

## **Southeast Alaska Coastal Monitoring Project**

**JC-06-11 July 2006 Cruise Report**

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Scientists from the Marine Salmon Investigations Program at Ted Stevens Marine Research Institute (TSMRI), Auke Bay Laboratories (ABL), Alaska Fisheries Science Center, National Marine Fisheries Service, NOAA Fisheries, conducted a 14-day cruise aboard the NOAA ship *John N. Cobb* in the marine waters of Southeast Alaska, 19 July to 01 August, 2006. This cruise (JC-06-13) was part of the Southeast Alaska Coastal Monitoring (SECM) project, and was the third of four cruises scheduled for 2006. The SECM project was initiated in 1997 to study the habitat use and early marine ecology of juvenile Pacific salmon (*Oncorhynchus* spp.) in inshore, strait, and coastal habitats along a primary seaward migration corridor used by juvenile salmon. In addition to salmon information, SECM provides information on other pelagic fish species, zooplankton, and physical oceanography. An annual data report is summarized as a North Pacific Anadromous Fish Commission (NPAFC) document in the year following sample collection and processing. The information is further summarized in various publications and reports to improve understanding of trophic relationships among marine planktivores, to track long-term patterns and changes in the marine environment in response to climate change, to compare Southeast Alaska marine ecosystems to others outside the region, to develop forecasting models for the commercial salmon harvest, and to provide input parameters for bioenergetic models. Ultimately, SECM will provide the information necessary to implement the Ecosystem Approach to Management for salmon and other managed species. The information collected also provides insight into potential effects of climate change on stock-specific growth and recruitment of salmonids, and the utilization of marine habitat by key fish species.

Sampling in 2006 marks the tenth year of the SECM long-term study on how the intra- and inter-annual variability of physical and biological oceanographic indices relate to the distribution, abundance, growth, and survival of salmon and other fish populations at the same localities. In 2006, coastal habitat will be sampled for biological oceanographic information, including trawling, only in May and August. This is also the second year of three for an SECM project component funded by the Pacific Salmon Commission Northern Fund to compare strait habitats in the northern and southern regions of Southeast Alaska. The sampling objectives focus on

juvenile salmon activity in June and July along historical transects in the northern region of Southeast Alaska (Icy Strait and Upper Chatham Strait) and two transects in the southern region of Southeast Alaska (Lower and Middle Clarence Strait). General objectives of this cruise are to: 1) collect and compare biological data on juvenile Pacific salmon and other pelagic fish species from surface rope trawl samples at stations in strait habitats in the two regions; 2) collect physical and biological oceanographic data in these regions to evaluate responses of fishes and other marine organisms to climatic and environmental change; and 3) conduct process studies focusing on bioenergetics and trophic interactions of juvenile salmon in these regions.

## METHODS

Seventeen stations were scheduled for sampling during the July 2006 cruise (Table 1, Figures 1 and 2). Sampling was conducted at one station in Auke Bay (ABM) and along two transects with four stations each in Middle Clarence Strait and Lower Clarence Strait in the southern region of Southeast Alaska (SSE) and two transects with four stations each in Upper Chatham Strait and Icy Strait in the northern region (NSE). Oceanographic measurements were taken at all stations; trawling was conducted twice along transects at Upper Chatham and Middle Clarence Straits and three times at Icy and Lower Clarence Straits; no trawling was conducted at Auke Bay.

### Oceanographic sampling:

The oceanographic sampling included physical and biological monitoring at each station. To examine horizontal water structure, temperature and salinity readings were continuously logged at one-minute intervals from 3-m depth using a SeaBird SBE-21<sup>1</sup> thermosalinograph mounted on the vessel hull. To examine vertical water structure, a Seabird SBE-19 conductivity-temperature-depth (CTD) profiler was deployed at each station to 200 m or within 10 m of the bottom, depending on bottom depth; replicate casts were deployed only to 50 m depth. Surface water samples were taken once at each station for later determination of chlorophyll and nutrient content, using a bucket. Ambient incident sunlight was measured with a Li-Cor Model LI-250A radiometer in Watts/m<sup>2</sup>.

Zooplankton was sampled during all routine visits to each station, using conical nets hauled vertically and a bongo net system towed obliquely (Table 2). At each pass along all transects, including replicates, vertical plankton hauls were retrieved from a depth of 20 m using a 50-cm frame, 243-micron mesh (Norpac) net. At ABM only, a WP2 net (57 cm ring, 202-micron mesh) was also hauled vertically from near bottom to the surface. At ABM and at stations along the Icy Strait and Lower Clarence Strait transects, a double oblique bongo tow was done to 200 m or within 20 m of the bottom using a 60-cm frame with 505 and 333 micron mesh nets, on only one pass along these transects. At the Icy Strait and Lower Clarence Strait transects, a shallow (20m) double oblique bongo tow was done immediately prior to the deep bongo tow. General Oceanics

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<sup>1</sup>Reference to trade names does not imply endorsement by the NOAA Fisheries.

flow meters were placed inside each of the bongo nets to determine the water volume sampled. A Vemco ML08-TDR minilog data logger was used to record depth and temperature for validation of maximum deployment depth of each bongo tow. All zooplankton samples were concentrated and preserved in 5% formalin-seawater solution for later laboratory analyses.

### Trawl Sampling:

Sampling for fish was accomplished with a Nordic 264 rope trawl fished directly astern the *John N. Cobb* at the surface. The mouth opening of the trawl was approximately 20 m deep and 26 m wide, spread by a pair of 3.0 m Lite trawl doors. The trawl was fished fully open, with 150 m of main warp out, for a duration of 20 min at a speed of about 1.0-1.5 m/sec (2-3 knots). To fish the headrope of the trawl at the surface, a cluster of three meshed A-4 Polyform buoys was tethered to each wing tip of the headrope and one A-3 Polyform float was clipped onto the center of the headrope. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the cod end. A 6.1 m long, 0.8 cm knotless liner was sewn into the codend. Along the jib lines on the top panel of the trawl, between the head rope and the first 162.6 cm mesh, a small mesh panel of 10.2 cm mesh was incorporated to minimize the loss of fish aft of the headrope.

After each haul, the fish caught were anaesthetized with tricaine methanesulfonate, identified, enumerated, measured, and stomachs sampled (if appropriate). The biomass of jellyfish retained by the net was estimated volumetrically and species were identified when possible. Fish were measured to the nearest mm fork length (FL) with a Limnoterra FMB IV electronic measuring board. A subsample of at least 50 specimens of each salmon species was frozen in individually-labeled bags, for later laboratory analyses (see below). If available, a subsample of 60 juvenile chum (*O. keta*) and 15 juvenile pink (*O. gorbuscha*), salmon was also preserved in 10% formalin-seawater solution for later diet analyses; these fish were transferred to 50% isopropyl alcohol solution within a week of collection to maintain quality of otoliths used for stock identification. The heads of all Chinook (*O. tshawytscha*) and coho (*O. kisutch*) salmon lacking adipose fins were retained for the possible recovery of a coded-wire tag (CWT). Stomachs from potential predators of juvenile salmon were excised, weighed, and classified by fullness. The weight of the stomach contents was determined as the difference between the weight of the stomach and contents minus the weight of the empty stomach. Stomach contents were removed and prey were generally identified to species or major taxon and contribution estimated to the nearest 10% of total volume.

### Laboratory processing:

Data on settled volumes (SVs) of zooplankton in the 20-m vertical hauls and decoded CWTs of fish lacking adipose fins are included in this report. Laboratory processing in progress includes 1) measurement of weight and condition of juvenile salmon; 2) determination of energetic content from frozen samples of juvenile pink, chum (including separate stocks), and coho salmon; 3) examination for otolith thermal marks representing stocks of origin in frozen samples of juvenile chum and sockeye (*O. nerka*) salmon; 4) scanning of all unclipped chinook and coho for possible presence of CWTs not indicated by lack of the adipose fin; 5) removal and decoding of all CWTs detected; 6) scale samples of each species of juvenile salmon; 7) identification of the stomach contents of preserved juvenile pink and chum salmon (including separate stocks); 8)

measurement of displacement volumes and gross taxonomic percent composition of all bongo net plankton samples; 9) zooplankton species composition and abundance from all bongo net samples; 10) determination of chlorophyll and nutrient concentrations from surface water samples; and, 11) analysis of temperature-salinity-fluorescence profiles.

## RESULTS and DISCUSSION

All seventeen stations scheduled for sampling in the two regions of Southeast Alaska were sampled in July (Table 1). Standard oceanographic sampling and surface trawling were conducted according to the following schedule:

- Day 1: Transit from Juneau subport to southern Southeast Alaska (~200 nm);
- Day 2: Weather day to wait out storm, at anchor in Vallenar Bay;
- Day 3: Sample Middle Clarence Strait (MC, 4 stations, + 1 replicate);
- Day 4: Sample Lower Clarence Strait (LC, 4 stations);
- Day 5: Sample Lower Clarence Strait (4 replicates);
- Day 6: Sample Lower Clarence Strait (4 replicates);
- Day 7: Sample Middle Clarence Strait (3 replicates); begin transit north;
- Day 8: Complete transit north to subport, offload samples, exchange one scientist for 2<sup>nd</sup> leg;
- Day 9: Sample ABM (1 station) and Upper Chatham Strait (UC, 2 replicates);
- Day 10: Sample Icy Strait (IS, 4 stations);
- Day 11: Sample Icy Strait (4 replicates) and Upper Chatham Strait (1 replicate);
- Day 12: Sample Upper Chatham Strait (4 stations, 1 replicate);
- Day 13: Sample Icy Strait (4 replicates); transit to Juneau subport;
- Day 14: Day in port; offload later.

Oceanographic samples collected from the 17 stations included 41 CTD casts, 43 Norpac tows, 17 bongo tows (34 net samples preserved), one WP-2 sample, and 9 water samples (Table 2). Fish were collected from 20 trawl hauls in SSE and 20 trawl hauls in NSE (Table 3).

Surface (3-m) temperatures ranged from 11.2 to 15.6°C and surface salinities ranged from 16.7 to 29.4 PSU in straits habitats (Table 2). Oceanographic conditions differed between the two regions, with approximately 1.5°C higher average temperature (14.3°C vs. 12.7°C) and salinity (28.0 vs. 23.8 PSU) in the southern region compared to the northern region. Conditions in Auke Bay (ABM) were similar to those in the northern straits, 12.0°C and 15.6 PSU. Compared to June temperatures in 2006, July temperatures were warmer in both regions (see JC-06-09 June 2006 Cruise Report). However, temperatures in these regions in both months of 2006 were as much as 3°C cooler than in 2005 (JC-05-08 June and JC-05-10 July Cruise Reports).

