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# Annual Survey of Juvenile Salmon, Ecologically-Related Species, and Biophysical Factors in the Marine Waters of Southeastern Alaska, May–August 2013

by

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## ABSTRACT

Juvenile Pacific salmon (*Oncorhynchus* spp.), ecologically-related species, and associated biophysical data were collected from the marine waters of the northern region of southeastern Alaska (SEAK) in 2013. This annual survey, conducted by the Southeast Coastal Monitoring (SECM) project, marks 17 consecutive years of systematically monitoring how juvenile salmon utilize marine ecosystems during a period of climate change. The survey was implemented to identify the relationships between year-class strength of juvenile salmon and biophysical parameters that influence their habitat use, marine growth, prey fields, predation, and stock interactions. Thirteen stations were sampled monthly in epipelagic waters from May to August (total of 23 sampling days). Fish, zooplankton, surface water samples, and physical profile data were collected during daylight at each station using a surface rope trawl, