, allows chum salmon to be harvested while most are still bright and of high value. Hidden Falls chum salmon have a reputation for being high quality, a characteristic that is of increasing importance in the competitive world of salmon marketing.

ABSTRACTS (CONTINUED)

POSTER SESSION (Continued)

INTERTIDAL FISHES OF SITKA SOUND IN SOUTHEAST ALASKA

Erin S. Downey and Paul J. McLarnon
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This poster describes some of the fishes found in the intertidal zone of Sitka Sound. The display features photographs of fish captured in the Sitka vicinity. Presented with each photograph will be a scientific line drawing describing identification characteristics of each fish. The photos and drawings are part of an ongoing effort to identify all aquatic fauna and flora of the Sitka Sound intertidal zone and eventually compile them into a book, which the general public could use while diving, snorkeling, or beach combing in the area.

THREATS TO THE KENAI RIVER

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SEA OTTER MANAGEMENT IN ALASKA

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GIS APPLICATIONS IN WATERSHED ANALYSIS

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ABSTRACTS (CONTINUED)

POSTER SESSION (Continued)

MONITORING OF LARGE WOODY DEBRIS STRUCTURES CONSTRUCTED FOR SALMONID REARING HABITAT AT STARRIGAVAN CREEK IN SOUTHEAST ALASKA

**Gregory M. Killinger
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Monitoring was completed annually at a 210 m stream reach at Starrigavan Creek (ADF&G Cat. No, 113-41-15) since 1986, when five large woody debris structures were placed in the stream. The 9 km² watershed, 8.8 km north of Sitka, Alaska, was logged between 1968 and 1974. The structures were built in a tributary stream, logged to both banks. Prior to building the structures, the 210 m stream reach was mostly devoid of large woody debris and had little deep pool area. The purpose of the structures was to create over-winter rearing habitat (pools with cover) for juvenile coho salmon. The monitoring included mapping stream habitat and sampling fish (juvenile coho salmon, Dolly Varden char and sculpin) populations. Sampling was completed in late winter or early spring to measure over-winter habitat use and fish densities. This monitoring provided a measure of structure effectiveness in restoring critical winter habitat for juvenile coho salmon. For the past 4 years (1991-1994), the juvenile coho density (N/m² and N/m) in the structured section (47-210m) was twice as high as the coho density in the control section (0-47m). Juvenile coho densities were three times higher in the stream sections directly upstream of the four dam-type structures. The mean size of juvenile coho salmon was the same in the structured section as in the control section.

The pool area created upstream of the woody debris structures has been gradually filling with bedload material. This trend was especially true for the deeper pool areas. However, between 1993 and 1994, deeper pool area increased slightly, probably due to several flood events and associated scouring. In any case, after eight years in the stream, the large woody debris structures still provided over-winter rearing habitat for juvenile coho salmon, as demonstrated by the higher coho densities in the reaches with structures. In 1991, two cover log structures were placed in the 63-77 m section, a pool upstream of structure #2. These cover structures substantially increased the juvenile coho salmon density in this 14 m section.

FISHERIES EDUCATION AROUND ALASKA

**Belle Mickelson
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University of Alaska
Cordova, AK**

This poster describes selected fisheries education programs statewide and suggests ways for biologists to become involved with our youth. Handouts will feature the results of a Fisheries Education Meeting last March 24-25. Biologists will be encouraged to become involved with the Education Committee of the Alaska Chapter of the American Fisheries Society headed by Pat Holmes. The youth of today will be deciding on the fish and fisheries of the future, so productive time with them is very important.

ABSTRACTS (CONTINUED)

POSTER SESSION (Continued)

REMOTE ENHANCEMENT PROJECTS

Steve Reifentuhl

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SUNTAHEEN FISH PASS EFFECTIVENESS MONITORING

Chris Riley

United States Forest Service

Hoonah, AK

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TERRESTRIAL INVERTEBRATES IN STREAM FOOD WEBS: THEIR
IMPORTANCE TO JUVENILE SALMONIDS IN FIVE SOUTHEAST ALASKA
STREAMS WITHIN OLD- AND NEW-GROWTH FOREST ECOSYSTEMS

Mark S. Wipfli & John P. Hudson

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Riparian zones can play a major role in regulating nutrient and energy flow in low-order streams by contributing plant material and terrestrial invertebrates. This study focused on the contribution of terrestrial invertebrates to stream food webs by monitoring juvenile salmonid (coho, cutthroat, Dolly Varden) diets for aquatic and terrestrial prey from May through Oct. in five low-order southeast Alaska streams. Riparian zones ranged from old-growth coniferous-dominated to new-growth (~25 yr) deciduous-dominated. Mass of the two invertebrate categories (terrestrial v aquatic) ingested by salmonids was similar. Ingested terrestrial invertebrate mass was higher for fish in new-growth than old-growth systems, apparently a reflection of increased terrestrial invertebrate inputs in the new-growth systems. These preliminary results indicated that a large portion of prey mass (and energy assimilated) by salmonids in low-order streams enters as terrestrial invertebrates, and inputs appear governed by associated riparian vegetation. When considering riparian management options, managers need to consider how the riparian vegetation may govern both aquatic and terrestrial invertebrate production, particularly in systems where fish are food-limited.

ABSTRACTS (CONTINUED)

POSTER SESSION (Continued)

**MANAGEMENT OF BYCATCH IN HOOK-AND-LINE GROUND FISH FISHERIES
OFF ALASKA**

**Janet Smoker
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All hook-and-line target fisheries off Alaska have halibut bycatch caps, which cause closures when reached prematurely. High halibut rates can be avoided through regulatory means such as time/area closures and through adaptive fishing by fishermen.

In 1994 historical hook-and-line observer data (1979-1992) was developed into a series which maps catch and bycatch by target and time and area strata. These data can be used by fishermen to decide where and when to fish, or by managers if further consideration is given to time/area closure approaches.

Also in spring 1994, set-by-set data was collected for vessels in the Bering Sea cod fleet and maps of halibut rates were produced and distributed to participants within a few days, so that transient high-rate areas could be avoided.

COHO LAKE REARING PROJECT

**Dick Crone
Northern Southeast Regional Aquaculture Association**

The Coho Lake Rearing Project at Deer Lake has become one of the top producers of coho salmon in southeast Alaska. In 1994, more than 250,000 coho adults were generated by stocking this lake. Careful evaluation, implementation of a fertilization program and excellent marine survival have been factors in the success of this program. The Deer Lake project has benefited from the cooperation and support of the USDA Forest Service, the Alaska Department of Fish and Game and the National Marine Fisheries Service.

Deer Lake is a 396 ha lake located on the southeastern shore of Baranof Island. Access for anadromous fish is blocked by a 60 m waterfall, but the lake does have a resident rainbow trout population (introduced in the late 1960s). Every year in late June, coho fry averaging about 0.5-1.0 g are flown to the lake and released. Current plans call for stocking about 2.4 million fry per year (about 6000/hectare).

The rearing coho feed primarily on zooplankton. Many of the juvenile adopt pelagic behavior and forage throughout the lake. Zooplankton abundance is kept high through the application of liquid fertilizer during the peak growth months (May-September). Rearing conditions are favorable enough that nearly all surviving coho exceed the threshold size necessary to emigrate as age I smolts.

Smolts volitionally exit the lake in May and June and are trapped in the short outlet stream before reaching the falls. An inclined screen trap is used to filter fish from the outflowing water and smolts are sluiced through two small pipelines to holding pens in saltwater. An electronic counter is used to enumerate the emigrants. For 1993 and 1994, smolt yield exceeded 1.1 million; the result of in-lake survival of about 50%.

Adult returns are harvested by trollers and seiners. In 1964, about 160,000 adults were caught in these fisheries. Ocean conditions have been favorable and marine survival percentages high in recent years. Marine survival exceeded 23% in 1994.

ABSTRACTS (CONTINUED)

POSTER SESSION (Continued)

COHO SALMON PRODUCTION ON SMALL STREAMS ON PRINCE OF WALES
ISLAND

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Coho salmon production was measured on four small streams on Prince of Wales Island. The four streams include two in new growth and two in old growth watersheds. All of the streams have similar surface areas but coho salmon population densities in summer vary yearly. Production was measured from population estimates made in June and September. Habitat was classified into slow- and fastwater habitat types. Comparisons between new and old growth stream habitat types and production will be presented.

**THE NATIONAL BIOLOGICAL SURVEY{PRIVATE }
AND ITS ECOSYSTEM INITIATIVES IN ALASKA**

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Karen L. Oakley
and
Leslie E. Holland-Bartels
National Biological Survey
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The National Biological Survey (NBS) was created in 1993 to consolidate biological research within the U.S. Department of the Interior. At the same time, Secretary of the Interior Bruce Babbitt adopted an ecosystem approach to resource management, and Interior agencies have been charged with developing partnerships to facilitate this approach. NBS has funded 12 ecosystem initiatives nationwide to encourage cooperative efforts for ecosystem-based science. Two of the 12 areas targeted by the ecosystem initiatives are in Alaska: (1) the Prince William Sound-Copper River region, (2) Glacier Bay. The NBS Alaska Science Center is spearheading efforts to develop partnerships for data sharing and the identification of research needs for these two regions. To facilitate identification of data gaps, we are currently canvassing researchers and natural resource managers working in these regions. We are also preparing bibliographies of natural resources research conducted in each region. In cooperation with the Alaska Natural Heritage Program, we are compiling metadata catalogs of spatial data that will be in conformance with the new Federal Geographic Data Committee standards. Both the bibliographies and the metadata catalogs will be made available in digital formats.

ABSTRACTS (CONTINUED)

SESSION 4

**A REVIEW OF CHINOOK SALMON RESOURCES IN SOUTHEAST ALASKA AND
DEVELOPMENT OF AN ENHANCEMENT PROGRAM DESIGNED FOR MINIMAL
HATCHERY-WILD STOCK INTERACTION**

William Heard¹, Robert Burkett², Frank Thrower¹, and Steve McGee²

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**COHO SALMON SMOLT AND COMMERCIAL PRODUCTION FROM SLIPPERY
CREEK, KUIU ISLAND{PRIVATE }**

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Construction of fishways and establishment of self-sustaining salmon runs is a common type of enhancement activity in the Tongass National Forest. Many miles of previously unavailable stream habitat have been opened to salmon spawning and rearing as a result of fishway installation and stocking of juvenile anadromous fish. The Petersburg Ranger District, Forestry Sciences Laboratory and Northern Southeast Aquaculture Association stocked coho salmon (*Oncorhynchus kisutch*) fry throughout the Slippery Creek watershed on Kuiu Island. Coho smolt production and adult returns to the commercial fisheries were monitored from 1988-1994 following construction of a fishpass. Data on coho smolt length, numbers and travel time through Slippery Lake will be discussed in relation to the possible importance of predation from resident cutthroat trout and Dolly Varden. Adult returns from Slippery Creek enhancement will also be discussed.

ABSTRACTS (CONTINUED)

SESSION 4 (Continued)

THE USE OF INDUCED BANDING PATTERNS FOR DETERMINING ENHANCED SOCKEYE SALMON (*ONCHORYNCHUS NERKA*) SMOLT CONTRIBUTIONS IN TWO ALASKAN LAKES.

Gary Fandrei and Jeff Hetrick

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Optically dense bands can be induced on salmonid otoliths by exposing embryos to thermal changes during incubation. This technique, used by the Cook Inlet Aquaculture Association at two enhancement projects, provided an easily identifiable mark on all hatchery fry that contributed to the smolting populations. Previously, hatchery contributions were assessed by marking with coded wire tags or based on estimates from historic smolt migrations. In 1992 bands were induced on eyed eggs at Trail Lakes Hatchery by exposure to warm and cool thermal cycles. A thermal cycle of exposure to warm water at 8°C with a sudden shift back to ambient water at 4°C was found sufficient to thermally mark the eggs. Packers Lake stock received three cycles of two days each (PR-360-425-C2D) and Hidden Lake stock received two cycles of two days each (PR-400-450C2D). All banding patterns were invoiced prior to stocking. In 1993 migrating smolts were collected from each lake in proportion to the daily outmigration. Each smolt collected for otolith marks was measured for fork length and the sagittal otolith removed. The otolith was cast in resin, ground and polished until the primordia and otolith matrix were evident. The samples were then visually inspected to determine if a hatchery banding pattern was present. During the 1993 smolting season the proportion of hatchery produced fish was 74.6% ($\pm 5.1\%$ relative error, $\alpha = 95\%$) at Packers Lake and 84.5% ($\pm 5.7\%$ relative error, $\alpha = 95\%$) at Hidden Lake. Thermal banding provided an inexpensive method of mass marking fish, reduced operational and recovery costs, and improved data confidence. Plans are being developed to evaluate adult returns and compare survivals on wild and enhanced fish through this program.

ABSTRACTS (CONTINUED)

SESSION 4 (Continued)

**SURVIVAL AND GROWTH OF DIPLOID AND TRIPLOID HYBRIDS BETWEEN
CHINOOK, CHUM, AND PINK SALMON**

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We investigated the potential use of interspecies Pacific salmon hybrids in freshwater and seawater culture. Interspecies hybridization may help ameliorate problems facing salmon aquaculture, which include early maturation and freshwater limitations required to rear smolt species. Hybridization may produce a desirable combination of characters, such as infertility, early seawater tolerance, fast growth rate, and large market size. Triploidy may improve growth rates and hybrid survival while insuring sterility. With the exception of chinook female x chum male, all groups had some surviving offspring. We individually marked over 3000 fish to measure the growth and survival of these crosses in freshwater and seawater culture. Hybrids between chinook and pink salmon possess desirable characteristics of both species. During certain time periods, they have grown at almost double the rate of pink or chinook salmon conspecifics. After three years of culture, they are significantly larger than controls. Crosses of pink and chum salmon with chinook have exhibited higher survival in seawater challenges than chinook conspecifics. Hybrids mature at lower rates and at older ages than pink salmon. Work is ongoing to test hybrid fertility through backcrosses with parental species.

UPDATE ON AQUATIC FARMING IN ALASKA

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Legislation formalizing a program for commercial farming of shellfish and aquatic plants in Alaska was approved in 1988. Subsequently over 150 applications were submitted and 58 farms are now permitted. One shellfish hatchery is operating in the state. Virtually all farm production is Pacific oysters. Interest in other species is high and some developmental work is proceeding. A summary of the history of aquatic farming in Alaska, the current status of the industry and an outlook for the future will be presented.

ABSTRACTS (CONTINUED)

SESSION 5

**ADAPTIVE SAMPLING FOR HATCHERY-MARKED SALMON OTOLITHS USING
THE LIKELIHOOD PRINCIPLE**

Harold J. Geiger

and

Peter T. Hagen

Alaska Department of Fish and Game

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Otoliths can be marked in captive juvenile salmon, with the marks remaining visible in the returning adults. Adult salmon can subsequently be sampled to estimate the proportion of hatchery fish in mixed stock fisheries. In a series of fisheries, the allocation of sampling resources affects the precision of the overall estimate. Adaptive sampling is the use of information in the sample to alter the sampling design while the sampling is taking place. These designs can provide for the most efficient use of sampling resources, but they can also result in biases or logical inconsistencies if the sample is analyzed as if it were a random sample. Bayesian probability theory and the likelihood principle give a foundation for adaptive sampling for hatchery contribution estimates. Using Bayesian methods and the beta probability distribution, fishery managers can summarize what is known and unknown about the underlying proportion of hatchery fish in mixed stock fisheries. Close examination of Bayesian probability theory exposes a philosophy in close agreement with common sense, and a form of inference that is direct and agrees with the way people use the notion of probability in everyday, colloquial speech. This approach was evaluated as a means of directing the allocation of laboratory effort in processing otoliths. When combined with weekly updates of fisheries information, Bayesian sampling can be integrated into a dynamic approach that guarantees efficient use of laboratory resources.

**HISTORICAL GROWTH PATTERNS OF SOCKEYE SALMON IN THE EGEGIK
RIVER, BRISTOL BAY, ALASKA**

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The sockeye salmon runs to Bristol Bay has shown a sustained increase since the mid-seventies. This is especially true for the Egegik River system where salmon runs have increased from 2-3 million fish annually to 15 - 20 million. This has prompted a broader study of the Lake Becharof nursery area. One part is to compare the growth pattern of smolts before the increase, 1965-67, and after the increase, 1985-87.

Adult scales were digitized and total freshwater areas of the four principal age groups, 1.2, 1.3, 2.2 & 2.3, in addition to first year's marine growth. It was assumed that scale growth reflects growth of the smolts.

ABSTRACTS (CONTINUED)

SESSION 5 (Continued)

**EVIDENCE OF GENETIC DAMAGE IN PINK SALMON
INHABITING PRINCE WILLIAM SOUND, ALASKA,
THREE GENERATIONS AFTER THE *EXXON VALDEZ* OIL SPILL**

Brian G. Bue

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Samuel Sharr

**Alaska Department of Fish and Game
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Gary D. Miller and James E. Seeb

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Our investigations into the environmental effects of the 1989 *Exxon Valdez* oil spill lead us to conclude that chronic genetic damage occurred in some pink salmon populations. Differences in survival between streams contaminated by oil and uncontaminated streams have been observed annually for pink salmon embryos incubating in the intertidal portions of Prince William Sound. We assessed the environmental influence on these findings by collecting gametes from both contaminated and uncontaminated streams, transporting them to a hatchery where intra-stream crosses were made, and incubating the resulting embryos under identical conditions. Lower survival was detected in the embryos originating from the oil-contaminated streams indicating that the agent responsible for the differences detected in the field was genetic rather than environmental.

FISH AND KIDS: OUR FUTURE FISHERIES

Belle Mickelson

Assistant Professor

Alaska Cooperative Extension

University of Alaska

Cordova, AK

What will happen to Alaska's fisheries? It depends on the youth of today. Will our young people develop appreciation and concern and knowledge of fisheries issues that will support strong fisheries in the year 2094? Fisheries biologists can further their own fisheries program goals by taking the time to work with our youth in sponsoring educational programs; field days involving students in on-going research; adopting a class or a school to keep them involved in the latest discoveries and initiatives; and hosting outdoor camps where students have a chance to study local ecosystems and develop in-depth interest in fisheries issues. Mentoring/intern/apprenticeship projects for high school juniors and seniors interested in fisheries can be a source of future technicians and biologists. Science teachers are now looking for "hands-on" projects--a national initiative for actual scientific projects and research rather than "read the book, memorize 100's of terms, and answer the questions at the end." Involvement with students through youth groups and schools can be very rewarding. By becoming more active in community outreach, fisheries biologists can train young people in fisheries issues and management while simultaneously developing public support for projects.

This paper describes specific examples of how fisheries biologists can fit educational programs into their busy schedules and how the community can benefit from a long-term fisheries education program.

ABSTRACTS (CONTINUED)

SESSION 5 (Continued)

MIGRATORY PATTERNS OF MATURE CUTTHROAT TROUT FROM AUKE LAKE

Cheryl Imboden*, Doug Jones*, and John Eiler+

***Alaska Department of Fish and Game, Division of Sport Fish**

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Douglas, AK 99824

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A radio telemetry study was conducted in the spring of 1994 on anadromous cutthroat trout (*Oncorhynchus clarki*) from Auke Lake to learn more about its life history. The goal of the study was to evaluate the importance of Auke Lake as an overwintering site and which Juneau area streams are used for spawning by fish overwintering in Auke Lake. Radio telemetry was used to track the movement of cutthroat trout emigrating from Auke Lake into Juneau area streams to spawn. Results from this research suggest that anadromous cutthroat trout overwintering in Auke Lake disperse widely into streams along the Juneau road system and in the immediate Juneau area.

HABITAT ECOLOGY OF JUVENILE RAINBOW TROUT/STEELHEAD IN THE UPPER GULKANA RIVER

Steve R. Brink

Alaska Cooperative Fish and Wildlife Research Unit

University of Alaska Fairbanks

Fairbanks, AK 99775

The Gulkana River in southcentral Alaska supports a small and unique population of rainbow trout/steelhead *Oncorhynchus mykiss* (RT/S). This population, near 63°N latitude, is one of the northernmost in North America. Populations are size limited at the margins of their distribution. The possibility of future land development in the Gulkana River drainage has raised concern over the management and protection of juvenile RT/S habitat. The Alaska Cooperative Fish and Wildlife Research Unit, in cooperation with the Bureau of Land Management, initiated a study in 1993 focusing on summer habitat of juvenile RT/S. During summer 1993 and 1994, data were collected on fish distribution and habitat quality in the Middle Fork of the Gulkana River. Spawning locations of adult RT/S and distribution of juveniles were identified. Age-0 fish spent their first summer in close proximity to the RT/S spawning areas and are believed to have migrated to the lower Gulkana River to overwinter. Juvenile fish (ages 1, 2 and 3) followed the salmon spawning run from the mainstem to the Middle Fork during mid-summer for purposes of egg predation. Age 1 and 2 fish remained in riffle/run areas characterized by large cobble during July; during August they moved to shallow riffle areas used by adult RT/S for spawning, perhaps to prey on age-0 RT/S. RT/S older than age 2 migrated to the lower Gulkana River in August when salmon numbers decreased. It appears that the entire Middle Fork of the Gulkana River is important to juvenile RT/S and the upper half of this system is critical summer habitat. While summer distributions are known in the Middle Fork, it is still not known where juvenile RT/S overwinter.

ABSTRACTS (CONTINUED)

SESSION 6

OPENING REMARKS ON "MARINE INVERTEBRATES" SESSION{PRIVATE }

Dr. Gordon H. Kruse
Alaska Department of Fish and Game
Commercial Fisheries Management and Development Division
P.O. Box 25526
Juneau, AK 99802-5526

My goal for this session is to increase awareness about the diversity of Alaska's commercially-exploited marine invertebrates. A variety of species are harvested such as sea cucumbers, urchins, abalone, clams, octopus, scallops, and crabs. Features that set these invertebrates apart from fishes with more "traditional" fisheries include species richness, life history strategies, ecological relationships, harvest methods, role of mariculture, and the multiplicity of product forms. Further, most invertebrate fisheries have developed quickly, and critical data on population structure, abundance, and biology are woefully inadequate.

This meeting's theme on science and advocacy is relevant to the management of newly developing invertebrate fisheries. On one hand, the State of Alaska advocates new fishing opportunities to further ongoing efforts towards long-term economic diversification. On the other hand, inadequate basic biological and life history information for most invertebrate species creates a quandary as fishery managers attempt to develop plans for sustainable fisheries. This situation has spawned attempts to bridge advocacy and science through the formulation of creative mechanisms for collecting much-needed scientific information while at the same time providing for fisheries development.

OVERVIEW OF INVERTEBRATE DIVE FISHERIES OF SOUTHEAST ALASKA

Bob Larson
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Commercial Fisheries Management and Development Division
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Species harvested by dive gear in Southeast Alaska fisheries include abalone, geoduck, sea cucumber and sea urchin. The most established fishery is abalone with a harvest history starting in the early 1970s. The geoduck fishery has been the most stable with a small group of divers and set quotas. The cucumber fishery has the greatest numbers of participants and has new regulations for management during the 1994/95 season. A test fishery will be initiated during the 1994/95 season to fund management and research activities for a new sea urchin fishery plan.

ABSTRACTS (CONTINUED)

SESSION 6 (Continued)

GROWTH AND LIFE HISTORY TRAITS OF RED SEA URCHINS

Dr. Douglas A. Woodby
Alaska Department of Fish and Game
Commercial Fisheries Management and Development Division
P.O. Box 240020
Douglas, AK 99824-0020

Commercial fishery management for red sea urchins (*Strongylocentrotus franciscanus*) in Alaska is very conservative. This is due in large part to our lack of information on the ability of urchin populations to sustain harvests. Growth rates are a key concern. Evidence from outside Alaska indicates that red urchins may take decades, rather than a few years to reach harvestable size. The Alaska Department of Fish and Game, in cooperation with Ecometrics of Carlsbad, California, tagged over 1300 urchins with tetracycline in August, 1993 near Ketchikan to estimate annual growth increments. Urchins were recovered in August 1994 and results on growth at size will be presented. An alternative tagging program was begun in June 1994 using PIT (Passive Induced Transponder) tags to identify individual urchins. Results will not be available until next year, but some urchins were recaptured 2 months after tagging and preliminary findings on methods and feasibility of using PIT tags for red urchins will be discussed.

Other life history characteristics, including episodic recruitment, minimal effective spawning densities, and the need for a protective spine canopy are important concerns in estimating sustainable harvest levels. These characteristics will be discussed in the context of developing a research program in Southeast Alaska.

SEASONAL PATTERNS OF BODY COMPOSITION IN THE RED SEA CUCUMBERS (*PARASTICHOPUS CALIFORNICUS*): IMPLICATIONS FOR THE SEA CUCUMBER FISHERY AND AQUACULTURE INDUSTRY

Dr. Molly O. Ahlgren
Sheldon Jackson College
801 Lincoln Street
Sitka, AK 99835

Seasonal changes in body composition of the red sea cucumber (*Parastichopus californicus*) were documented from 1992-1994 near Sitka, Alaska. Seasonal visceral atrophy occurred consistently. Visceral resorption began in August and was generally complete by the end of September. Regeneration of gut and respiratory trees began in November and was complete by December. Gonad regeneration was evident by January.

The development of longitudinal muscles within the body wall also showed a clear seasonal cycle. Muscle development (muscle wet weight/skin wet weight) peaked toward the end of October, declined steadily until the end of May, and increased steadily until October. The weight of muscle relative to skin decreased by approximately 30% from October to June.

Diet appears to influence seasonal trends in muscle development. The muscle development of sea cucumbers that were grown in salmon hatchery net pens from February 1994 through April 1994 increased significantly compared to sea cucumbers feeding in their natural environment ($P < 0.0003$). Implications of these findings for the commercial sea cucumber fishery and the aquaculture industry will be discussed.

ABSTRACTS (CONTINUED)

SESSION 6 (Continued)

**THE ECOLOGY OF INVERTEBRATE LIFE HISTORY STRATEGIES:
DEVELOPMENT MODES AND THEIR IMPLICATIONS FOR COMMERCIAL
FISHERIES**

Dr. Scott Smiley
Institutes of Arctic Biology and Marine Science
University of Alaska Fairbanks
Fairbanks, AK 99775-7000

Biologists identify two common modes of development in marine invertebrates. The first involves the sequestration of significant nutrient reserves in a few eggs. Embryos from these eggs have sufficient nutrition to progress through embryonic life and to adopt the adult form. The second mode is characterized by many eggs with minimal nutrient reserves. In order for these organisms to become adults they must intercalate a planktonic feeding larva into their life history. Feeding allows sequestration of enough nutrients for the formation of the adult body. These two different modes are termed: direct and indirect development by embryologists, lecithotrophy and planktotrophy by oceanographers, and brood and broadcast by ecologists. Planktotrophs are in the water column for a longer time than lecithotrophs, decreasing survivorship. Time in the water column also heightens the risk of being transported from appropriate juvenile habitat, affecting recruitment. Other important parameters are currents, food availability, predator density, and chemical cues. Invertebrates have also evolved numerous behaviors that influence their distribution and abundance. Considerations of the life history strategies employed by invertebrates should impact management of species.

PROCESSING AND MARKETING OF INVERTEBRATES

Terry Gardiner
Norquest Seafoods Inc.
4225 23rd Avenue West
Seattle, WA 98199

This presentation will cover:

I. Processing

- A. Sea cucumbers
- B. Abalone
- C. Geoduck

II. Markets

- A. Sea cucumbers
- B. Abalone
- C. Geoduck

III. Management as it impacts fishing and processing

- A. Quality to the processor
- B. Quality to the market place
- C. Capital investment
- D. Number of participants - fishermen and processors
- E. Resource waste by fishermen and processors

IV. What are Alaska's goals?

- A. Biological health of the resource is a given
- B. How to maximize economic return
 - 1. Total dollars to economy
 - 2. Tax revenue to all government levels
 - 3. Wages - fishermen, processors, and vendors
 - 4. Timing of dollars to economy

ABSTRACTS (CONTINUED)

SESSION 6 (Continued)

WORLD TRENDS AND FUTURE PROSPECTS FOR ALASKA

Brian Paust

Alaska Marine Advisory Program

University of Alaska Fairbanks

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Petersburg, AK 99833

From a marine extension agent's perspective, the invertebrate fisheries of Alaska, particularly those of Southeast Alaska, represent considerable economic potential to coastal communities. From their humble origins, several of these fisheries have become important economic forces. Fisheries of current importance include a lengthy list of traditional species. The adoption of live shipment strategies has intensified the demand for many of these species. The value of regional invertebrate fisheries will be further enhanced through the harvesting of other underutilized and exotic species.

The potential for the development of these fisheries promises to lure to coastal Alaska an array of small, sophisticated buying stations specializing in the handling and processing of these species. World demand for many of these species and products has been chronically undersaturated. As international demand for a species expands, exvessel values can be expected to slowly increase. The optimum development of these fisheries depends on the marketing prowess of regional processors and managers and also on the ability of ADF&G to develop conservative management plans in a timely manner.

SESSION 7

MESOPELAGIC FISHES IN THE BERING SEA

E. I. Sobolevsky

Institute of Marine Biology, Academy of Sciences, Vladivostok

O. A. Mathisen

School of Fisheries and Ocean Sciences, U. of Alaska Fairbanks

Material for this study was collected on expeditions and sponsored by the Pacific Research Institute of Fisheries and Oceanography (TINRO) in Vladivostok. Trawling took place in three depth strata, 1,000 - 500 m, 500 - 200m & 200 - 0 m according to a systematic sample design. Biomass estimates in the sampled volumes of water were expanded for a total estimate of mesopelagic fishes in the entire Bering Sea. Diel migrations were described as well as food spectra and food availability. The ontogenesis of *Leuroglossus schmidti* is described in detail.

**EURASIAN ACTIVITIES OF THE UNESCO/MAB WORKING GROUP, FISH AND
LAND-INLAND WATER ECOTONES AND THEIR RELATION TO ALASKAN FISH
HABITAT ISSUES**

Jim Reynolds, USFWS

ABSTRACT NOT RECEIVED AT PRESS TIME FOR PROGRAM BOOKLET.

ABSTRACTS (CONTINUED)

SESSION 7 (Continued)

COOPERATIVE STUDIES OF CHAR IN THE RUSSIAN FAR EAST

Fred DeCicco, ADF&G

ABSTRACT NOT RECEIVED AT PRESS TIME FOR PROGRAM BOOKLET.

SESSION 8

THE CANADIAN POINT OF VIEW

Gerry Coutre, Canadian Fishers Association

ABSTRACT NOT RECEIVED AT PRESS TIME FOR PROGRAM BOOKLET.

DOMESTIC POINTS OF VIEW

Bob King, Dillingham Fish Journalist

ABSTRACT NOT RECEIVED AT PRESS TIME FOR PROGRAM BOOKLET.

BERING SEA TRAWL CATCHES OF CHUM SALMON

Bill Krygier

Alaska Department of Fish and Game

Commercial Fisheries Management and Development Division

P.O. Box 25526

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1994 ALASKA CHAPTER AFS ANNUAL MEETING

FISHERIES AND AQUATIC EDUCATORS{PRIVATE }

Committee meeting, Tuesday evening, Nov. 15, at 7:00 pm.

Education is becoming even more important to convey the concepts of respect and stewardship for Alaska's unique fisheries and aquatic resources. In a time of declining agency revenues education can be as important a tool to resource management as enforcement.

Last year we formed a chapter committee with the goal of increasing the effectiveness of Fisheries and Aquatic Education in Alaska. We hope to continue as a forum for: 1) Improving communications and networking among Fish and Aquatic Educators. 2) Identifying common problems 3) Developing potential solutions.

The session will begin with a presentation from Belle Mickelson, Alaska 4-H Program. We will discuss the results of the Fisheries education meeting held in Anchorage on March 24th and 25th. Please come prepared to briefly discuss significant highlights of your agencies education program.

Your participation will enhance this informal gathering of fisheries professionals who want to make a difference.

**ADVOCACY DEBATE
(Background Information)**

Advocacy - *n.* 1: the profession or work of an advocate; 2: the action of advocating, pleading for, or supporting (from *Webster's Unabridged*, 1981, Merriam-Webster Inc., Springfield, Massachusetts).

The Society's Position on Advocacy -An excerpt from the 1992 Procedures Guide of the American Fisheries Society:

“Science-based information is a key value AFS has to share with the public. There are a number of means of sharing information developed by the members and subunits. These include the five peer-reviewed journals, publications, workshops, continuing education courses, the AFS Diary, subunit newsletters, resolutions, position statements, and periodic communications such as letters, action alerts, and media releases.

Subunits should adopt internal procedures to manage development of positions in support of advocacy actions which are suitable for their unit. The following advocacy guidance criteria.....(modeled after those of the Idaho Chapter and the Western Division) provide a good model.

‘A subunit may hold meetings, sponsor symposia, disseminate information, adopt resolutions, and engage in other activities that advance Society objectives and conform to the Society’s Constitution, Bylaws, Rules and policies. Actions and resolutions of a subunit shall be identified only with that subunit unless formally adopted by the Society or another subunit.’

Issue Selection Criteria

1. Is the issue pertinent to subunits goals?
2. Will subunit’s involvement make a difference?
3. Is there subunit membership support?
4. Does subunit have sound and the best available technical information?
5. Have minority opinions been solicited and presented?
6. Does the urgency of the issue warrant action without full membership approval?
7. Is subunit willing to follow through?
8. Do the geographic boundaries and other aspects of the issue make it appropriate for subunit action?

etc. ...

As a subunit is preparing a position paper or a resolution, a plan to share it with other subunits and other fisheries-related groups should be developed.....Ultimately, subunit positions are sanctioned by AFS and subject to change by decision of the Executive Committee if they are not in keeping with the overall goals of the Society.”

Western Division’s Position on Advocacy - Similar to those outlined above.

Chapter’s Advocacy Criteria - Currently in draft form and under AFS-AK Executive Committee review.

ADVOCACY DEBATE - Background Information (Continued)

Point\Counter-Point Debate Statements

POINT: The Alaska Chapter can best support the conservation of fisheries resources by promoting professionalism in the membership through scientific exchange and continuing education. **The Chapter should be less involved in supporting environmental legislation and public awareness.**

COUNTER-POINT: The Alaska Chapter can best support the conservation of fisheries resources by promoting professionalism in the membership **and by being more involved in supporting environmental legislation, public education, and broadening the membership to include all parties interested in fisheries resources.**

I. Panelists' position Statements: 5 minutes each

- 1) Point
- 2) Counter-point
- 3) Point
- 4) Counter-point

II. Audience Comments: 1 minute each (N = 5)

III. Panelist' Comments and Rebuttals: 2 minutes each (N = 4)

- 1) Counter-point
- 2) Point
- 3) Counter-point
- 4) Point

IV. Open Discussion: 10 minutes

V. Panelists' Closing Remarks: 2 minutes each (N = 4)

- 1) Point
- 2) Counter-point
- 3) Point
- 4) Counter-point

VI. Moderator's Closing Remarks: 4 minutes

CHAPTER 1994 BUSINESS MEETING AGENDA

- 1:00 pm** **Call to order, Introductions, and Presidential Address -
Joe Webb, Chapter President**
- Approval of 1993 Business Meeting Minutes (see page 39)
Treasurer's Report
Committee Reports
 - Old Business:
 Student Representation on Executive Committee
 - Installation of New Officers
Recognition of Past President
Incoming Presidential Address
 - New Business:
 Time and Place for 1995 Chapter Meeting
 Hosting 1997 Western Division Meeting
 Contributing seed money for Fisheries Strategy Meeting
 Chapter Advocacy Procedures
 - Other New Business
- 4:45 pm** **Adjourn**

1994 ALASKA CHAPTER AFS ANNUAL MEETING

MINUTES FROM 1993 ANNUAL AFS CHAPTER BUSINESS MEETING

American Fisheries Society - Alaska Chapter{PRIVATE }

Annual Business Meeting Fairbanks, Alaska - 17 November 1993

President Bill Hauser opened the meeting at 1450 hrs. The agenda was approved, a quorum (~45 members) was determined to be present, and the 1992 annual meeting minutes were approved. Chapter Historian Jim Reynolds was appointed as parliamentarian.

Hauser's President's address expressed an appreciation for support of the membership and also stressed the importance of individuals being involved, as Chapter members, as Division members, and as Society members. Hauser challenged the membership to provide input on Chapter advocacy, on the Long Range Plan, in Chapter committees, and in the 1994 annual meeting.

Society Officials - Hauser introduced: AFS Southern Division President-Elect Don Jackson, AFS Western Division President Carl Burger; and Alaska Chapter Past-Presidents Bill Wilson, Roger Saft, Jim Reynolds, Tom Kron, Lou Carufel, and Carl Burger, and Executive Committee Officers Past-President Alex Wertheimer, President-Elect Joe Webb, Vice President Kate Wedemeyer, Student Subunit President Ray Hander, and Secretary/Treasurer Bill Bechtol.

Committee Reports - Written reports were posted for most committees.

Membership - Kate Wedemeyer introduced committee members and incoming member Dana Schmidt. After reporting that 15% of our membership has become 2 yrs delinquent in membership dues, Wedemeyer challenged the membership to determine why we are losing members and what needs to be done to retain members.

Environmental Concerns - Bill Arvey, Chair since February 1993, discussed Chapter policy statements during the past year on Wetlands, PACFISH, and DEC's proposed water quality changes.

Awards - Larry Peltz reported on processes to 1) solicit nominations for the Meritorious Service Award and 2) judge presentations for the Best Paper Award; then made recommendations for the upcoming year.

International Affairs - Vic Starostka reported a willingness to serve as chair and solicited membership input in committee actions.

Key to the Fishes of Alaska - Lyman Thorsteinson summarized: (1) the project's history following the loss of the primary author, (2) progress to the key during the past year, and (3) the anticipated final product, including a general timeline and estimated costs.

Arctic Fish Symposium - Committee chair Alex Wertheimer deferred to editor Jim Reynolds who described the progress to date on the symposium proceedings, the current status, and the anticipated completion date and costs.

Resolutions - No report.

Cultural Diversity - Judy Gordon described the committee's goals for the coming year.

Fish Habitat Restoration Symposium - Ron Dunlap described a symposium, Aquatic Resource Restoration in Alaska, proposed for 4-7 October at the Captain Cook Hotel in Anchorage.

Continuing Education - Dunlap summarized chair Steve Klein's report describing the past year's workshops including (1) Technical Writing, (2) Project Design and Analysis, (3) Fish Habitat Improvement, and (4) Sockeye. Potential workshops for next year include radio telemetry (February) and Hydrology (late June by Rosgen).

Stocks at Risk - Alex Wertheimer reported that Tim Baker had summarized the project on Tuesday and would answer additional questions at the Thursday luncheon.

Exxon Valdez Symposium - A written report submitted by Bruce Wright was available.

Wally Noerenberg Award - Bob Meyer identified committee members then announced there was no recipient this year but nominations were being accepted for next year.

1994 ALASKA CHAPTER AFS ANNUAL MEETING

MINUTES FROM 1993 ANNUAL AFS CHAPTER BUSINESS MEETING (Continued)

Student Subunit Report - Subunit President Ray Hander reported the subunit bylaws, including the subunit name, had been changed in April to restrict subunit membership to students who are AFS members living in Alaska. During the past year the subunit interacted with fisheries professionals through invited guest speakers at subunit meetings, an October 1992 fish fry, a March 1993 ice fishing trip, elections and a BBQ in April, and a student jobs fair at the current meeting. The subunit intends to petition the Chapter membership to recognize the subunit president, through a Chapter bylaws change, as a voting Executive Committee member. Following a floor question on a potential motion to change the bylaws at the current meeting, it was clarified that the 30 day notice required for a bylaws change vote could not be met.

Treasurer's Report - Bill Bechtol identified the Chapter as financially sound (current net financial assets total to almost \$100,000, including dedicated funds). Reserved funds include almost \$35,000 for publishing proceedings from the EXXON VALDEZ oil spill symposium and \$30,000 for the Arctic Fish Symposium proceedings. Tom Kron's motion to accept the Treasurer's Report was adopted without objection.

Installation of New Officers - Wertheimer, as outgoing past-President, was recognized for an outstanding contribution to the Chapter, not only during the past year, but during his tenure on the Executive Committee. Hauser introduced the new officers as: President Joe Webb, President-Elect Kate Wedemeyer, Vice-President Dana Schmidt, and Secretary/Treasurer Bill Bechtol (serving the 2nd year of a two-year term). After receiving the gavel, Webb presented Hauser a Past President's plaque.

New Business:

President's Address - President Webb requested member assistance in pursuing four goals during the coming year: 1) complete the Chapter Procedures Manual, 2) develop a Long Range Chapter Plan, 3) increase student membership, and 4) resolve how the Chapter addresses advocacy, particularly issues involving waste and bycatch, high-seas driftnets, habitat loss on the Kenai River, and stocks at risk. Pointing out that we can increase our effectiveness as professionals by exhibiting environmental advocacy, Webb cautioned that care must be exercised in selecting the issues the Chapter advocates and suggested member support should be at the 2/3 level before adopting a Chapter position. Acknowledging that many traditional concepts involving fishery management are changing, and some aspects of "consumptive use" are being challenged, Webb asserted that we must remain anchored to an underlying objective of promoting the "...conservation, development, and wise use of the fisheries," as is embodied in the Society's constitution. Arguing that consumptive use must be supported, Webb concluded by saying that we must "Question Change, because there are some traditions that we cannot afford to lose."

Fisheries Action Network (FAN) - Webb described FAN as a tool to facilitate information exchange locally, regionally, and nationally, and announced an *ad hoc* committee to examine FAN development in the Chapter.

Procedure Manual - Wertheimer described the manual development and stressed that the manual is a "living document" to be reviewed annually.

President-Elect Travel to the Western Division Meeting - Hauser proposed sending the President-Elect to the Western Division meeting. Following floor questions as to whether a problem existed in the past, discussion clarified the importance of Chapter representation at the Division level; that National had requested the Chapter change our timing of our officer elections to allow greater meeting representation at both the National and the Division level and greater continuity with other Society officers; the inability of the Chapter President to attend both the National and the Division meetings; that the Chapter would potentially fund annual travel for both the President and the President-Elect provided that the Chapter's account balance is not anticipated to drop below \$2,000; under a more limited budget, the President's travel has priority over travel by the President-Elect; and the Executive committee would establish allowable travel expenses. The motion, modified by several friendly amendments, was adopted without objection as is shown below.

The Alaska Chapter will reimburse the President-Elect for reasonable expenses required to represent the Chapter during the Executive Committee Meeting of the Western Division.

1994 ALASKA CHAPTER AFS ANNUAL MEETING

MINUTES FROM 1993 ANNUAL AFS CHAPTER BUSINESS MEETING (Continued)

Guidelines:

1. President-elect will travel at the expense of their employer or other support if possible.
2. Travel costs will be reimbursed only at rates established by the Executive Committee.
3. Travel costs will be reimbursed only if the President-elect participates in the Western Division Executive Committee Meeting.
4. Travel costs will be reimbursed only if the projected end-of-year (Chapter) balance will not be depleted below \$2,000.

1994 Annual Meeting Location - Wedemeyer, as program chair for 1994 meeting, solicited input from Kodiak, Sitka, and Juneau. Brenda Wright presented a bid for Juneau while Vic Starostka presented a bid, as developed by Peggy Hart, for Sitka. Members were encouraged to contact Wedemeyer with input on the meeting location.

Strategic Plan - Webb pointed out the draft plan is available, a second planning meeting is scheduled for Friday, and the plan will later be published in *Oncorhynchus* for membership review and input.

Advocacy Role in the Alaska Chapter - Hauser, referring to previous statements (e.g., the President's Address), emphasized that the Society is becoming increasingly involved in fisheries policy issues, and the Alaska Chapter is struggling with how to address policy issues. Pat Holmes reiterated previous suggestions that Chapter policy should represent at least 2/3 of the opinionated membership. Floor comments suggested the Executive Committee has adequately represented opinions of the membership, but that highly contentious issues, if time permits, should be published in *Oncorhynchus* and membership input solicited.

Other:

Scholarship Program - Carl Burger motioned, modified by friendly amendment, that "Proceeds of the 1994 annual meeting raffle be used to fund a scholarship program being developed by the Cultural Diversity Committee." Following Judy Gordon's description of the proposed scholarship program, and clarification that (1) only the 1994 raffle will be dedicated at this time, and (2) funds would be used as "seed money", the motion was adopted without objection.

Fish Education Committee - Following a request by Pat Holmes and based on the interest expressed at the last two annual meetings, Webb approved the establishment of an *ad hoc* committee for fish education.

A motion by Dennis Tol to adjourn was adopted without objection at 17:05 hrs.

1994 ALASKA CHAPTER AFS ANNUAL MEETING

SITKA TOURS

All Monday tours require pre-registration by November 1. Registration for the Friday tours will be on Monday and Tuesday (November 14-15).