Data on zooplankton and jellyfish biomass also differed between regions and transects (Table 2). Zooplankton biomass, as determined from SVs of the 20-m vertical tow samples, ranged from 1.5 to 30 ml in strait habitats. Average SVs were lower at transects in NSE (5.1 ml) than at transects in SSE (9.0 ml), in concordance with greater water clarity (mean Secchi depths of 4.4 m in NSE vs. 3.4 m in SSE). Jellyfish biomass was much higher at transects in SSE (mean of ~70 liters per trawl) than in NSE (7 liters per trawl). The genera *Aurelia* and *Aequorea* dominated

in SSE, while in NSE, the colorful forms *Cyanea* and *Chrysaora* were as prominent these clear forms. Compared to June, average zooplankton SVs in July were lower in both regions; jellyfish estimated biomass in SSE declined in July by nearly half but increased in NSE (see JC-06-09 June 2006 Cruise Report).

Juvenile salmon were caught at all strait stations in both regions in July. Totals of 1114 and 1444 were collected from SSE and NSE, respectively (Tables 3, 4, and 5). Among transects, juvenile salmon were most abundant in Icy Strait and least abundant in Upper Chatham Strait, NSE; abundance was intermediate in SSE. Juvenile pink, chum, and coho salmon had the highest FO of the five species (75-100%; Table 3). Pink salmon CPUE was highest, and averaged 33-65 individuals per haul at transects other than UC. Chum salmon CPUE was next highest, with a maximum of 31 fish per haul in Icy Strait. CPUE was  $\leq 9$  for juvenile coho,  $\leq 5$  for juvenile sockeye, and  $< 1$  for juvenile Chinook salmon. Overall, catches of juvenile salmon were lower in July than in June of 2006, for the fourth year in the history of SECM monitoring (JC-06-10 June 2006 Cruise Report; data on file, ABL).

Few adult and immature salmon were caught in July. Seven individuals were caught in SSE and 19 individuals in NSE; immature Chinook and adult coho salmon were most common (Table 3).

Fifteen taxa of non-salmonid teleosts were captured in the trawls, totaling 49 and 55 individuals in SSE and NSE, respectively. Most species were uncommon among the 40 trawls. The greatest numbers caught were for Pacific herring (*Clupea pallasii*), spiny dogfish (*Squalus acanthias*), and crested sculpin (*Blepsias bilobus*; Table 4). The most frequently-occurring species along a transect were spiny dogfish at MC and crested sculpin at IS (Table 5). Only two species, crested sculpin and wolf-eel (*Annarrhichthys ocellatus*), were captured on all four transects.

Onboard stomach analysis was completed on 48 potential predators of juvenile salmon in July, including all maturing or adult salmon and all large non-salmonids. Juvenile salmon were found in the gut of only one potential predator, one of the five adult coho salmon caught in NSE. Other incidences of piscivory were observed for other adult salmon, but not for the non-salmonids. For Chinook, of the two in SSE, the one at MC contained sandlance (*Ammodytes hexapterus*) and the one at LC was empty; in NSE, five Chinook in Icy Strait consumed lanternfish (Myctophidae) and three consumed unknown fish, while 3 of 4 Chinook in Upper Chatham ate Walleye pollock (*Theragra chalcogramma*). One coho contained unknown fish remains and one pink salmon consumed fish larvae, but no fish were present in sockeye diet. A variety of small, planktonic invertebrates was present in all salmon species diets, including crab larvae, hyperiid amphipods, shrimp, euphausiids, pteropods, and polychaetes; these prey groups as well as gelatinous taxa and “other” were also present in the dogfish guts. Empty guts were observed for 13 of the 21 dogfish, both of the chum salmon, and the Pacific hake (*Merluccius productus*).

Samples of juvenile salmon were collected for comparative bioenergetics/process studies between the regions (Table 7). The relatively high abundance and frequency of juvenile coho and sockeye salmon provided an opportunity to retain samples for comparison to the target species, juvenile chum and pink salmon. For juvenile chum salmon, 87 and 128 specimens were frozen for energy density measurements and 121 and 271 were preserved for diet studies in southern and northern Southeast Alaska, respectively; subsamples will be selected based on stock groups

identified from otolith thermal marks. For juvenile pink salmon, 97 and 60 were preserved and 566 and 360 were frozen from the two regions, respectively. For juvenile sockeye salmon, 32 and 24 specimens were preserved, and 61 and 19 were frozen. For juvenile coho, 88 and 177 specimens were frozen for energy analyses; diets will also be examined from a subset of these samples, since none were preserved. Subsamples of the pink, sockeye and coho salmon will be selected for processing to complement the juvenile chum salmon selected.

Stock identification information was available for salmon that lacked the adipose fin and contained CWTs in July. In SSE, two of the three Chinook contained CWTs (Table 8); these fish were released from the Columbia and Similkameen Rivers in Washington approximately three months before their capture in Lower Clarence Strait. None of the eight coho salmon contained CWTs; they likely originated from the Pacific Northwest, where adipose fin clipping is mandatory at hatcheries for management purposes. In NSE, four of the five juvenile coho captured did contain CWT's, all from Southeast Alaskan agencies. Fish from Mist cove, Port Armstrong, and Berners River (n = 2) were all caught in Icy Strait approximately two months after release.

#### **ACKNOWLEDGMENTS**

We acknowledge and compliment the command and crew of the NOAA ship *John N. Cobb* for their cooperation and performance during the cruise.

Table 1.—Localities and coordinates of stations scheduled for oceanographic and biological sampling in the marine waters of the northern and southern regions of Southeast Alaska using the NOAA ship *John N. Cobb*, 19 July to 1 August, 2006. Distance between stations within transect is indicated in the “offshore distance” column.

| Locality               | Station | Latitude   | Longitude   | Offshore distance (km) | Bottom depth (m) |
|------------------------|---------|------------|-------------|------------------------|------------------|
| <b>Northern region</b> |         |            |             |                        |                  |
| 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              |
| <b>Southern region</b> |         |            |             |                        |                  |
| Middle Clarence Strait | MCA     | 55°23.51'N | 131°55.49'W | 3.2                    | 346              |
| Middle Clarence Strait | MCB     | 55°24.26'N | 131°58.23'W | 6.4                    | 439              |
| Middle Clarence Strait | MCC     | 55°25.06'N | 132°01.19'W | 6.4                    | 412              |
| Middle Clarence Strait | MCD     | 55°25.79'N | 132°03.93'W | 3.2                    | 461              |
| Lower Clarence Strait  | LCA     | 55°07.53'N | 131°48.09'W | 3.2                    | 413              |
| Lower Clarence Strait  | LCB     | 55°07.32'N | 131°51.09'W | 6.4                    | 459              |
| Lower Clarence Strait  | LCC     | 55°07.14'N | 131°53.79'W | 6.4                    | 466              |
| Lower Clarence Strait  | LCD     | 55°06.93'N | 131°56.79'W | 3.2                    | 315              |

Table 2.—Oceanographic data and biological samples collected at stations sampled in the marine waters of the southern and northern regions of southeastern Alaska using the NOAA ship *John N. Cobb*, during cruise JC-06-10 on 19 July to 1 August, 2006. Water samples for nutrient-chlorophyll analyses were collected at the surface only. Bongo samples were collected only in Auke Bay, Icy Strait and Lower Clarence Strait, and include double-oblique hauls with paired 333- and 505- $\mu\text{m}$  mesh nets, to “shallow” and “deep” depths. Mean temperature and salinity (3-m), incident light level, Secchi depth, 20-m Norpac settled volumes, and jellyfish total volumes are indicated per transect, with total number of water and plankton samples collected.

| Station                            | Date      | Haul number | Time  | Temp. (°C)  | Salinity (PSU) | Light (W/m <sup>2</sup> ) | CTD (m) | Secchi (m) | Water samples | Bongo samples (n) | Norpac samples (n) | SV Norpac Zoop. (ml) | Jellyfish (liters) |
|------------------------------------|-----------|-------------|-------|-------------|----------------|---------------------------|---------|------------|---------------|-------------------|--------------------|----------------------|--------------------|
| <b>Southern region</b>             |           |             |       |             |                |                           |         |            |               |                   |                    |                      |                    |
| <b>Lower Clarence Strait (LC)</b>  |           |             |       |             |                |                           |         |            |               |                   |                    |                      |                    |
| LCD                                | 22-Jul-06 | 10054       | 7:30  | 14.3        | 27.3           | 113                       | 200     | 4          | 1             | 4                 | 1                  | 4.5                  | 145.5              |
| LCC                                | 22-Jul-06 | 10053       | 9:30  | 14.6        | 27.4           | 390                       | 200     | 4          | 1             | 4                 | 1                  | 11.0                 | 39.0               |
| LCB                                | 22-Jul-06 | 10052       | 11:50 | 14.8        | 27.4           | 797                       | 200     | 4.5        | 1             | 4                 | 1                  | 13.0                 | 42.0               |
| LCA                                | 22-Jul-06 | 10051       | 13:55 | 15.6        | 27.8           | 289                       | 200     | 3          | 1             | 4                 | 1                  | 8.0                  | 96.0               |
| LCD                                | 23-Jul-06 | 10058       | 7:55  | 14.2        | 27.4           | 87                        | 50      | 4          | 0             | 0                 | 1                  | 10.0                 | 128.0              |
| LCC                                | 23-Jul-06 | 10057       | 9:40  | 15.5        | 27.6           | 143                       | 50      | 3          | 0             | 0                 | 1                  | 15.0                 | 61.5               |
| LCB                                | 23-Jul-06 | 10056       | 11:40 | 15.5        | 27.5           | 162                       | 50      | 4          | 0             | 0                 | 1                  | 14.0                 | 30.5               |
| LCA                                | 23-Jul-06 | 10055       | 12:55 | 15.6        | 27.7           | 263                       | 50      | 3.5        | 0             | 0                 | 1                  | 8.5                  | 74.8               |
| LCD                                | 24-Jul-06 | 10064       | 7:50  | 13.8        | 28.7           | 75                        | 50      | 3          | 0             | 0                 | 1                  | 5.0                  | 66.8               |
| LCC                                | 24-Jul-06 | 10065       | 9:05  | 14.4        | 27.7           | 166                       | 50      | 4          | 0             | 0                 | 1                  | 10.0                 | 163.5              |
| LCB                                | 24-Jul-06 | 10066       | 11:30 | 15.0        | 27.3           | 280                       | 50      | 5          | 0             | 0                 | 1                  | 15.0                 | 76.0               |
| LCA                                | 24-Jul-06 | 10067       | 12:10 | 14.9        | 27.4           | 216                       | 50      | 4          | 0             | 0                 | 1                  | 14.0                 | 57.5               |
| <b>Subtotals, LC</b>               |           |             |       | <b>14.9</b> | <b>27.6</b>    | <b>248.0</b>              |         | <b>4</b>   | <b>4</b>      | <b>16</b>         | <b>12</b>          | <b>10.7</b>          | <b>81.8</b>        |
| <b>Middle Clarence Strait (MC)</b> |           |             |       |             |                |                           |         |            |               |                   |                    |                      |                    |
| MCA                                | 21-Jul-06 | 10059       | 7:30  | 13.8        | 28.5           | 78                        | 200     | 3          | 1             | 0                 | 1                  | 11.0                 | 149.5              |
| MCB                                | 21-Jul-06 | 10060       | 9:10  | 13.7        | 28.6           | 76                        | 200     | 3          | 1             | 0                 | 1                  | 5.0                  | 60.0               |
| MCC                                | 21-Jul-06 | 10061       | 11:40 | 13.4        | 28.9           | 297                       | 200     | 2.5        | 1             | 0                 | 1                  | 9.0                  | 33.0               |
| MCD                                | 21-Jul-06 | 10062       | 12:15 | 12.8        | 29.4           | 528                       | 200     | 2          | 1             | 0                 | 1                  | 5.0                  | 21.0               |
| MCD                                | 21-Jul-06 | 10063       | 14:45 | 13.1        | 29.3           | 230                       | 50      | 2          | 0             | 0                 | 1                  | 5.0                  | 10.5               |
| MCA                                | 25-Jul-06 | 10070       | 7:25  | 14.6        | 27.9           | 67                        | 50      | 4          | 0             | 0                 | 1                  | 8.0                  | 89.6               |
| MCB                                | 25-Jul-06 | 10069       | 8:55  | 14.4        | 28.0           | 218                       | 50      | 3          | 0             | 0                 | 1                  | 7.5                  | 63.5               |
| MCC                                | 25-Jul-06 | 10068       | 10:10 | 14.4        | 28.0           | 259                       | 50      | 3          | 0             | 0                 | 1                  | 8.0                  | 37.0               |



| Station                          | Date      | Haul number | Time  | Temp. (°C)  | Salinity (PSU) | Light (W/m <sup>2</sup> ) | CTD (m)   | Secchi (m) | Water samples | Bongo samples (n) | Norpac samples (n) | SV Norpac Zoop. (ml) | Jellyfish (liters) |
|----------------------------------|-----------|-------------|-------|-------------|----------------|---------------------------|-----------|------------|---------------|-------------------|--------------------|----------------------|--------------------|
| <b>Subtotals, MC</b>             |           |             |       | <b>13.8</b> | <b>28.6</b>    | <b>219.1</b>              |           | <b>3</b>   | <b>4</b>      | <b>0</b>          | <b>8</b>           | <b>7.3</b>           | <b>58.0</b>        |
| <b>Northern region</b>           |           |             |       |             |                |                           |           |            |               |                   |                    |                      |                    |
| <b>Inshore</b>                   |           |             |       |             |                |                           |           |            |               |                   |                    |                      |                    |
| ABM                              | 27-Jul-06 | 10071       | 10:45 | <b>12.0</b> | <b>15.6</b>    | <b>62</b>                 | <b>50</b> | <b>2</b>   | <b>1</b>      | <b>2</b>          | <b>3</b>           | <b>18.0</b>          | <b>--</b>          |
| <b>Icy Strait (IS)</b>           |           |             |       |             |                |                           |           |            |               |                   |                    |                      |                    |
| ISA                              | 28-Jul-06 | 10076       | 7:25  | 12.3        | 26.6           | 105                       | 90        | 5          | 1             | 4                 | 1                  | 5.0                  | 1.8                |
| ISB                              | 28-Jul-06 | 10077       | 9:30  | 12.6        | 25.7           | 268                       | 170       | 6          | 1             | 4                 | 1                  | 30.0                 | 1.5                |
| ISC                              | 28-Jul-06 | 10078       | 11:45 | 12.7        | 25.5           | 690                       | 200       | 6          | 1             | 4                 | 1                  | 5.0                  | 4.2                |
| ISD                              | 28-Jul-06 | 10079       | 13:58 | 11.3        | 28.2           | 800                       | 200       | 5          | 1             | 4                 | 1                  | 1.5                  | 12.0               |
| ISD                              | 29-Jul-06 | 10083       | 7:40  | 12.4        | 23.1           | 252                       | 50        | 5          | 0             | 0                 | 1                  | 3.0                  | 8.0                |
| ISC                              | 29-Jul-06 | 10082       | 9:20  | 12.4        | 25.1           | 594                       | 50        | 4.5        | 0             | 0                 | 1                  | 3.0                  | 10.5               |
| ISB                              | 29-Jul-06 | 10081       | 11:30 | 11.2        | 28.6           | 781                       | 50        | 5.5        | 0             | 0                 | 1                  | 4.5                  | 0.5                |
| ISA                              | 29-Jul-06 | 10080       | 12:45 | 12.0        | 27.8           | 809                       | 50        | 3          | 0             | 0                 | 1                  | 10.0                 | 1.9                |
| ISA                              | 31-Jul-06 | 10088       | 7:40  | 12.7        | 24.5           | 77                        | 50        | 4          | 0             | 0                 | 1                  | 12.0                 | 2.4                |
| ISB                              | 31-Jul-06 | 10089       | 9:05  | 12.9        | 24.7           | 118                       | 50        | 4.5        | 0             | 0                 | 1                  | 11.0                 | 5.2                |
| ISC                              | 31-Jul-06 | 10090       | 10:30 | 12.6        | 25.8           | 106                       | 50        | 4          | 0             | 0                 | 1                  | 3.0                  | 2.4                |
| ISD                              | 31-Jul-06 | 10091       | 12:00 | 13.0        | 24.3           | 139                       | 50        | 2.5        | 0             | 0                 | 1                  | 3.5                  | 6.5                |
| <b>Subtotals, IS</b>             |           |             |       | <b>12.3</b> | <b>25.8</b>    | <b>394.9</b>              |           | <b>4.6</b> | <b>4</b>      | <b>16</b>         | <b>12</b>          | <b>7.6</b>           | <b>4.7</b>         |
| <b>Upper Chatham Strait (UC)</b> |           |             |       |             |                |                           |           |            |               |                   |                    |                      |                    |
| UCD                              | 27-Jul-06 | 10072       | 13:25 | 11.9        | 27.8           | 233                       | 50        | 5          | 0             | 0                 | 1                  | 1.5                  | 3.5                |
| UCC                              | 27-Jul-06 | 10073       | 15:45 | 12.2        | 27.3           | 108                       | 50        | 5          | 0             | 0                 | 1                  | 1.5                  | 4.5                |
| UCA                              | 29-Jul-06 | 10075       | 16:05 | 13.7        | 18.9           | 589                       | 50        | 4          | 0             | 0                 | 1                  | 2.5                  | 2.0                |
| UCA                              | 30-Jul-06 | 10084       | 7:30  | 13.5        | 16.7           | 78                        | 200       | 4          | 1             | 0                 | 1                  | 5.0                  | 9.8                |
| UCB                              | 30-Jul-06 | 10085       | 9:05  | 13.3        | 19.1           | 214                       | 200       | 3          | 1             | 0                 | 1                  | 2.5                  | 4.3                |
| UCC                              | 30-Jul-06 | 10086       | 11:35 | 13.4        | 21.0           | 667                       | 150       | 5          | 1             | 0                 | 1                  | 1.5                  | 4.0                |
| UCD                              | 30-Jul-06 | 10087       | 12:57 | 13.7        | 22.2           | 512                       | 170       | 4          | 1             | 0                 | 1                  | 2.0                  | 31.9               |
| UCB                              | 30-Jul-06 | 10074       | 14:40 | 13.5        | 20.8           | 471                       | 50        | 4          | 0             | 0                 | 1                  | 3.5                  | 11.4               |
| <b>Subtotals, UC</b>             |           |             |       | <b>13.2</b> | <b>21.7</b>    | <b>359.0</b>              |           | <b>4.3</b> | <b>4</b>      | <b>0</b>          | <b>8</b>           | <b>2.5</b>           | <b>8.9</b>         |

Table 3.—Rope trawl catches of salmon at stations sampled in the marine waters of the southern and northern regions (n = 20 each) of southeastern Alaska, using the NOAA ship *John N. Cobb* during cruise JC-06-13, 19 July to 1 August, 2006. Transect and region summaries include total catch, CPUE, and percent frequency of occurrence (%FO). Abbreviations: juv. = juvenile, imm. = immature, ad. = adult.

| Station                                     | Date             | Haul number | Chum        | Pink         | Sockeye     | Coho         | Chinook     | Subtotal, Juv. salmon | Chum (Adult) | Pink (Adult) | Sockeye (Adult) | Coho (Adult) | Chinook (Imm.) | Chinook (Adult) | Subtotal, imm./ad. salmon |
|---|------------------|-------------|-------------|--------------|-------------|--------------|-------------|-----------------------|--------------|--------------|-----------------|--------------|----------------|-----------------|---------------------------|
| <b>Southern region</b>                      |                  |             |             |              |             |              |             |                       |              |              |                 |              |                |                 |                           |
| <b>Lower Clarence Strait (LC) transect</b>  |                  |             |             |              |             |              |             |                       |              |              |                 |              |                |                 |                           |
| LCD   | 7/22/2006        | 10054       | 4           | 6            | 0           | 4            | 0           | 14                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCC   | 7/22/2006        | 10053       | 13          | 113          | 9           | 2            | 2           | 139                   | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCB   | 7/22/2006        | 10052       | 6           | 16           | 7           | 3            | 0           | 32                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCA   | 7/22/2006        | 10051       | 5           | 1            | 0           | 8            | 0           | 14                    | 0            | 0            | 1               | 0            | 0              | 0               | 1                         |
| LCD   | 7/23/2006        | 10058       | 11          | 74           | 4           | 15           | 1           | 105                   | 0            | 1            | 0               | 0            | 0              | 0               | 1                         |
| LCC   | 7/23/2006        | 10057       | 10          | 55           | 12          | 3            | 0           | 80                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCB   | 7/23/2006        | 10056       | 4           | 23           | 1           | 2            | 0           | 30                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCA   | 7/23/2006        | 10055       | 0           | 12           | 0           | 2            | 1           | 15                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCD   | 7/24/2006        | 10064       | 1           | 10           | 1           | 1            | 0           | 13                    | 0            | 0            | 0               | 0            | 1              | 0               | 1                         |
| LCC   | 7/24/2006        | 10065       | 18          | 53           | 6           | 4            | 0           | 81                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCB   | 7/24/2006        | 10066       | 13          | 29           | 15          | 2            | 0           | 59                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| LCA   | 7/24/2006        | 10067       | 15          | 64           | 3           | 6            | 2           | 90                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
|   | <b>Total, LC</b> |             | <b>100</b>  | <b>456</b>   | <b>58</b>   | <b>52</b>    | <b>6</b>    | <b>672</b>            | <b>0</b>     | <b>1</b>     | <b>1</b>        | <b>0</b>     | <b>1</b>       | <b>0</b>        | <b>3</b>                  |
|   | <b>CPUE, LC</b>  |             | <b>8.3</b>  | <b>38.0</b>  | <b>4.8</b>  | <b>4.3</b>   | <b>0.5</b>  | <b>56.0</b>           | <b>0.0</b>   | <b>0.1</b>   | <b>0.1</b>      | <b>0.0</b>   | <b>0.1</b>     | <b>0.0</b>      | <b>0.3</b>                |
|   | <b>%FO, LC</b>   |             | <b>91.7</b> | <b>100.0</b> | <b>75.0</b> | <b>100.0</b> | <b>33.3</b> | <b>91.7</b>           | <b>0.0</b>   | <b>8.3</b>   | <b>8.3</b>      | <b>0.0</b>   | <b>8.3</b>     | <b>0.0</b>      | <b>33.3</b>               |
| <b>Middle Clarence Strait (MC) transect</b> |                  |             |             |              |             |              |             |                       |              |              |                 |              |                |                 |                           |
| MCA   | 7/21/2006        | 10059       | 10          | 7            | 2           | 1            | 0           | 20                    | 0            | 0            | 0               | 0            | 1              | 0               | 1                         |
| MCB   | 7/21/2006        | 10060       | 20          | 52           | 11          | 2            | 0           | 85                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| MCC   | 7/21/2006        | 10061       | 29          | 53           | 9           | 7            | 0           | 98                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| MCD   | 7/21/2006        | 10062       | 11          | 19           | 3           | 8            | 1           | 42                    | 1            | 0            | 0               | 0            | 0              | 0               | 1                         |
| MCD   | 7/21/2006        | 10063       | 8           | 46           | 8           | 4            | 0           | 66                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| MCA   | 7/25/2006        | 10070       | 10          | 8            | 1           | 3            | 0           | 22                    | 1            | 1            | 0               | 0            | 0              | 0               | 2                         |
| MCB   | 7/25/2006        | 10069       | 7           | 72           | 2           | 9            | 0           | 90                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
| MCC   | 7/25/2006        | 10068       | 12          | 5            | 0           | 2            | 0           | 19                    | 0            | 0            | 0               | 0            | 0              | 0               | 0                         |
|   | <b>Total, MC</b> |             | <b>107</b>  | <b>262</b>   | <b>36</b>   | <b>36</b>    | <b>1</b>    | <b>442</b>            | <b>2</b>     | <b>1</b>     | <b>0</b>        | <b>0</b>     | <b>1</b>       | <b>0</b>        | <b>4</b>                  |
|   | <b>CPUE, MC</b>  |             | <b>13.4</b> | <b>32.8</b>  | <b>4.5</b>  | <b>4.5</b>   | <b>0.1</b>  | <b>50.8</b>           | <b>0.3</b>   | <b>0.1</b>   | <b>0.0</b>      | <b>0.0</b>   | <b>0.1</b>     | <b>0.0</b>      | <b>0.5</b>                |

| Station | Date             | Haul number | Chum  | Pink  | Sockeye | Coho  | Chinook | Subtotal, Juv. salmon | Chum (Adult) | Pink (Adult) | Sockeye (Adult) | Coho (Adult) | Chinook (Imm.) | Chinook (Adult) | Subtotal, imm./ad. salmon |
|---------|------------------|-------------|-------|-------|---------|-------|---------|-----------------------|--------------|--------------|-----------------|--------------|----------------|-----------------|---------------------------|
|         | %FO, MC          |             | 100.0 | 100.0 | 87.5    | 100.0 | 12.5    | 100.0                 | 25.0         | 12.5         | 0.0             | 0.0          | 12.5           | 0.0             | 37.5                      |
|         | Grand total, SSE |             | 207   | 718   | 94      | 88    | 7       | 1114                  | 2            | 2            | 1               | 0            | 2              | 0               | 7                         |
|         | Grand CPUE, SSE  |             | 10.4  | 35.9  | 4.7     | 4.4   | 0.4     | 55.7                  | 0.1          | 0.1          | 0.1             | 0.0          | 0.1            | 0.0             | 0.4                       |
|         | Grand %FO, SSE   |             | 95.0  | 100.0 | 80.0    | 100.0 | 25.0    | 100.0                 | 10.0         | 10.0         | 5.0             | 0.0          | 10.0           | 0.0             | 35.0                      |

#### Northern region

##### Icy Strait (IS) transect

|     |                  |       |             |             |             |             |             |              |            |             |            |             |             |            |             |
|-----|------------------|-------|-------------|-------------|-------------|-------------|-------------|--------------|------------|-------------|------------|-------------|-------------|------------|-------------|
| ISA | 7/28/2006        | 10076 | 32          | 12          | 0           | 8           | 0           | 52           | 0          | 0           | 0          | 0           | 0           | 0          | 0           |
| ISB | 7/28/2006        | 10077 | 46          | 69          | 14          | 0           | 0           | 129          | 0          | 0           | 0          | 2           | 2           | 0          | 4           |
| ISC | 7/28/2006        | 10078 | 65          | 224         | 11          | 5           | 0           | 305          | 0          | 0           | 0          | 0           | 0           | 0          | 0           |
| ISD | 7/28/2006        | 10079 | 3           | 2           | 0           | 0           | 0           | 5            | 0          | 1           | 0          | 0           | 2           | 0          | 3           |
| ISD | 7/29/2006        | 10083 | 86          | 153         | 3           | 9           | 1           | 252          | 0          | 0           | 0          | 1           | 0           | 0          | 1           |
| ISC | 7/29/2006        | 10082 | 31          | 63          | 3           | 15          | 0           | 112          | 0          | 0           | 0          | 0           | 0           | 0          | 0           |
| ISB | 7/29/2006        | 10081 | 1           | 0           | 3           | 7           | 0           | 11           | 0          | 1           | 0          | 0           | 1           | 0          | 2           |
| ISA | 7/29/2006        | 10080 | 1           | 0           | 0           | 11          | 0           | 12           | 0          | 0           | 0          | 0           | 0           | 0          | 0           |
| ISA | 7/31/2006        | 10088 | 0           | 0           | 1           | 25          | 0           | 26           | 0          | 0           | 0          | 0           | 1           | 0          | 1           |
| ISB | 7/31/2006        | 10089 | 82          | 203         | 7           | 14          | 0           | 306          | 0          | 0           | 0          | 0           | 0           | 0          | 0           |
| ISC | 7/31/2006        | 10090 | 10          | 9           | 0           | 3           | 1           | 23           | 0          | 0           | 0          | 0           | 2           | 0          | 2           |
| ISD | 7/31/2006        | 10091 | 12          | 50          | 1           | 9           | 2           | 74           | 0          | 0           | 0          | 1           | 0           | 0          | 1           |
|     | <b>Total, IS</b> |       | <b>369</b>  | <b>785</b>  | <b>43</b>   | <b>106</b>  | <b>4</b>    | <b>1307</b>  | <b>0</b>   | <b>2</b>    | <b>0</b>   | <b>4</b>    | <b>8</b>    | <b>0</b>   | <b>14</b>   |
|     | <b>CPUE, IS</b>  |       | <b>30.8</b> | <b>65.4</b> | <b>3.6</b>  | <b>8.8</b>  | <b>0.3</b>  | <b>108.9</b> | <b>0.0</b> | <b>0.2</b>  | <b>0.0</b> | <b>0.3</b>  | <b>0.7</b>  | <b>0.0</b> | <b>1.2</b>  |
|     | <b>%FO, IS</b>   |       | <b>91.7</b> | <b>75.0</b> | <b>66.7</b> | <b>83.3</b> | <b>25.0</b> | <b>100.0</b> | <b>0.0</b> | <b>16.7</b> | <b>0.0</b> | <b>25.0</b> | <b>41.7</b> | <b>0.0</b> | <b>58.3</b> |

##### Upper Chatham Strait (UC) transect

|     |                  |       |           |           |          |           |          |            |          |          |          |          |          |          |          |
|-----|------------------|-------|-----------|-----------|----------|-----------|----------|------------|----------|----------|----------|----------|----------|----------|----------|
| UCD | 7/27/2006        | 10072 | 2         | 0         | 0        | 18        | 0        | 20         | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| UCC | 7/27/2006        | 10073 | 2         | 6         | 0        | 13        | 0        | 21         | 0        | 0        | 0        | 0        | 3        | 0        | 3        |
| UCA | 7/29/2006        | 10075 | 4         | 3         | 0        | 5         | 0        | 12         | 0        | 0        | 0        | 1        | 0        | 0        | 1        |
| UCA | 7/30/2006        | 10084 | 6         | 9         | 1        | 8         | 0        | 24         | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| UCB | 7/30/2006        | 10085 | 5         | 7         | 0        | 4         | 0        | 16         | 0        | 0        | 0        | 0        | 1        | 0        | 1        |
| UCC | 7/30/2006        | 10086 | 0         | 1         | 0        | 16        | 0        | 17         | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| UCD | 7/30/2006        | 10087 | 4         | 5         | 1        | 6         | 0        | 16         | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| UCB | 7/30/2006        | 10074 | 2         | 7         | 0        | 2         | 0        | 11         | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
|     | <b>Total, UC</b> |       | <b>25</b> | <b>38</b> | <b>2</b> | <b>72</b> | <b>0</b> | <b>137</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>4</b> | <b>0</b> | <b>5</b> |

| Station | Date             | Haul number | Chum | Pink | Sockeye | Coho  | Chinook | Subtotal, Juv. salmon | Chum (Adult) | Pink (Adult) | Sockeye (Adult) | Coho (Adult) | Chinook (Imm.) | Chinook (Adult) | Subtotal, imm./ad. salmon |
|---------|------------------|-------------|------|------|---------|-------|---------|-----------------------|--------------|--------------|-----------------|--------------|----------------|-----------------|---------------------------|
|         | CPUE, UC         |             | 3.1  | 4.8  | 0.3     | 9.0   | 0.0     | 17.1                  | 0.0          | 0.0          | 0.0             | 0.1          | 0.5            | 0.0             | 0.6                       |
|         | %FO, UC          |             | 87.5 | 87.5 | 25.0    | 100.0 | 0.0     | 100.0                 | 0.0          | 0.0          | 0.0             | 12.5         | 25.0           | 0.0             | 37.5                      |
|         | Grand total, NSE |             | 394  | 823  | 45      | 178   | 4       | 1444                  | 0            | 2            | 0               | 5            | 12             | 0               | 19                        |
|         | Grand CPUE, NSE  |             | 19.7 | 41.2 | 2.3     | 8.9   | 0.2     | 72.2                  | 0            | 0.1          | 0               | 0.3          | 0.6            | 0               | 1                         |
|         | Grand %FO, NSE   |             | 90.0 | 80.0 | 50.0    | 90.0  | 15.0    | 100.0                 | 0.0          | 10.0         | 0.0             | 20.0         | 35.0           | 0.0             | 50.0                      |

Table 4.—Juvenile, immature, and adult salmon, and non-salmonid catches, from 40 rope trawl hauls using the NOAA ship *John N. Cobb* in the marine waters of the southern and northern regions of southeastern Alaska, 19 July to 1 August, 2006.

| Station                                     | Date      | Haul Number | Subtotal, juv. salmon | Subtotal, imm./ad. salmon | Crested sculpin | Soft sculpin | Prowfish | Smooth lumpsucker | Spiny lumpsucker | Pacific herring | Pacific sandlance | Pacific hake | Walleye pollock larvae | unknown larvae | Pleuronectidae | Salmon shark | Spiny dogfish | Wolf-eel | Market squid | Total non-salmonids | Total fish  |
|---|-----------|-------------|-----------------------|---------------------------|-----------------|--------------|----------|-------------------|------------------|-----------------|-------------------|--------------|------------------------|----------------|----------------|--------------|---------------|----------|--------------|---------------------|-------------|
| <b>Southern region</b>                      |           |             |                       |                           |                 |              |          |                   |                  |                 |                   |              |                        |                |                |              |               |          |              |                     |             |
| <b>Lower Clarence Strait (LC) transect</b>  |           |             |                       |                           |                 |              |          |                   |                  |                 |                   |              |                        |                |                |              |               |          |              |                     |             |
| LCD   | 7/22/2006 | 10054       | 14                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 0                   | 14          |
| LCC   | 7/22/2006 | 10053       | 139                   | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 1                      | 0              | 0              | 0            | 0             | 0        | 2            | 3                   | 142         |
| LCB   | 7/22/2006 | 10052       | 32                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 1              | 0            | 0             | 0        | 0            | 1                   | 33          |
| LCA   | 7/22/2006 | 10051       | 14                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 8               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 8                   | 23          |
| LCD   | 7/23/2006 | 10058       | 105                   | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 0                   | 106         |
| LCC   | 7/23/2006 | 10057       | 80                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 1        | 0            | 1                   | 81          |
| LCB   | 7/23/2006 | 10056       | 30                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 1                      | 0              | 0              | 0            | 0             | 0        | 0            | 1                   | 31          |
| LCA   | 7/23/2006 | 10055       | 15                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 0                   | 15          |
| LCD   | 7/24/2006 | 10064       | 13                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 1            | 1                   | 15          |
| LCC   | 7/24/2006 | 10065       | 81                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 1        | 0            | 1                   | 82          |
| LCB   | 7/24/2006 | 10066       | 59                    | 0                         | 0               | 0            | 1        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 1        | 0            | 2                   | 61          |
| LCA   | 7/24/2006 | 10067       | 90                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 1            | 0             | 0        | 0            | 1                   | 91          |
| <b>Subtotal LC</b>                          |           |             | <b>672</b>            | <b>3</b>                  | <b>0</b>        | <b>0</b>     | <b>1</b> | <b>0</b>          | <b>0</b>         | <b>8</b>        | <b>0</b>          | <b>0</b>     | <b>2</b>               | <b>0</b>       | <b>1</b>       | <b>1</b>     | <b>0</b>      | <b>3</b> | <b>3</b>     | <b>19</b>           | <b>694</b>  |
| <b>Middle Clarence Strait (MC) transect</b> |           |             |                       |                           |                 |              |          |                   |                  |                 |                   |              |                        |                |                |              |               |          |              |                     |             |
| MCA   | 7/21/2006 | 10059       | 20                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 2                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 2                   | 23          |
| MCB   | 7/21/2006 | 10060       | 85                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 0                   | 85          |
| MCC   | 7/21/2006 | 10061       | 98                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 1                      | 0              | 0              | 0            | 1             | 0        | 0            | 2                   | 100         |
| MCD   | 7/21/2006 | 10062       | 42                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0        | 0            | 0                   | 43          |
| MCD   | 7/21/2006 | 10063       | 66                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 1             | 1        | 0            | 2                   | 68          |
| MCA   | 7/25/2006 | 10070       | 22                    | 2                         | 0               | 0            | 1        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 1             | 1        | 0            | 3                   | 27          |
| MCB   | 7/25/2006 | 10069       | 90                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 13            | 0        | 0            | 13                  | 103         |
| MCC   | 7/25/2006 | 10068       | 19                    | 0                         | 0               | 0            | 1        | 0                 | 0                | 0               | 0                 | 0            | 1                      | 0              | 0              | 0            | 5             | 1        | 0            | 8                   | 27          |
| <b>Subtotal MC</b>                          |           |             | <b>442</b>            | <b>4</b>                  | <b>0</b>        | <b>0</b>     | <b>2</b> | <b>0</b>          | <b>0</b>         | <b>0</b>        | <b>2</b>          | <b>0</b>     | <b>2</b>               | <b>0</b>       | <b>0</b>       | <b>0</b>     | <b>21</b>     | <b>3</b> | <b>0</b>     | <b>30</b>           | <b>476</b>  |
| <b>Grand total SSE</b>                      |           |             | <b>1114</b>           | <b>7</b>                  | <b>0</b>        | <b>0</b>     | <b>3</b> | <b>0</b>          | <b>0</b>         | <b>8</b>        | <b>2</b>          | <b>0</b>     | <b>4</b>               | <b>0</b>       | <b>1</b>       | <b>1</b>     | <b>21</b>     | <b>6</b> | <b>3</b>     | <b>49</b>           | <b>1170</b> |
| <b>Northern region</b>                      |           |             |                       |                           |                 |              |          |                   |                  |                 |                   |              |                        |                |                |              |               |          |              |                     |             |

| Station                                   | Date      | Haul Number | Subtotal, juv. salmon | Subtotal, imm./ad. salmon | Crested sculpin | Soft sculpin | Prowfish | Smooth lumpsucker | Spiny lumpsucker | Pacific herring | Pacific sandlance | Pacific hake | Walleye pollock larvae | unknown larvae | Pleuronectidae | Salmon shark | Spiny dogfish | Wolf-eel  | Market squid | Total non-salmonids | Total fish  |             |
|---|-----------|-------------|-----------------------|---------------------------|-----------------|--------------|----------|-------------------|------------------|-----------------|-------------------|--------------|------------------------|----------------|----------------|--------------|---------------|-----------|--------------|---------------------|-------------|-------------|
| <b>Icy Strait (IS) transect</b>           |           |             |                       |                           |                 |              |          |                   |                  |                 |                   |              |                        |                |                |              |               |           |              |                     |             |             |
| ISA                                       | 7/28/2006 | 10076       | 52                    | 0                         | 1               | 0            | 0        | 1                 | 1                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 3                   | 55          |             |
| ISB                                       | 7/28/2006 | 10077       | 129                   | 4                         | 1               | 0            | 0        | 0                 | 1                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 2                   | 135         |             |
| ISC                                       | 7/28/2006 | 10078       | 305                   | 0                         | 3               | 0            | 1        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 4                   | 309         |             |
| ISD                                       | 7/28/2006 | 10079       | 5                     | 3                         | 1               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 1         | 0            | 2                   | 10          |             |
| ISD                                       | 7/29/2006 | 10083       | 252                   | 1                         | 2               | 0            | 1        | 0                 | 0                | 2               | 0                 | 0            | 0                      | 2              | 0              | 0            | 0             | 0         | 0            | 7                   | 260         |             |
| ISC                                       | 7/29/2006 | 10082       | 112                   | 0                         | 2               | 0            | 0        | 0                 | 0                | 0               | 0                 | 1            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 3                   | 115         |             |
| ISB                                       | 7/29/2006 | 10081       | 11                    | 2                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 13          |             |
| ISA                                       | 7/29/2006 | 10080       | 12                    | 0                         | 1               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 1                   | 13          |             |
| ISA                                       | 7/31/2006 | 10088       | 26                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 27          |             |
| ISB                                       | 7/31/2006 | 10089       | 306                   | 0                         | 1               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 1                   | 307         |             |
| ISC                                       | 7/31/2006 | 10090       | 23                    | 2                         | 0               | 1            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 1                   | 26          |             |
| ISD                                       | 7/31/2006 | 10091       | 74                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 75          |             |
| <b>Subtotal IS</b>                        |           |             | <b>1307</b>           | <b>14</b>                 | <b>12</b>       | <b>1</b>     | <b>2</b> | <b>1</b>          | <b>2</b>         | <b>2</b>        | <b>0</b>          | <b>1</b>     | <b>0</b>               | <b>2</b>       | <b>0</b>       | <b>0</b>     | <b>0</b>      | <b>1</b>  | <b>0</b>     | <b>24</b>           | <b>1345</b> |             |
| <b>Upper Chatham Strait (UC) transect</b> |           |             |                       |                           |                 |              |          |                   |                  |                 |                   |              |                        |                |                |              |               |           |              |                     |             |             |
| UCD                                       | 7/27/2006 | 10072       | 20                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 20          |             |
| UCC                                       | 7/27/2006 | 10073       | 21                    | 3                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 24          |             |
| UCA                                       | 7/29/2006 | 10075       | 12                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 1               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 1                   | 14          |             |
| UCA                                       | 7/30/2006 | 10084       | 24                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 24          |             |
| UCB                                       | 7/30/2006 | 10085       | 16                    | 1                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 0                   | 17          |             |
| UCC                                       | 7/30/2006 | 10086       | 17                    | 0                         | 0               | 0            | 0        | 0                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 1             | 0         | 0            | 1                   | 18          |             |
| UCD                                       | 7/30/2006 | 10087       | 16                    | 0                         | 1               | 0            | 1        | 0                 | 0                | 24              | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 26                  | 42          |             |
| UCB                                       | 7/30/2006 | 10074       | 11                    | 0                         | 1               | 0            | 0        | 2                 | 0                | 0               | 0                 | 0            | 0                      | 0              | 0              | 0            | 0             | 0         | 0            | 3                   | 14          |             |
| <b>Subtotal UC</b>                        |           |             | <b>137</b>            | <b>5</b>                  | <b>2</b>        | <b>0</b>     | <b>1</b> | <b>2</b>          | <b>0</b>         | <b>25</b>       | <b>0</b>          | <b>0</b>     | <b>0</b>               | <b>0</b>       | <b>0</b>       | <b>0</b>     | <b>0</b>      | <b>1</b>  | <b>0</b>     | <b>31</b>           | <b>173</b>  |             |
| <b>Grand total NSE</b>                    |           |             | <b>1444</b>           | <b>19</b>                 | <b>14</b>       | <b>1</b>     | <b>3</b> | <b>3</b>          | <b>2</b>         | <b>27</b>       | <b>0</b>          | <b>1</b>     | <b>0</b>               | <b>2</b>       | <b>0</b>       | <b>0</b>     | <b>0</b>      | <b>2</b>  | <b>0</b>     | <b>55</b>           | <b>1518</b> |             |
| <b>July grand total</b>                   |           |             | <b>2558</b>           | <b>26</b>                 | <b>0</b>        | <b>14</b>    | <b>1</b> | <b>6</b>          | <b>3</b>         | <b>2</b>        | <b>35</b>         | <b>2</b>     | <b>1</b>               | <b>4</b>       | <b>2</b>       | <b>1</b>     | <b>1</b>      | <b>21</b> | <b>8</b>     | <b>3</b>            | <b>104</b>  | <b>2688</b> |

Table 5.—Frequency of occurrence (FO) and %FO of fish caught in 40 rope trawl hauls using the *John N. Cobb* in the marine waters of the southern and northern regions of southeastern Alaska, 19 July to 1 August, 2006. The number of hauls per transect is shown in parentheses.

| Common name                      | Genus and species or Family    | Southern region            |       |                            |       | Northern region |      |                          |       |
|----------------------------------|--------------------------------|----------------------------|-------|----------------------------|-------|-----------------|------|--------------------------|-------|
|                                  |                                | Lower Clarence Strait (12) |       | Middle Clarence Strait (8) |       | Icy Strait (12) |      | Upper Chatham Strait (8) |       |
|                                  |                                | FO                         | %FO   | FO                         | %FO   | FO              | %FO  | FO                       | %FO   |
| <b>Juvenile salmon</b>           |                                |                            |       |                            |       |                 |      |                          |       |
| Chum                             | <i>Oncorhynchus keta</i>       | 11                         | 91.7  | 8                          | 100.0 | 11              | 91.7 | 7                        | 87.5  |
| Pink                             | <i>O. gorbuscha</i>            | 12                         | 100.0 | 8                          | 100.0 | 9               | 75.0 | 7                        | 87.5  |
| Sockeye                          | <i>O. nerka</i>                | 9                          | 75.0  | 7                          | 87.5  | 8               | 66.7 | 2                        | 25.0  |
| Coho                             | <i>O. kisutch</i>              | 12                         | 100.0 | 8                          | 100.0 | 10              | 83.3 | 8                        | 100.0 |
| Chinook                          | <i>O. tshawytscha</i>          | 4                          | 33.3  | 1                          | 12.5  | 4               | 33.3 | 0                        | 0.0   |
| <b>Immature and adult salmon</b> |                                |                            |       |                            |       |                 |      |                          |       |
| Chum (Adult)                     | <i>O.s keta</i>                | 0                          | 0.0   | 2                          | 25.0  | 0               | 0.0  | 0                        | 0.0   |
| Pink (Adult)                     | <i>O. gorbuscha</i>            | 1                          | 8.3   | 1                          | 12.5  | 2               | 16.7 | 0                        | 0.0   |
| Sockeye (Adult)                  | <i>O. nerka</i>                | 1                          | 8.3   | 0                          | 0.0   | 0               | 0.0  | 0                        | 0.0   |
| Coho (Adult)                     | <i>O. kisutch</i>              | 0                          | 0.0   | 0                          | 0.0   | 3               | 25.0 | 1                        | 12.5  |
| Chinook (Imm.)                   | <i>O. tshawytscha</i>          | 1                          | 8.3   | 1                          | 12.5  | 5               | 41.7 | 2                        | 25.0  |
| <b>Non-salmonids</b>             |                                |                            |       |                            |       |                 |      |                          |       |
| Pacific herring                  | <i>Clupea pallasii</i>         | 1                          | 8.3   | 0                          | 0.0   | 1               | 8.3  | 2                        | 25.0  |
| Walleye pollock                  | <i>Theragra chalcogramma</i>   | 2                          | 16.7  | 2                          | 25.0  | 0               | 0.0  | 0                        | 0.0   |
| Pacific hake                     | <i>Merluccius productus</i>    | 0                          | 0.0   | 0                          | 0.0   | 1               | 8.3  | 0                        | 0.0   |
| Crested sculpin                  | <i>Blepsias bilobus</i>        | 0                          | 0.0   | 0                          | 0.0   | 8               | 66.7 | 2                        | 25.0  |
| Prowfish                         | <i>Zaprora silenus</i>         | 1                          | 8.3   | 2                          | 25.0  | 2               | 16.7 | 1                        | 12.5  |
| Sp. lump sucker                  | <i>Psychrolutes sigalutes</i>  | 0                          | 0.0   | 0                          | 0.0   | 2               | 16.7 | 0                        | 0.0   |
| Sm. lump sucker                  | <i>Eumicrotremus orbis</i>     | 0                          | 0.0   | 0                          | 0.0   | 1               | 8.3  | 1                        | 12.5  |
| Soft sculpin                     | <i>Aptocyclus ventricosus</i>  | 0                          | 0.0   | 0                          | 0.0   | 1               | 8.3  | 0                        | 0.0   |
| Pacific sand lance               | <i>Ammodytes hexapterus</i>    | 0                          | 0.0   | 1                          | 12.5  | 0               | 0.0  | 0                        | 0.0   |
| Pleuronectidae                   | Pleuronectidae                 | 1                          | 8.3   | 0                          | 0.0   | 0               | 0.0  | 0                        | 0.0   |
| Wolf-eel                         | <i>Anarrhichthys ocellatus</i> | 3                          | 25.0  | 3                          | 37.5  | 1               | 8.3  | 1                        | 12.5  |
| Salmon shark                     | <i>Lamna ditropis</i>          | 1                          | 8.3   | 0                          | 0.0   | 0               | 0.0  | 0                        | 0.0   |
| Spiny dogfish                    | <i>Squalus acanthias</i>       | 0                          | 0.0   | 5                          | 62.5  | 0               | 0.0  | 0                        | 0.0   |
| Unknown larvae                   | Teleostidae                    | 0                          | 0.0   | 0                          | 0.0   | 1               | 8.3  | 0                        | 0.0   |
| Market squid                     | <i>Loligo opalescens</i>       | 2                          | 16.7  | 0                          | 0.0   | 0               | 0.0  | 0                        | 0.0   |

Table 6. —Length (minimum, maximum, mean and standard deviation, SD, of fork length) and life history stage of fish measured from 44 rope trawl hauls using the NOAA ship *John N. Cobb* in the marine waters of the southern and northern regions of southeastern Alaska, 19 July to 1 August, 2006. Life history stage abbreviations are: L = larval fish, J = juvenile in first year at sea, I = immature, and A = mature adult.

| Common name                   | Genus and species or Family    | Number measured | Life history stage | Min length (mm) | Max length (mm) | Mean length (mm) | SD length (mm) |
|-------------------------------|--------------------------------|-----------------|--------------------|-----------------|-----------------|------------------|----------------|
| <b>Southern region</b>        |                                |                 |                    |                 |                 |                  |                |
| <b>Lower Clarence Strait</b>  |                                |                 |                    |                 |                 |                  |                |
| Chum                          | <i>O. keta</i>                 | 101             | J                  | 105             | 191             | 139.4            | 19.3           |
| Pink                          | <i>Oncorhynchus gorbuscha</i>  | 466             | J                  | 92              | 182             | 122.9            | 14.2           |
| Sockeye                       | <i>O. nerka</i>                | 57              | J                  | 101             | 177             | 131.3            | 16.1           |
| Coho                          | <i>O. kisutch</i>              | 52              | J                  | 174             | 255             | 206.7            | 19.8           |
| Chinook                       | <i>O. tshawytscha</i>          | 6               | J                  | 183             | 255             | 213.5            | 28.8           |
| Pink                          | <i>O. gorbuscha</i>            | 1               | A                  | 560             | 560             | 560.0            | --             |
| Chinook                       | <i>O. keta</i>                 | 1               | I                  | 895             | 895             | 895.0            | --             |
| Sockeye                       | <i>O. nerka</i>                | 1               | A                  | 571             | 571             | 571.0            | --             |
| Pacific herring               | <i>Clupea pallasii</i>         | 8               | J                  | 137             | 148             | 142.5            | 3.8            |
| Walleye pollock               | <i>Theragra chalcogramma</i>   | 2               | L                  | 56              | 71              | 63.5             | 10.6           |
| Prowfish                      | <i>Zaprora silenus</i>         | 1               | J                  | 147             | 147             | 147.0            |                |
| Pleuronectidae                | Pleuronectidae                 | 1               | J                  | 35              | 35              | 35.0             |                |
| Wolf-eel                      | <i>Anarrhichthys ocellatus</i> | 3               | J                  | 243             | 440             | 309.7            | 112.9          |
| Salmon shark                  | <i>Lamna ditropis</i>          | 1               | A                  | 2000            | 2000            | 2000.0           |                |
| Market squid                  | <i>Loligo opalescens</i>       | 3               | J                  | 40              | 99              | 76.0             | 31.6           |
| <b>Middle Clarence Strait</b> |                                |                 |                    |                 |                 |                  |                |
| Chum                          | <i>O. keta</i>                 | 107             | J                  | 97              | 197             | 139.0            | 18.5           |
| Pink                          | <i>O. gorbuscha</i>            | 262             | J                  | 92              | 163             | 126.0            | 13.3           |
| Sockeye                       | <i>O. nerka</i>                | 36              | J                  | 90              | 177             | 131.7            | 15.5           |
| Coho                          | <i>O. kisutch</i>              | 36              | J                  | 148             | 264             | 207.2            | 26.0           |
| Chinook                       | <i>O. tshawytscha</i>          | 1               | J                  | 305             | 305             | 305.0            |                |
| Pink                          | <i>O. gorbuscha</i>            | 1               | A                  | 525             | 525             | 525.0            |                |
| Chinook                       | <i>O. tshawytscha</i>          | 1               | I                  | 393             | 393             | 393.0            |                |
| Chum                          | <i>O. keta</i>                 | 2               | A                  | 708             | 790             | 749.0            | 58.0           |
| Walleye pollock               | <i>T. chalcogramma</i>         | 2               | L                  | 53              | 57              | 55.0             | 2.8            |
| Prowfish                      | <i>Z. silenus</i>              | 2               | J                  | 110             | 128             | 119.0            | 12.7           |
| Wolf-eel                      | <i>A. ocellatus</i>            | 3               | J                  | 290             | 405             | 366.7            | 66.4           |
| Spiny dogfish                 | <i>Squalus acanthias</i>       | 21              | A                  | 465             | 744             | 596.3            | 59.8           |
| Pacific sandlance             | <i>Ammodytes hexapterus</i>    | 2               | J                  | 83              | 85              | 84.0             | 1.4            |
| <b>Northern region</b>        |                                |                 |                    |                 |                 |                  |                |
| <b>Icy Strait</b>             |                                |                 |                    |                 |                 |                  |                |
| Chum                          | <i>O. keta</i>                 | 374             | J                  | 93              | 205             | 137.3            | 17.5           |
| Pink                          | <i>O. gorbuscha</i>            | 783             | J                  | 81              | 174             | 117.7            | 11.9           |
| Sockeye                       | <i>O. nerka</i>                | 41              | J                  | 66              | 195             | 130.1            | 32.3           |
| Coho                          | <i>O. kisutch</i>              | 105             | J                  | 136             | 249             | 197.5            | 22.3           |



| Common name                 | Genus and species or Family   | Number measured | Life history stage | Min length (mm) | Max length (mm) | Mean length (mm) | SD length (mm) |
|-----------------------------|-------------------------------|-----------------|--------------------|-----------------|-----------------|------------------|----------------|
| Chinook                     | <i>O. tshawytscha</i>         | 5               | J                  | 206             | 230             | 218.0            | 9.2            |
| Pink                        | <i>O. gorbuscha</i>           | 2               | A                  | 502             | 525             | 513.5            | 16.3           |
| Coho                        | <i>O. kisutch</i>             | 4               | A                  | 565             | 645             | 609.8            | 41.0           |
| Chinook                     | <i>O. tshawytscha</i>         | 8               | I                  | 375             | 563             | 461.4            | 61.8           |
| Pacific herring             | <i>C. pallasii</i>            | 2               | J                  | 139             | 139             | 139.0            | 0.0            |
| Pacific hake                | <i>Merluccius productus</i>   | 1               | A                  | 570             | 570             | 570.0            |                |
| Prowfish                    | <i>Z. silenus</i>             | 2               | J                  | 81              | 92              | 86.5             | 7.8            |
| Wolf-eel                    | <i>A. ocellatus</i>           | 1               | J                  | 135             | 135             | 135.0            |                |
| Crested sculpin             | <i>Blepsias bilobus</i>       | 12              | J                  | 75              | 113             | 99.6             | 10.7           |
| Soft sculpin                | <i>Psychrolutes sigalutes</i> | 1               | J                  | 17              | 17              | 17.0             |                |
| Sp. lumpsucker              | <i>Eumicrotremus orbis</i>    | 2               | J                  | 60              | 80              | 70.0             | 14.1           |
| Sm. lumpsucker              | <i>Aptocyclus ventricosus</i> | 1               | A                  | 150             | 150             | 150.0            |                |
| Unknown larvae              | Teleostidae                   | 2               | L                  | 26              | 34              | 30.0             | 5.7            |
| <b>Upper Chatham Strait</b> |                               |                 |                    |                 |                 |                  |                |
| Chum                        | <i>O. keta</i>                | 25              | J                  | 96              | 167             | 135.0            | 19.5           |
| Pink                        | <i>O. gorbuscha</i>           | 38              | J                  | 95              | 158             | 121.3            | 13.7           |
| Sockeye                     | <i>O. nerka</i>               | 2               | J                  | 97              | 113             | 105.0            | 11.3           |
| Coho                        | <i>O. kisutch</i>             | 72              | J                  | 121             | 245             | 194.3            | 23.2           |
| Coho                        | <i>O. kisutch</i>             | 1               | A                  | 655             | 655             | 655.0            |                |
| Chinook                     | <i>O. tshawytscha</i>         | 4               | I                  | 325             | 472             | 364.8            | 71.6           |
| Pacific herring             | <i>C. pallasii</i>            | 25              | J                  | 107             | 141             | 123.0            | 8.6            |
| Prowfish                    | <i>Z. silenus</i>             | 1               | J                  | 94              | 94              | 94.0             |                |
| Wolf-eel                    | <i>A. ocellatus</i>           | 1               | A                  | 375             | 375             | 375.0            |                |
| Crested sculpin             | <i>B. bilobus</i>             | 2               | J                  | 105             | 111             | 108.0            | 4.2            |
| Sm. lumpsucker              | <i>A. ventricosus</i>         | 2               | J                  | 155             | 210             | 182.5            | 38.9           |

Table 7.— Numbers of juvenile salmon frozen for calorimetry or preserved for diet studies, collected in the marine waters of two regions of southeastern Alaska, 19 July to 1 August, 2006.

| Date                          | Station | Haul Number | Preserved |           |           |          | Frozen    |            |           |           |  |
|-------------------------------|---------|-------------|-----------|-----------|-----------|----------|-----------|------------|-----------|-----------|--|
|                               |         |             | Chum      | Pink      | Sockeye   | Coho     | Chum      | Pink       | Sockeye   | Coho      |  |
| <b>Southern Region</b>        |         |             |           |           |           |          |           |            |           |           |  |
| <b>Lower Clarence Strait</b>  |         |             |           |           |           |          |           |            |           |           |  |
| 7/22/2006                     | LCA     | 10051       | 0         | 0         | 0         | 0        | 5         | 1          | 0         | 8         |  |
| 7/23/2006                     | LCA     | 10055       | 0         | 0         | 0         | 0        | 0         | 12         | 0         | 2         |  |
| 7/24/2006                     | LCA     | 10067       | 9         | 10        | 2         | 0        | 7         | 53         | 0         | 6         |  |
| 7/22/2006                     | LCB     | 10052       | 0         | 0         | 0         | 0        | 6         | 16         | 7         | 3         |  |
| 7/23/2006                     | LCB     | 10056       | 4         | 13        | 0         | 0        | 0         | 10         | 1         | 2         |  |
| 7/24/2006                     | LCB     | 10066       | 0         | 0         | 10        | 0        | 13        | 29         | 5         | 2         |  |
| 7/22/2006                     | LCC     | 10053       | 0         | 10        | 0         | 0        | 13        | 49         | 9         | 2         |  |
| 7/23/2006                     | LCC     | 10057       | 10        | 11        | 12        | 0        | 0         | 44         | 0         | 3         |  |
| 7/24/2006                     | LCC     | 10065       | 9         | 0         | 0         | 0        | 9         | 53         | 6         | 4         |  |
| 7/22/2006                     | LCD     | 10054       | 0         | 0         | 0         | 0        | 4         | 6          | 0         | 4         |  |
| 7/23/2006                     | LCD     | 10058       | 11        | 10        | 0         | 0        | 0         | 64         | 4         | 15        |  |
| 7/24/2006                     | LCD     | 10064       | 0         | 0         | 0         | 0        | 1         | 10         | 1         | 1         |  |
| <b>Subtotal, LC</b>           |         |             | <b>43</b> | <b>54</b> | <b>24</b> | <b>0</b> | <b>58</b> | <b>347</b> | <b>33</b> | <b>52</b> |  |
| <b>Middle Clarence Strait</b> |         |             |           |           |           |          |           |            |           |           |  |
| 7/21/2006                     | MCA     | 10059       | 0         | 0         | 0         | 0        | 10        | 7          | 2         | 1         |  |
| 7/25/2006                     | MCA     | 10070       | 10        | 8         | 0         | 0        | 0         | 0          | 1         | 3         |  |
| 7/21/2006                     | MCB     | 10060       | 10        | 15        | 0         | 0        | 10        | 37         | 11        | 2         |  |
| 7/25/2006                     | MCB     | 10069       | 0         | 0         | 0         | 0        | 7         | 72         | 2         | 9         |  |
| 7/21/2006                     | MCC     | 10061       | 10        | 10        | 0         | 0        | 19        | 43         | 9         | 7         |  |
| 7/25/2006                     | MCC     | 10068       | 6         | 0         | 0         | 0        | 6         | 5          | 0         | 2         |  |
| 7/21/2006                     | MCD     | 10062       | 0         | 0         | 0         | 0        | 11        | 19         | 3         | 8         |  |
| 7/21/2006                     | MCD     | 10063       | 8         | 10        | 8         | 0        | 0         | 36         | 0         | 4         |  |
| <b>Subtotal, MC</b>           |         |             | <b>44</b> | <b>43</b> | <b>8</b>  | <b>0</b> | <b>63</b> | <b>219</b> | <b>28</b> | <b>36</b> |  |
| <b>Northern Region</b>        |         |             |           |           |           |          |           |            |           |           |  |
| <b>Icy Strait</b>             |         |             |           |           |           |          |           |            |           |           |  |
| 7/28/2006                     | ISA     | 10076       | 0         | 0         | 0         | 0        | 32        | 12         | 0         | 8         |  |
| 7/29/2006                     | ISA     | 10080       | 0         | 0         | 0         | 0        | 1         | 0          | 0         | 11        |  |
| 7/31/2006                     | ISA     | 10088       | 0         | 0         | 0         | 0        | 0         | 0          | 1         | 25        |  |
| 7/28/2006                     | ISB     | 10077       | 10        | 10        | 6         | 0        | 40        | 59         | 6         | 0         |  |
| 7/29/2006                     | ISB     | 10081       | 0         | 0         | 0         | 0        | 1         | 0          | 3         | 7         |  |
| 7/31/2006                     | ISB     | 10089       | 41        | 10        | 7         | 0        | 40        | 50         | 0         | 14        |  |

| Date                        | Station | Haul<br>Number | Preserved  |           |           |          | Frozen     |            |           |            |
|-----------------------------|---------|----------------|------------|-----------|-----------|----------|------------|------------|-----------|------------|
|                             |         |                | Chum       | Pink      | Sockeye   | Coho     | Chum       | Pink       | Sockeye   | Coho       |
| 7/28/2006                   | ISC     | 10078          | 20         | 10        | 11        | 0        | 47         | 48         | 0         | 5          |
| 7/29/2006                   | ISC     | 10082          | 15         | 10        | 0         | 0        | 16         | 52         | 3         | 14         |
| 7/31/2006                   | ISC     | 10090          | 0          | 0         | 0         | 0        | 10         | 9          | 0         | 3          |
| 7/28/2006                   | ISD     | 10079          | 0          | 0         | 0         | 0        | 3          | 2          | 0         | 0          |
| 7/29/2006                   | ISD     | 10083          | 30         | 10        | 0         | 0        | 56         | 50         | 3         | 9          |
| 7/31/2006                   | ISD     | 10091          | 12         | 10        | 0         | 0        | 0          | 40         | 1         | 9          |
| <b>Subtotal, IS</b>         |         |                | <b>128</b> | <b>60</b> | <b>24</b> | <b>0</b> | <b>246</b> | <b>322</b> | <b>17</b> | <b>105</b> |
| <b>Upper Chatham Strait</b> |         |                |            |           |           |          |            |            |           |            |
| 7/29/2006                   | UCA     | 10075          | 0          | 0         | 0         | 0        | 4          | 3          | 0         | 5          |
| 7/30/2006                   | UCA     | 10084          | 0          | 0         | 0         | 0        | 6          | 9          | 1         | 8          |
| 7/30/2006                   | UCB     | 10074          | 0          | 0         | 0         | 0        | 2          | 7          | 0         | 2          |
| 7/30/2006                   | UCB     | 10085          | 0          | 0         | 0         | 0        | 5          | 7          | 0         | 4          |
| 7/27/2006                   | UCC     | 10073          | 0          | 0         | 0         | 0        | 2          | 6          | 0         | 13         |
| 7/30/2006                   | UCC     | 10086          | 0          | 0         | 0         | 0        | 0          | 1          | 0         | 16         |
| 7/27/2006                   | UCD     | 10072          | 0          | 0         | 0         | 0        | 2          | 0          | 0         | 18         |
| 7/30/2006                   | UCD     | 10087          | 0          | 0         | 0         | 0        | 4          | 5          | 1         | 6          |
| <b>Subtotal, UC</b>         |         |                | <b>0</b>   | <b>0</b>  | <b>0</b>  | <b>0</b> | <b>25</b>  | <b>38</b>  | <b>2</b>  | <b>72</b>  |

Table 8.—Release and recovery information for salmon that were caught in rope trawl hauls using the NOAA ship *John N. Cobb* in two regions of southeastern Alaska, 19 July to 1 August 2006, and that lacked the adipose fin, indicating possible presence of a coded-wire tag. Numbers of fish is in parentheses. Agency acronym definitions are: ADFG = Alaska Department of Fish and Game, ARMK = Armstrong Keta Hatchery, DIPAC = Douglas Island Pink and Chum Corporation, NSRAA = Northern Southeast Regional Aquaculture Association, SSRAA = Southern Southeast Regional Aquaculture Association, ODFW = Oregon Department of Fish and Wildlife, WDFW = Washington Department of Fish and Wildlife, and QUIN = Quinault Indian Nation. ND = no data.

| Release information    |             |          |        |            |              |                          | Recovery information |             |                |                 |                  |          |
|------------------------|-------------|----------|--------|------------|--------------|--------------------------|----------------------|-------------|----------------|-----------------|------------------|----------|
| Haul num.              | Fish number | Tag code | Agency | Brood year | Release date | Release locality         | Release size (g)     | Recov. date | Recov. station | Recov. size (g) | Recov. size (mm) | Days out |
| <b>Southern region</b> |             |          |        |            |              |                          |                      |             |                |                 |                  |          |
| <b>Chinook (3)</b>     |             |          |        |            |              |                          |                      |             |                |                 |                  |          |
| 10058                  | 1           | 63:30/94 | WDFW   | 2004       | 5/1/2006     | Columbia R., WA          | 58.9                 | 7/23/2006   | LCD            | 222.1           | 255              | 83       |
| 10067                  | 1           | 63:31/68 | WDFW   | 2004       | 4/17/2006    | Similkameen R., WA       | 29.8                 | 7/24/2006   | LCA            | 183.6           | 241              | 98       |
| 10062                  | 1           | No tag   |        |            |              |                          |                      | 7/21/2006   | MCD            | 329.0           | 305              |          |
| <b>Coho (8)</b>        |             |          |        |            |              |                          |                      |             |                |                 |                  |          |
| 10051                  | 1           | No tag   |        |            |              |                          |                      | 7/22/2006   | LCA            | 130.3           | 213              |          |
| 10053                  | 3           | No tag   |        |            |              |                          |                      | 7/22/2006   | LCC            | 127.4           | 216              |          |
| 10058                  | 2           | No tag   |        |            |              |                          |                      | 7/23/2006   | LCD            | 181.0           | 254              |          |
| 10065                  | 1           | No tag   |        |            |              |                          |                      | 7/24/2006   | LCC            | 167.2           | 244              |          |
| 10061                  | 1           | No tag   |        |            |              |                          |                      | 7/21/2006   | MCC            | 168.1           | 238              |          |
| 10062                  | 2           | No tag   |        |            |              |                          |                      | 7/21/2006   | MCD            | 134.0           | 221              |          |
| 10062                  | 3           | No tag   |        |            |              |                          |                      | 7/21/2006   | MCD            | 191.5           | 249              |          |
| 10069                  | 1           | No tag   |        |            |              |                          |                      | 7/25/2006   | MCB            | 194.5           | 249              |          |
| <b>Northern region</b> |             |          |        |            |              |                          |                      |             |                |                 |                  |          |
| <b>Coho (5)</b>        |             |          |        |            |              |                          |                      |             |                |                 |                  |          |
| 10076                  | 1           | 04:13/13 | NSRAA  | 2004       | 5/31/2006    | Mist Cove. AK            | 19.0                 | 7/28/2006   | ISA            | 166.2           | 249              | 58       |
| 10080                  | 1           | 04:12/80 | AKI    | 2004       | 6/7/2006     | Port Armstrong, AK       | 19.3                 | 7/29/2006   | ISA            | 113.7           | 211              | 52       |
| 10081                  | 1           | 04:12/16 | ADFG   | 2004       | 5/23/2006    | Berners River, AK (Wild) |                      | 7/29/2006   | ISB            | 118.4           | 213              | 67       |
| 10082                  | 1           | 04:12/16 | ADFG   | 2004       | 5/23/2006    | Berners River, AK (Wild) |                      | 7/29/2006   | ISC            | 111.5           | 209              | 67       |
| 10086                  | 1           | No tag   |        |            |              |                          |                      | 7/30/2006   | UCC            | 112.7           | 213              |          |

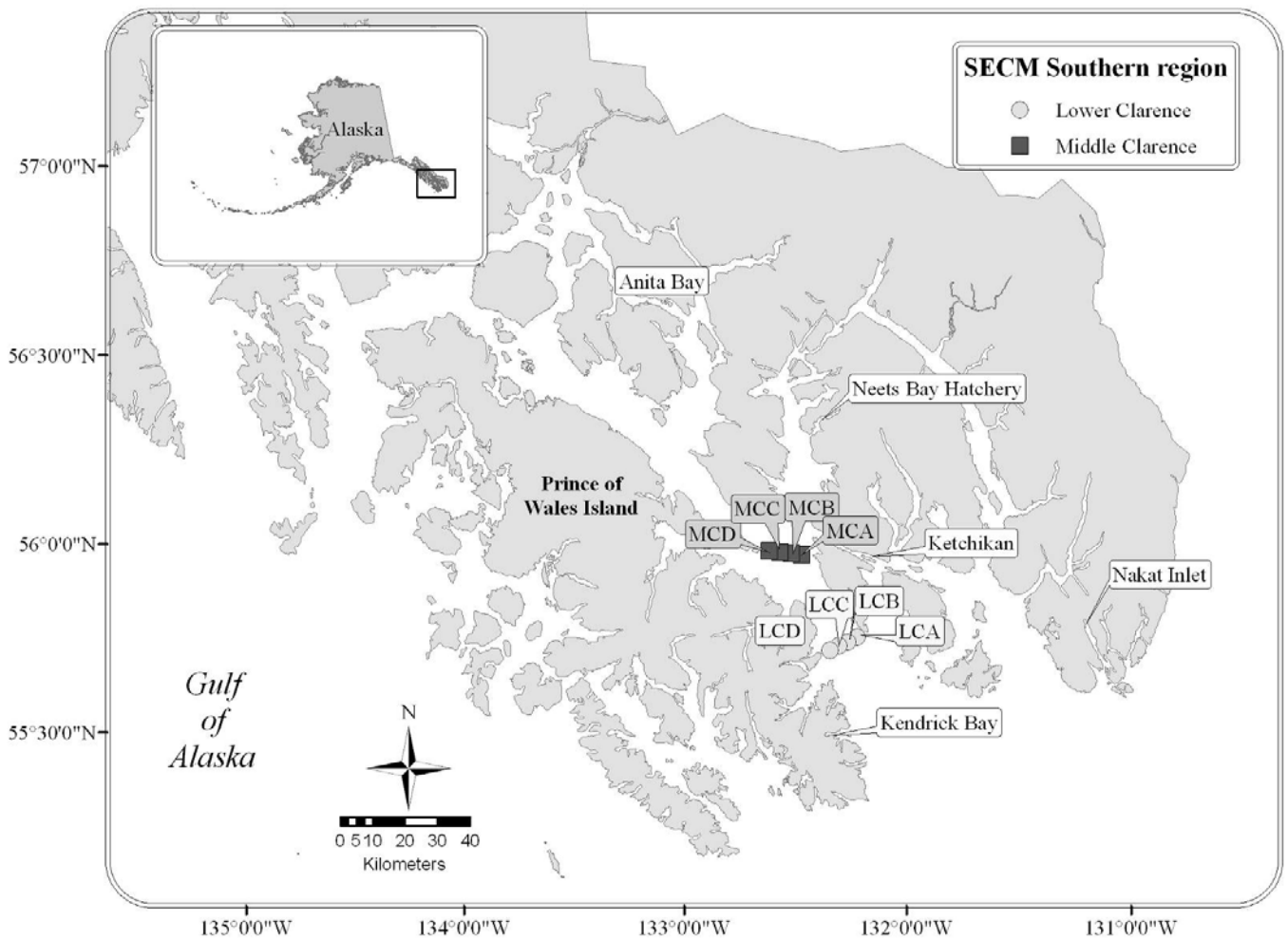


Figure 1. — Lower and Middle Clarence Strait stations sampled July 19 to August 1 in marine waters of the southern region of southeastern Alaska, 2006.

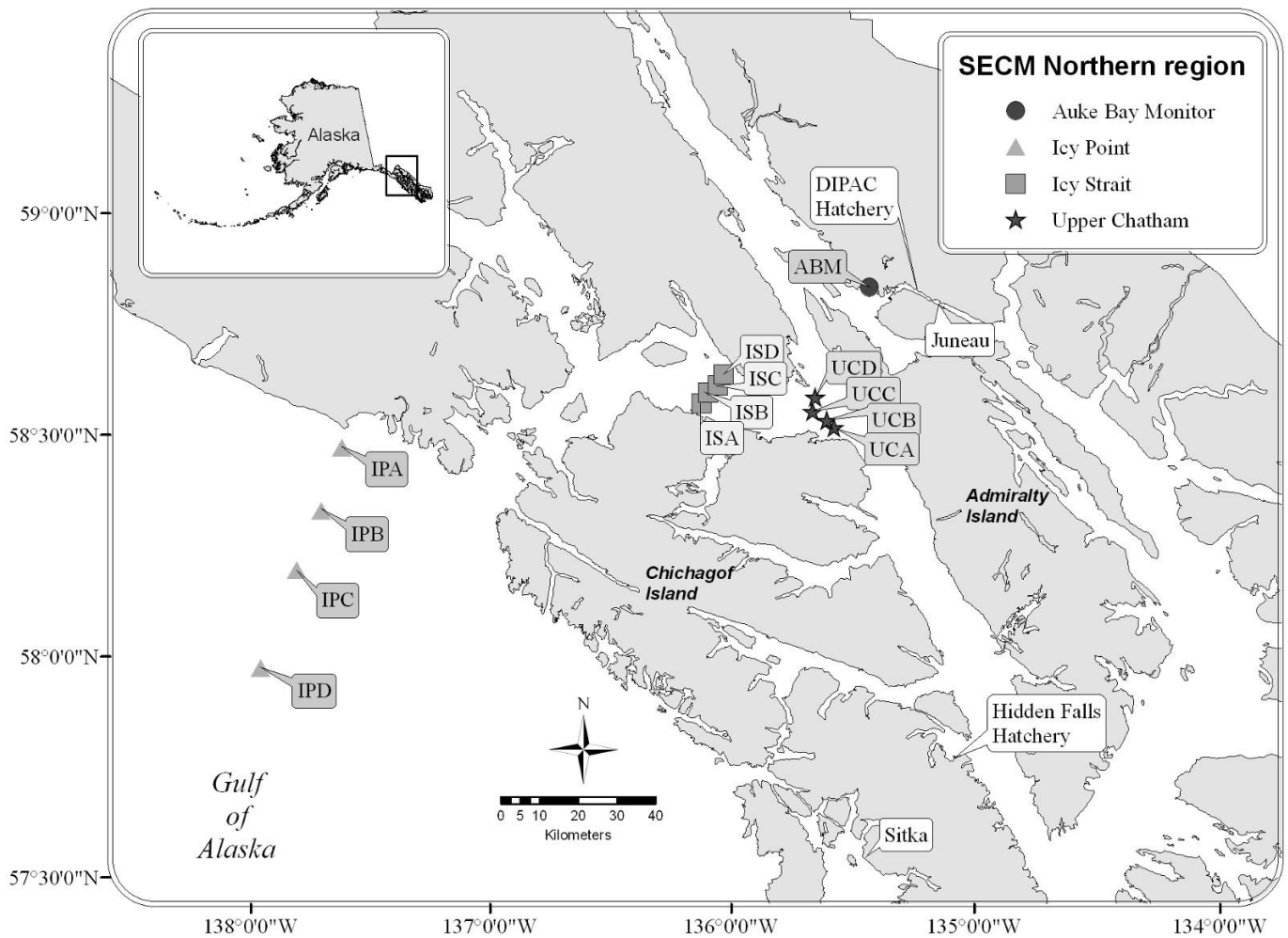


Figure 2.—Icy Strait and Upper Chatham Strait stations sampled from July 19 to August 1 in the marine waters of the northern region of southeastern Alaska, 2006.