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Resource Assessment and Conservation
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CRUISE RESULTS

CHARTERED VESSEL CRUISE NO. 2002-01
F/V *SEA STORM*, *VESTERAALEN*, and *MORNING STAR*
2002 GROUND FISH ASSESSMENT SURVEY, ALEUTIAN ISLANDS REGION
MAY 13 - AUGUST 15, 2002

The eighth comprehensive bottom trawl survey of Aleutian region groundfish resources was conducted from May 13 through August 15, 2002, by the Resource Assessment and Conservation Engineering (RACE) Division of the Alaska Fisheries Science Center (AFSC), in Seattle, Washington. It was the second in a series of biennial surveys. Earlier surveys were mostly conducted on a triennial schedule between 1980 and 2000. This report summarizes the sampling operations and preliminary results of the 2002 survey.

Survey sampling was conducted aboard the chartered commercial trawlers *Sea Storm*, *Vesteraalen*, and *Morning Star*. The 140 vessel-day survey period was divided among the three vessels according to the schedule found in the section entitled **ITINERARY**. Leg 1 of the *Vesteraalen* was divided between groundfish survey sampling and an acoustic bottom-typing project. The *Morning Star* conducted only a short leg of the Aleutian groundfish survey between May 25 and June 4. Cruise legs on the *Sea Storm* and *Vesteraalen* were generally 23-24 days each. Sampling operations began on the north side of the Aleutian Islands between Unimak Pass (165° W longitude) and the Islands of Four Mountains (170° W longitude) and extended westward throughout the remainder of the Aleutian Archipelago to Stalemate Bank (170° E longitude). Sampling occurred at pre-

selected stations, or at alternate stations, in depths of 20 to 470 m (Figure 1).

OBJECTIVES

The primary focus of these ongoing surveys is to build a standardized time series of data that are designed to assess, describe, and monitor the distribution, abundance, and biological condition of various Aleutian groundfish and invertebrate stocks. Previous comprehensive AFSC surveys in the Aleutian region occurred in 1980, 1983, 1986, 1991, 1994, 1997, and 2000. Specific objectives of the 2002 survey were to:

1. Define the distribution and relative abundance of the principal groundfish and commercially important invertebrate species that inhabit the Aleutian region;
2. Obtain catch and effort data from which to estimate the absolute abundance of the principal groundfish species;
3. Collect data to define various species-specific biological parameters *i.e.*, age, sex, size, growth rates, length-weight relationships, feeding habits, and taxonomy;
4. Collect integrated net configuration and position data for all trawl hauls to obtain precise area-swept estimates, and;
5. Perform special collections of data and specimens as requested by other researchers or research groups.

VESSELS AND GEAR

All three charter vessels are house-forward stern trawlers with stern ramps, aft net storage reels (mounted over the stern ramp), telescoping deck cranes, propeller nozzles, and paired, controlled-tension hydraulic trawl winches containing between 1,645 and 2,200 m of 2.54 cm diameter steel cable. Before sampling operations began, trawl cables were marked at 25 fathom

intervals using a calibrated wheel and counter. The **Sea Storm** is 37.5 m in overall length (LOA) and is powered by a single, 1,710 continuous horsepower (HP) main engine. The **Vesteraalen** is 38 m LOA with a 1,725 HP main engine. The **Morning Star** is 45 m LOA with a 1,710 HP main engine. On all three vessels electronic equipment included Global Positioning Systems (GPS) with video position plotters, at least two radars, single sideband and VHF transmitter-receivers, color video fish-finders, paper recorder depth sounders, and auto-pilots.

Captains Tim Cosgrove, Brad Lougheed, and Ken Sjong operated the **Vesteraalen**, on one leg apiece. Captain Steve Branstiter operated the **Sea Storm** for the entire 70-day charter period, and Captain Tim Carrier operated the **Morning Star**.

Standard RACE Division Poly-Nor'eastern high opening bottom trawls, rigged with roller gear, were utilized by all three vessels. Gear specifications included: a 27.2 m headrope with twenty-one 30 cm diameter floats, and a 24.3 m, 1.3 cm diameter longlink alloy chain "fishing line" attached to a 24.9 m, 0.95 cm diameter 6 x 19 galvanized steel wire footrope. A small chain-weighted mesh pouch, known as a "snail bag", was attached to the footrope to sample benthic substrate and organisms. The roller gear was 24.2 m long and constructed of 1.9 cm diameter 6 x 19 galvanized steel wire rope and 36 cm rubber bobbins spaced approximately 2 m apart, separated by a solid string of 10 cm rubber disks. In addition, 5.9 m wire rope extensions with 10 cm and 20 cm rubber disks were used to span each lower flying wing section. The trawls were constructed of 12.7 cm stretched-mesh polyethylene web with a 3.2 cm stretched-mesh nylon liner in the codend. Net rigging consisted of triple 54.9 m, 1.6 cm diameter galvanized wire rope dandylines. Chain extensions to the dandylines were 46 cm and 23 cm at the headrope and side panel attachments, respectively. Steel V-doors with dimensions of 1.83 x 2.74 m and weighing 800 kg each were used to open the net.

SURVEY AREA

The Aleutian Islands region is an extensive archipelago of volcanic origin typified by a relatively narrow continental shelf that is crossed by numerous deep passes. Very strong currents flow through the passes and across the shelf, sometimes making productive fishing operations difficult or impossible.

Commercially valuable roundfish such as Atka mackerel (*Pleurogrammus monopterygius*), Pacific cod (*Gadus macrocephalus*), walleye pollock (*Theragra chalcogramma*), sablefish (*Anoplopoma fimbria*); flatfish, most notably, Pacific halibut (*Hippoglossus stenolepis*) and Greenland turbot (*Reinhardtius hippoglossoides*); rockfish species including Pacific ocean perch (*Sebastes alutus*), northern rockfish (*S. polypinus*), rougheye and shortraker rockfishes (*S. aleutianus* and *S. borealis*); and invertebrates including golden king crab (*Lithodes aequispina*) and scallops (*Chlamys* spp) inhabit the area. The rough, rocky bottom conditions provide abundant substrate for many species of bryozoans, hydroids, sponges and corals.

SURVEY DESIGN AND METHODS

The Aleutian survey region was divided into 4 major sections based on geographic features and North Pacific Fishery Management Council (NPFMC) regulatory areas. Those sections were further divided into 45 area-depth strata to a depth of 500 m. A Neyman optimum allocation strategy drawing on data from previous surveys was used to develop a stratified random sampling distribution among the 45 strata.

Tow tracklines and start and end positions were recorded using GPS output. Standard trawl hauls were 15 minutes in estimated on-bottom duration. Actual trawl time on bottom was determined using real-time net configuration data transmitted to the vessel by acoustic net mensuration equipment which were verified and adjusted posteriorly by time and depth recordings from a bathythermograph and a bottom contact sensor (tilt sensor). The

acoustic devices continuously measured wing spread and headrope height above the bottom. Efforts were made to maintain constant depth during a tow, but when depths changed, trawl warp length was adjusted accordingly. At most stations, tilt sensors attached to the fishing line were used to monitor footrope contact with the bottom.

Catches of fish and many invertebrates were sorted to species or species group, weighed and enumerated according to standard AFSC and RACE Division protocol. Extensive size composition data were collected with barcode based recording devices and downloaded to computer database files after each tow. A variety of biological data including age structures (otoliths), lengths, and weights of individual specimens were collected and entered in the computer database. Special collections included extensive samples of fish stomach contents, rockfish larvae, corals, sponges and other invertebrates. Many whole fish of various species were collected and frozen for studies of the potential impact of parasites on Steller sea lions, and several studies of Steller sea lion prey.

Surface to bottom seawater temperature profiles were recorded at most sampling sites using a headrope-mounted bathythermograph. After each tow, temperature profile data were downloaded and stored in computer files, then integrated with net mensuration data to help verify actual fishing time on bottom and net configuration. Sea surface temperature observations were made using bucket thermometers.

RESULTS

Relatively little time was lost to bad weather, but during periods of extreme tidal flow, heavy currents sometimes caused work to be postponed or tows to be aborted. Initially, sampling proceeded from east to west as far as Islands of Four Mountains. Due to the unusual staggered vessel schedule and to ensure that a single charter vessel was not left working alone at the extreme western end of the survey area, sampling west of the

Islands of Four Mountains proceeded rapidly to Stalemate Bank, skipping stations. Skipped stations were then sampled roughly west-to-east as the remainder of the survey progressed. When satisfactory bottom conditions could not be found at a given station, a pre-selected alternate location, or in some cases a newly found location within the proper area-depth stratum was sampled. A total of 483 tows were attempted during the survey. Successful tows were performed at 417 of 423 assigned assessment sites or alternates. Six pre-assigned stations could not be sampled due to unsuitable bottom conditions and to concentrations of stored crab traps. One special tow was performed to collect deepwater snailfish. Stations ranged in depth from 20 m to 470 m. Sea surface temperatures and successful bathythermograph recordings were made during 482 attempted tows.

Total catch estimates from successful survey hauls indicate that Atka mackerel was, by far, the dominant species in survey trawl catches in the Aleutian region as a whole, but Pacific ocean perch (POP) was the predominant species in the Eastern regulatory area (Table 1). POP ranked second in overall total catch in the Aleutian region. Northern rockfish was third overall in total catch, followed by walleye pollock. In the southern Bering Sea area walleye pollock dominated the total catch, followed by Atka mackerel and POP.

Size-stratified otolith collections were made for fourteen species of fish (Table 2). Generally, samples were collected from species with high commercial value or those of special scientific interest. Length and weight measurements were recorded from individual fish from a number of species to monitor and update length-weight relationships. Length measurements collected from 56 different species (Table 3) were the most common biological data collected (113,189). Over 3,020 samples of stomach contents were collected from a wide variety of species with over 1,640 samples coming from four major predator species: Arrowtooth flounder (*Atheresthes stomias*), Pacific cod, Pacific halibut, and walleye pollock. Another 469

stomach samples came from the two major semi-pelagic species, Pacific ocean perch and Atka mackerel (Table 2). Small flatfish such as northern rock sole (*Lepidopsetta polyxystra*), flathead sole (*Hippoglossoides elassodon*), rex sole (*Glyptocephalus zachirus*), and various species of skates (*Bathyraja* spp), sablefish, sculpins, and miscellaneous rockfishes formed the majority of the remaining stomach collections.

Researchers from the California Academy of Sciences in San Francisco collected numerous samples of invertebrate fauna. AFSC has contracted the Academy to identify and catalog Alaskan invertebrates. This will permit AFSC field scientists to collect more accurate catch data in the future. Many whole fish were collected for later study or identification at AFSC. At least one probable new species of snailfish was collected. Corals were collected for the Smithsonian Institute to support ongoing taxonomic studies. A collection of various mollusks was made as part of an ongoing study to document the distribution of Alaskan mollusks.

Other special collections included over 500 kg of whole fish of various species sampled from survey tows made near sea lion rookeries. These fish were frozen aboard the charter vessels and later shipped to Seattle for studies of parasite content, fatty acids, and caloric content. Using the results of these studies, researchers at AFSC and the University of Washington hope to clarify the relationships between Steller sea lions and their prey.

Juvenile Pacific halibut were collected and frozen for study by researchers at the International Pacific Halibut Commission. Walleye pollock otoliths and vertebrae (100 sets) were collected for the Age and Growth Unit at AFSC.

Sightings of shorttailed albatross were documented on a number of occasions. Records of those sightings will be forwarded to the U.S. Fish and Wildlife Service.

During ***Morning Star*** leg 1, a time-lapse underwater camera was placed in Finch Cove on Seguam Island to document spawning activity of Atka mackerel. During Leg 3 of the ***Sea Storm*** the camera was serviced and re-set several times and an additional time-lapse camera was set. Both cameras were left to record until recovery at a later date.

ITINERARY

Vesteraalen:

May 13 First day of charter - Load and setup in Dutch Harbor

May 15 Begin Leg 1 - Test sonic seafloor sensing equipment; measure and mark trawl warps

May 27 Begin trawl survey sampling operations

June 4 End of Leg 1 in Dutch Harbor - Resupply vessel, exchange personnel, resume survey

June 27 End of Leg 2 in Adak - Resupply vessel, exchange personnel, resume survey

July 20 Arrive Dutch Harbor

July 21 Unload vessel, end of charter

Morning Star:

May 23 First day of charter - Load and setup in Dutch Harbor

May 25 Begin Leg 1 - Measure and mark trawl warps

June 4 End sampling in Aleutian area.

Sea Storm:

May 29 Load and setup in Seattle

May 31 Depart Seattle for Dutch Harbor

June 7 Arrive Dutch Harbor - Board scientific personnel, begin Leg 1; measure and mark trawl warps

July 1 End Leg 1 in Adak - Resupply vessel

July 2 Begin Leg 2 - Exchange personnel, resume survey

July 24 End Leg 2 in Adak - Resupply vessel

July 25 Begin Leg 3 - Exchange personnel, resume survey

August 14 Arrive Dutch Harbor

August 15 Unload vessel, end of charter

SCIENTIFIC STAFF AND AFFILIATIONS
ALEUTIAN ISLANDS BIENNIAL TRAWL SURVEY, 2002

VESTERAALEN - LEG 1

DATES: May 13 - June 4
 PORTS: Dutch Harbor - Dutch Harbor

FPC	Michael Martin	AFSC
	Bill Flerx	AFSC
	Mei-sun Yang	AFSC
	Nate Raring	AFSC
	Robin Harrison	AFSC
	Steve Syrala	AFSC
	George Cronin *	AFSC

VESTERAALEN - LEG 2

DATES: June 5 - June 27
 PORTS: Dutch Harbor - Adak

FPC	Bill Flerx	AFSC
	Russ Nelson	AFSC
	Chris Rooper	AFSC
	Chris Gbursky	AFSC
	Rob Katona	AFSC
	Roger Clark	AFSC

VESTERAALEN - LEG 3

DATES: June 28 - July 21
 PORTS: Adak - Dutch Harbor

FPC	Nate Raring	AFSC
	Alisa Abookire	AFSC
	Nancy Roberson	AFSC
	Elaina Jorgensen	AFSC
	Roger Clark	AFSC
	Wes Shockley	AFSC

Abbreviations

AFSC Alaska Fisheries Science Center
 ACAD California Academy of Science
 OCRM NOAA/Ocean and Coastal Resource
 Management

SMIT Smithsonian Institute
 FPC Field Party Chief
 UAJ University of Alaska, Juneau
 * On board for first week

SEA STORM - LEG 1

DATES: June 7 - July 1
 PORTS: Dutch Harbor - Adak

FPC	Liz Chilton	AFSC
	Eric Brown	AFSC
	Katherine Pearson	AFSC
	Paul Spencer	AFSC
	Scott McKillip	AFSC
	Chris Johnston	AFSC

SEA STORM - LEG 2

DATES: July 2 - July 24
 PORTS: Adak - Adak

FPC	Mark Wilkins	AFSC
	Jay Orr	AFSC
	Alberto Lindner	SMIT
	Bob van Syoc	ACAD
	Ashley Forbes	AFSC
	Jerry Hardman	AFSC

SEA STORM - LEG 3

DATES: July 25 - August 15
 PORTS: Adak - Dutch Harbor

FPC	Bob Lauth	AFSC
	Robin Harrison	AFSC
	Paul von Szalay	AFSC
	Jim Stark	AFSC
	Chris Rilling	OCRM
	April Devitt	ACAD