MEDVEJIE HATCHERY - approximately 3 hours

Monday Afternoon, 1:30 pm - 4:30 pm

Friday Morning, approximately 3 hours, 8:30 am - 11:30 am

A tour of Northern Southeast Regional Aquaculture Association's (NSRAA) Medvejie fish hatchery. Medvejie hatchery produces chinook, coho, and chum salmon. Of all the Southeast Alaska hatcheries, Medvejie is the largest contributor of chinook salmon to the Southeast troll fishery.

The hatchery tour is free. However, the cost of transportation must be paid for by the participants. This is expected to be approximately 10 dollars per person, depending on the number of participants.

BARANOF TOURS - approximately 4 hours

Monday Afternoon, 12:45 pm - 5:00 pm

Friday Morning, 8:00 am - 12:00 pm

The tour includes: BOTH ends of the Sitka road system including Starrigavan Recreation Area and fish viewing platform and the Pulp Mill, the Russian Orthodox Church, Sheldon Jackson Museum, Isabel Miller Museum, Sitka National Historic Park, and the Raptor Rehabilitation Center.

Cost is \$18 per person (includes ALL admission fees).

SITKA TRIBE OF ALASKA (STA), DRIVING TOUR - approximately 1 and one-half hour

Monday Afternoon, 1:00 pm - 2:30 pm

Friday Morning, 9:00 am - 10:30 am

This is a driving tour of Sitka from the Native perspective. It includes a visit to the Sitka National Historic Park, an overview of Native culture and a tour through the old Tlingit village area.

Cost is \$8 per person (6 person minimum required for tour).

1994 ALASKA CHAPTER AFS ANNUAL MEETING

AFS SUPPORTERS AND DOOR PRIZE CONTRIBUTORS

Special Thanks to the Following Business, People and Organizations

BUSINESS, PERSON, OR ORGANIZATION	DONATION/SERVICE
ALASKA BASKET COMPANY	GIFT BASKET for door prize
ALASKA BREWING COMPANY	DONATING BEER FOR MONDAY SOCIAL
ALASKA SEA GRANT	2 BOOKS for door prize
ALEXANDER'S ART CENTER	PARTICIPATING IN GALLERY WALK
BAYVIEW RESTAURANT	DOLLAR DISCOUNT COUPONS
BARANOF TOURS	TRANSPORTATION AT REASONABLE RATES
BEAVER SPORTS (Fairbanks)	DISCOUNT RATE ON MOUNTAIN BIKE for raffle
CHOCOLATE MOOSE	BOX OF CANDY OR GIFT CERTIFICATE
DOLLY GARZA	1 CASE SMOKED SALMON
FAIRWEATHER PRINTS	HALIBUT NECKLACE AND SHIRT-2 DOOR PRIZES
FILIPINO COMMUNITY	BANQUET ENTERTAINMENT PROVIDED BY FILIPINO DANCERS
JOHN TOOMER	GUEST SPEAKER
HERITAGE COFFEE	PROVIDING COFFEE FOR MONDAY SOCIAL
IMPRESSIONS GALLERY	PARTICIPATING IN GALLERY WALK
JUDY GORDON	WATERCOLOR PRINT for raffle
KAY MCCARTY ART GALLERY	PRINT for door prize
MACDONALDS BAYVIEW TRADING COMPANY	PARTICIPATING IN GALLERY WALK
MAC'S SPORTING GOODS	SHIRT for door prize
MOUNT EDGECUMB SCHOOL	SHIRT for door prize
LOCAL ARRANGEMENTS COMMITTEE	Special thanks to Bill Denkinger and Lin Laughy for smoking fish. Thanks to the Mount Edgecumb Native dance groups providing banquet entertainment.
NORTHERN SOUTHEAST REGIONAL AQUACULTURE ASSOCIATION	MOST EXCELLENT ARRANGEMENTS! MONDAY NIGHT SOCIAL MEDVEJIE HATCHERY TOUR PRINTER LOAN SALMON
NEW ARCHANGEL DANCERS	BANQUET ENTERTAINMENT
NATIONAL PARK SERVICE	TOURS OF RUSSIAN BISHOP'S HOUSE
OLD HARBOR BOOKS	FISH BOOK for door prize
RAIN COUNTRY SURPLUS	SET OF KNIVES for door prize
ROBERTSON'S GALLERY AND GIFTS	PARTICIPATING IN GALLERY WALK
SEAFOOD PRODUCERS GROUP	40 POUNDS OF HALIBUT
SITKA VISITOR'S BUREAU	Assistance with registration Sitka packets and special events
SITKA ROSE GALLERY	PARTICIPATING IN GALLERY WALK
SITKA SCHOOL DISTRICT	HELP WITH GUEST SPEAKER
SITKA SOUND SEAFOOD	50 POUNDS OF FRESH KING SALMON
SITKA'S ARTIST COVE	PARTICIPATING IN GALLERY WALK
SOUTHEAST DIVING AND SPORTS	DOOR PRIZE
THEOBROMA CHOCOLATE COMPANY	PROVIDING CHOCOLATE FOR MONDAY SOCIAL
ED IWAMOTO	
VAN WINKLE & DAIGLER	LUNCH FOR TWO (door prize)
WEBER STUDIOS, Karen Weber	SILK FISH TIE for door prize
WELLS FISHING INC.	OIL PAINTING for door prize/raffle
WESTMARK SHEE ATIKA	DINNER FOR TWO (door prize)
WINROSE ENTERPRISES	STORMY SEAS JACKET for raffle
CATERING PROVIDED BY:	FILIPINO COMMUNITY BECKY JOYCE SHIRLEY KIMBALL TASTE OF SITKA, KAREN CHRISTNER PIONEER BAR, MIKE HEIM WESTMARK SHEE ATIKA

1994 ALASKA CHAPTER AFS ANNUAL MEETING

SESSION PLANNING COMMITTEE

Henry Yuen
Bill Wilson
Steve Miller
Barbara Mahoney
Steve Klein
Jean Hanson
Jill Follett

PROGRAM BOOKLET COMMITTEE

Allen Bingham
Jill Follett

LOCAL ARRANGEMENTS COMMITTEE

Molly Ahlgren
Bruce Bachen
Jere Christner
Dolly Garza
Cindy Hartman, Chair
Sheila Jacobson
Greg Killinger
Vic Starostka, Co-Chair
Steve Reifentuhl
Roger Vallion

WITH HELP FROM:

Dana Pitts
Jean Meyer and Sandy Lovlin
Jim Seeland
Rich Phillips

NOTES