

Southeast Alaska Coastal Monitoring (SECM) Cruise Plan for 2002

by

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Submitted to the

NORTH PACIFIC ANADROMOUS FISH COMMISSION

by

United States of America

March 2002

This Paper May be cited in the Following Manner: Heard, W.R., E.A. Fergusson, D.G. Mortensen, J.A. Orsi, M.V. Sturdevant, A.C. Wertheimer, and B.L. Wing. 2002. Southeast Alaska Coastal Monitoring (SECM) Cruise Plan for 2002. (NPAFC Doc. 591) Auke Bay Laboratory, Alaska Fisheries Science Center, National Marine Fisheries Service, NOAA, 11305 Glacier Highway, Juneau, AK 99801-8626, USA. 4p.

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The Southeast Coastal Monitoring (SECM) project in Alaska was initiated in 1997 by the Auke Bay Laboratory, National Marine Fisheries Service, to study the habitat use and early marine ecology of juvenile (age -0) Pacific salmon. This SECM research addresses components identified in the National Oceanic and Atmospheric Administration (NOAA) Fisheries Strategic Plan and the North Pacific Anadromous Fisheries Commission (NPAFC) 2001-2005 Science Plan.

The three primary components of the NOAA Fisheries Strategic Plan are to: 1) Rebuild and maintain sustainable fisheries; 2) Promote the recovery of protected species; and 3) Protect and maintain the health of coastal marine habitats. Our research emphasizes long term ecological monitoring to examine the use of coastal marine habitats by juvenile salmon and the relationship of environmental variability to the sustainability of Pacific salmon resources. Seasonal sampling has revealed the earliest documented occurrence of stream-type juvenile chinook salmon stocks from the Columbia River Basin off the Alaska coast; many of these stock groups are protected species. By characterizing spatial and temporal occurrence of juvenile salmon and related biophysical factors, the essential marine habitat utilized by juveniles is identified as they migrate seaward to the Gulf of Alaska.

The NPAFC 2001-2005 Science Plan identifies "juvenile salmon research" as one of three major focuses of Cooperative NPAFC Science Activities. Research issues within this NPAFC juvenile salmon research component include: seasonal distribution and migration, population size and survival estimates, trophic linkages and growth changes, and primary production and food resources. Our SECM research is closely aligned with these issues. The NPAFC Plan requires long-term ecological monitoring projects like SECM to study key juvenile salmon stocks, in several regions of the North Pacific Rim, encompassing a variety of environmental conditions to understand the relationships of habitat use, marine growth, and hatchery-wild stock interactions and developments of year-class strength and a greater understanding of ocean carrying capacity.

From 1997-2000, biophysical parameters were sampled in inshore, strait, and coastal habitats along a primary seaward migration corridor used by juvenile salmon in the northern region of Southeast Alaska. Up to 24 stations spanning 250 km were sampled five times annually, May through October. These habitats extended geographically from inshore localities near large glacial rivers to 65 km offshore in the Gulf of Alaska. Fish were sampled diurnally with a NORDIC 264 surface rope trawl from the NOAA ship *John. X Cobb*. Associated data collected includes: profile data of temperature and salinity, surface nutrients and chlorophyll, zooplankton from vertical 20 m hauls and double oblique hauls made up to 200 m, and onboard stomach analysis of potential predators of juvenile salmon.

In 2001, SECM research maintained biophysical sampling at 13 core stations and directed more research effort into process studies. Two such studies initiated in 2001 included diel feeding periodicity and prey fields of salmon, and onboard gastric evacuation rate experiments of pink and chum salmon. These process studies will enable more accurate input parameters to be used with bioenergetic models to evaluate salmon habitat quality (growth potential) and coastal marine carrying capacity.

In 2002, the SECM research plan maintains biophysical sampling at the 13 core stations previously sampled in all years (Tables 1-2, Fig. 1). One deviation from prior years will be to delete sampling in September. This will be done to extend sampling intervals in earlier time periods to increase the likelihood in obtaining data at the offshore stations. In addition, previous data indicated most local stocks of juvenile salmon emigrated from the region by September. Process studies on gastric evacuation and diel feeding periodicity of juvenile salmon will also continue.

Table 1. Localities and coordinates of stations sampled monthly in marine waters of the northern region of southeastern Alaska, May-August 2002.

<u>Locality</u>	<u>Station</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Offshoredistance (km)</u>	<u>Bottom depth (m)</u>
Auke Bay Monitor	ABM	58°22.00'N	134°40.00'W	1.5	60
Upper Chatham Strait	UCA	58°04.57'N	135°00.08'W	3.2	400
Upper Chatham Strait	UCB	58°06.22'N	135°00.91'W	6.4	100
Upper Chatham Strait	UCC	58°07.95'N	135°04.00'W	6.4	100
Upper Chatham Strait	UCD	58°09.64'N	135°02.52'W	3.2	200
Icy Strait	ISA	58°13.25'N	135°31.76'W	3.2	128
Icy Strait	ISB	58°14.22'N	135°29.26'W	6.4	200
Icy Strait	ISC	58°15.28'N	135°26.65'W	6.4	200
Icy Strait	ISD	58°16.38'N	135°23.98'W	3.2	234
Icy Point	IPA	58°20.12'N	137°07.16'W	6.9	160
Icy Point	IPB	58°12.71'N	137°16.96'W	23.4	130
Icy Point	IPC	58°05.28'N	137°226.75'W	40.2	150
Icy Point	IPD	57°53.50'N	137°42.60'W	65.0	1300

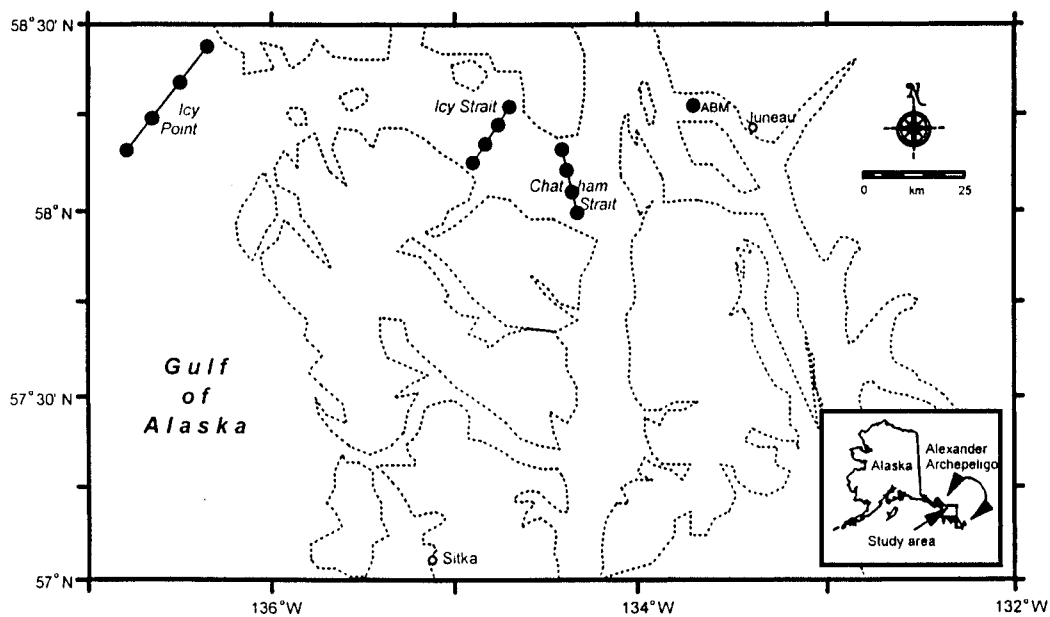


Figure 1. Stations sampled monthly in marine waters of the northern region of southeastern Alaska, May-August 2002.

Table 2. Southeast Alaska Coastal Monitoring (SECM) research cruises scheduled off southeastern Alaska, May-August 2002.

Vesselcruise #	Period	Research focus	Sampling conducted
<i>John N. Cobb</i> JC-02-05	21-25 May	Oceanography	CTD, Chlor., Nutri., Zoop.
<i>John N. Cobb</i> JC-02-10	22-29 June	Oceanography Fish survey (trawl) Diel sampling Gastric evacuation (juv. salmon)	CTD, Chlor., Nutri., Zoop., Fish
<i>John N. Cobb</i> JC-02-13	23-31 July	Oceanography Fish survey (trawl) Diel sampling Gastric evacuation (juv. salmon)	CTD, Chlor., Nutri., Zoop., Fish
<i>John N. Cobb</i> JC-02-16	23-30 August	Oceanography Fish survey (trawl) Diel sampling Gastric evacuation (juv. salmon)	CTD, Chlor., Nutri., Zoop., Fish

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