MORNING STAR - LEG 1

DATES: May 23 - June 4
PORTS: Dutch Harbor - Dutch Harbor

FPC Jerry Hoff AFSC

Bob Lauth	AFSC
Jay Orr	AFSC
Duane Stevenson	AFSC
Jon Short	AFSC
Dana Hanselman	UAJ

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Table 1.—Total catch estimates for the most frequently captured fish species, by North Pacific Fisheries Management Council regulatory area and the entire Aleutian region ranked in order of relative abundance.

WESTERN AREA			CENTRAL AREA		
Name	Weight (kg)	Number	Name	Weight (kg)	Number
Atka mackerel	61,081	146,379	Atka mackerel	81,672	160,693
Pacific ocean perch	51,724	100,419	Pacific ocean perch	37,130	47,003
northern rockfish	25,092	70,289	walleye pollock	23,882	16,180
Pacific cod	5,824	1,235	northern rockfish	10,306	21,289
walleye pollock	3,225	2,640	Pacific cod	5,142	1,512
arrowtooth flounder	2,799	3,265	northern rock sole	3,617	9,138
northern rock sole	1,369	3,602	arrowtooth flounder	3,349	2,536
Pacific halibut	1,004	169	Kamchatka flounder	2,128	1,137
giant grenadier	951	231	shortraker rockfish	1,289	588
shortspine thornyhead	814	1,623	giant grenadier	992	227
Alaska skate	753	80	Pacific halibut	960	206
prowfish	646	310	rougeye rockfish	771	510
whiteblotched skate	586	90	shortspine thornyhead	650	1,294
shortraker rockfish	563	275	sablefish	617	247
Kamchatka flounder	542	444	Alaska skate	524	66
flathead sole	414	1,306	Aleutian skate	326	24
rougeye rockfish	310	179	whiteblotched skate	324	64
Aleutian skate	279	24	yellow Irish lord	257	364
rex sole	174	454	rex sole	199	381
sablefish	123	24	Greenland turbot	186	42
golden king crab	97	91	spectacled sculpin	184	2,958
darkfin sculpin	86	1,116	darkfin sculpin	176	2,040
Greenland turbot	77	15	Pacific sand lance	135	1,382
dark dusky rockfish	68	86	salmon shark	126	1
yellow Irish lord	53	96	prowfish	124	45
great sculpin	52	16	mud skate	101	126
kelp greenling	42	58	great sculpin	101	21
bigmouth sculpin	38	4	golden king crab	99	109
mud skate	36	23	light dusky rockfish	81	69
searcher	34	186	Bering skate	59	6
Pacific sand lance	18	279	red king crab	57	19
Dover sole	17	30	Dover sole	38	50
spectacled sculpin	14	322	scissortail sculpin	26	325

Table 1.--(Continued).

EASTERN AREA			TOTAL ALEUTIAN AREA		
Name	Weight (kg)	Number	Name	Weight (kg)	Number
Pacific ocean perch	28,538	43,589	Atka mackerel	156,961	330,350
giant grenadier	20,908	4,207	Pacific ocean perch	117,393	191,011
Atka mackerel	14,208	23,278	northern rockfish	35,935	92,420
walleye pollock	8,352	6,003	walleye pollock	35,458	24,823
arrowtooth flounder	6,378	6,615	giant grenadier	22,851	4,665
Pacific cod	3,895	1,437	Pacific cod	14,861	4,184
Kamchatka flounder	2,809	1,519	arrowtooth flounder	12,526	12,416
Pacific halibut	2,367	265	northern rock sole	6,066	16,166
whiteblotched skate	1,521	370	Kamchatka flounder	5,479	3,100
northern rock sole	1,080	3,426	Pacific halibut	4,331	640
Greenland turbot	876	302	whiteblotched skate	2,432	524
roughey rockfish	698	597	shortraker rockfish	2,384	1,212
northern rockfish	537	842	roughey rockfish	1,778	1,286
shortraker rockfish	533	349	shortspine thornyhead	1,577	3,099
darkfin sculpin	336	4,311	Alaska skate	1,407	164
rex sole	315	644	Greenland turbot	1,140	359
flathead sole	242	1,036	sablefish	976	363
sablefish	235	92	prowfish	825	368
spectacled sculpin	194	2,720	Aleutian skate	788	64
Aleutian skate	184	16	rex sole	688	1,479
mud skate	183	286	flathead sole	676	2,386
golden king crab	134	161	darkfin sculpin	598	7,467
Alaska skate	130	18	yellow Irish lord	438	658
yellow Irish lord	128	198	spectacled sculpin	391	6,000
shortspine thornyhead	113	182	golden king crab	330	361
bigmouth sculpin	56	23	mud skate	321	435
prowfish	55	13	great sculpin	166	44
scissortail sculpin	31	343	Pacific sand lance	152	1,665
southern rock sole	28	47	salmon shark	126	1
searcher	25	125	bigmouth sculpin	115	31
Pacific sleeper shark	25	1	light dusky rockfish	101	87
ebony eelpout	24	78	searcher	80	432
skate unident.	19	16	red king crab	71	28

Table 1.--(Continued).

SOUTHERN BERING SEA		
Name	Weight (kg)	Number
walleye pollock	43,713	51,632
Atka mackerel	13,979	16,084
Pacific ocean perch	12,921	18,104
Pacific cod	3,428	1,327
arrowtooth flounder	2,886	6,245
Pacific halibut	1,759	784
southern rock sole	1,660	3,454
Kamchatka flounder	1,367	525
flathead sole	1,054	5,708
rex sole	704	1,501
shortraker rockfish	664	337
northern rock sole	611	1,721
Sablefish	421	118
northern rockfish	410	560
rougheye rockfish	405	453
yellow Irish lord	341	470
shortspine thornyhead	329	607
starry flounder	165	89
Greenland turbot	138	42
darkfin sculpin	120	1,380
whiteblotched skate	111	33
bigmouth sculpin	89	15
Aleutian skate	82	5
Pacific sleeper shark	74	3
big skate	52	4
golden king crab	42	48
light dusky rockfish	37	34
Prowfish	35	6
Tanner crab	31	101
butter sole	30	55
mud skate	25	26
great sculpin	18	8
Eulachon	16	245

Table 2.--Length-weight data and otolith specimens collected during the 2002 biennial trawl survey of the Aleutian Islands region, by species and North Pacific Fisheries Management Council regulatory area.

Name	Length-weight measurements					Otolith samples				
	Western	Central	Eastern	S Bering	Total	Western	Central	Eastern	S Bering	Total
salmon shark	-	1	-	-	1					
Pacific sleeper shark	-	-	-	1	1					
Bering skate	-	5	-	1	6					
mud skate	20	102	37	10	169					
Alaska skate	63	56	15	-	134					
Aleutian skate	16	17	8	4	45					
commander skate	1	-	-	-	1					
whiteblotched skate	90	45	103	16	254					
whitebrow skate	1	-	-	1	2					
arrowtooth flounder	349	322	584	354	1,609	349	322	584	354	1,609
Kamchatka flounder	-	115	-	-	115	15	37	155	31	238
Greenland turbot	15	37	155	31	238	210	213	201	256	880
northern rock sole	210	213	190	256	869	-	-	-	198	198
southern rock sole	-	-	-	198	198	286	253	425	309	1,273
Pacific sand lance	-	56	-	-	56					
armorhead sculpin	-	21	-	-	21					
yellow Irish lord	-	28	35	30	93					
scissortail sculpin	-	65	-	-	65					
spectacled sculpin	-	112	97	-	209					
Pacific cod	286	253	423	309	1,271	286	253	425	309	1,273
walleye pollock	313	399	332	311	1,355	313	399	334	311	1,357
Atka mackerel	223	217	242	105	787	223	217	264	105	809
eulachon	-	-	-	56	56					
shortspine thornyhead	166	205	38	125	534	166	205	38	125	534
rougeye rockfish	59	114	186	114	473	59	114	186	114	473
Pacific ocean perch	379	269	585	144	1,377	379	269	585	144	1,377
dusky rockfish	-	8	-	-	8	-	8	-	-	8
dark dusky rockfish	71	1	-	1	73	71	1	-	1	73
light dusky rockfish	6	54	13	24	97	6	54	13	24	97
northern rockfish	181	147	134	60	522	181	147	134	60	522
shortraker rockfish	119	164	137	151	571	119	164	136	151	570
Total	2,568	3,026	3,314	2,302	11,210	2,663	2,656	3,480	2,492	11,291

Table 3.--Length frequencies collected during the 2002 biennial trawl survey of the Aleutian Islands region, by species and North Pacific Fisheries Management Council regulatory area.

Name	Western	Central	Eastern	S Bering	Total
salmon shark	-	1	-	-	1
Pacific sleeper shark	-	-	1	2	3
big skate	-	-	-	4	4
Bering skate	-	5	1	2	8
mud skate	19	119	213	19	370
Alaska skate	78	61	18	2	159
Aleutian skate	24	24	16	4	68
commander skate	1	-	-	-	1
whiteblotched skate	90	62	309	20	481
whitebrow skate	1	-	-	1	2
arrowtooth flounder	2,583	1,878	4,031	4,265	12,757
Kamchatka flounder	442	1,128	882	194	2,646
Greenland turbot	15	42	282	37	376
Pacific halibut	169	206	263	751	1,389
flathead sole	857	44	706	1,423	3,030
english sole	-	-	-	7	7
Dover sole	30	47	11	29	117
rex sole	438	374	603	1,092	2,507
yellowfin sole	-	-	-	33	33
starry flounder	-	-	-	89	89
northern rock sole	3,267	5,629	1,754	1,585	12,235
southern rock sole	-	-	47	1,954	2,001
butter sole	-	-	-	55	55
sawback poacher	-	18	-	-	18
sablefish	24	244	71	39	378
searcher	8	6	-	-	14
giant grenadier	231	226	501	-	958
armorhead sculpin	-	40	-	-	40
darkfin sculpin	120	199	519	-	838
yellow Irish lord	65	246	158	346	815
scissortail sculpin	-	301	-	-	301
spectacled sculpin	58	189	271	-	518
roughspine sculpin	-	-	13	-	13
great sculpin	6	10	-	8	24
bigmouth sculpin	1	1	19	11	32
Pacific cod	1,036	1,463	1,433	952	4,884
walleye pollock	1,409	3,729	1,769	6,541	13,448
Atka mackerel	5,559	8,116	2,469	453	16,597
kelp greenling	20	-	5	1	26
eulachon	-	-	-	132	132
capelin	-	-	1	-	1
chinook salmon	-	-	1	-	1
chum salmon	-	2	3	-	5
prowfish	258	21	13	2	294

Table 3.—(continued).

Names	Western	Central	Eastern	S Bering	Total
ebony eelpout	-	6	-	-	6
shortspine thornyhead	1,493	1,027	70	370	2,960
roughey rockfish	136	499	395	258	1,288
Pacific ocean perch	7,056	5,767	6,023	1,439	20,285
silvergray rockfish	-	1	-	-	1
dusky rockfish	-	9	-	-	9
dark dusky rockfish	76	1	-	1	78
light dusky rockfish	6	67	12	23	108
northern rockfish	5,738	2,938	585	198	9,459
redbanded rockfish	1	-	3	-	4
harlequin rockfish	-	9	4	3	16
shortraker rockfish	275	539	215	270	1,299
All species	31,590	35,294	23,690	22,615	113,189

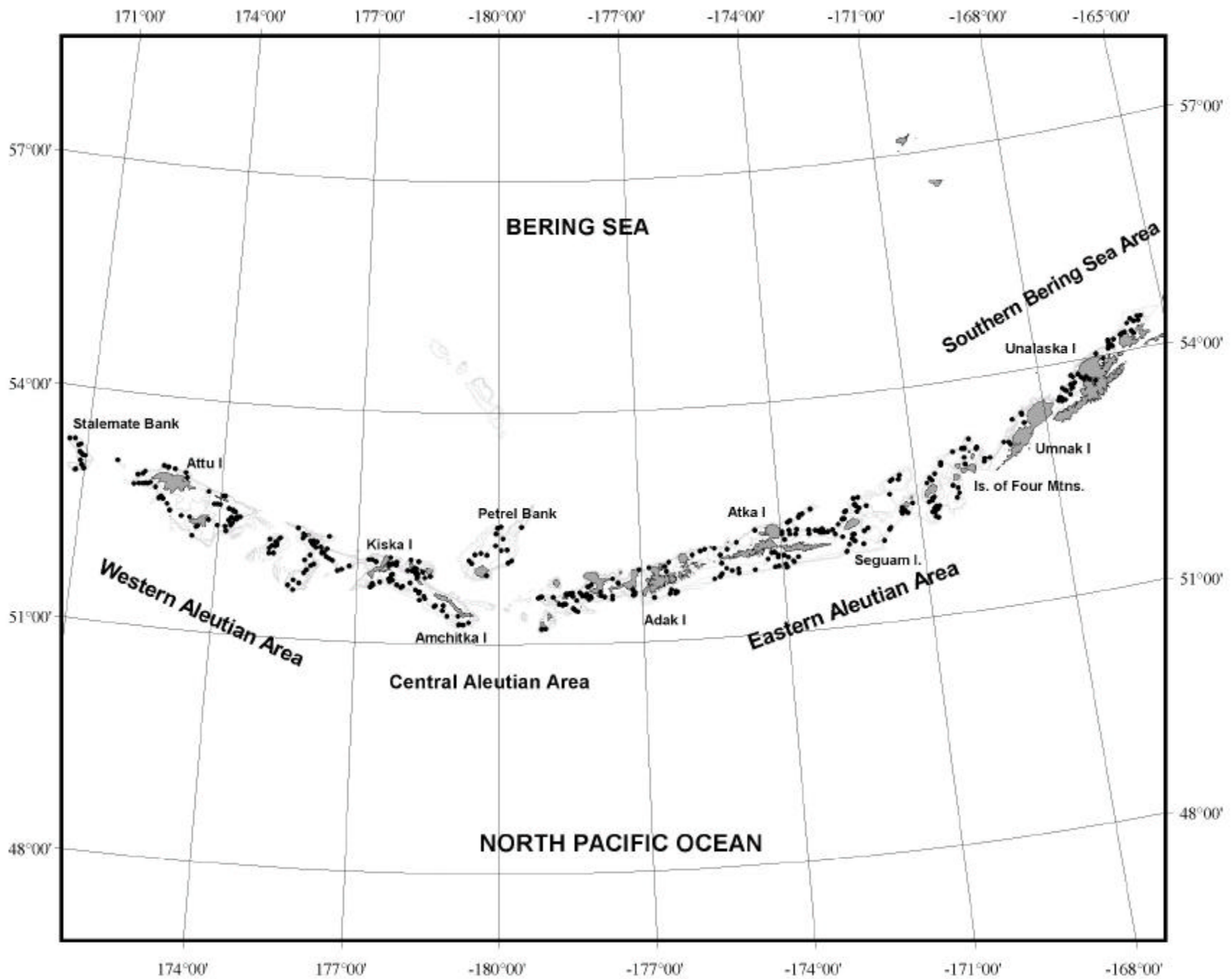


Figure 1.--Locations of trawl hauls (black dot symbol) performed during the 2002 biennial groundfish survey of the Aleutian Islands region.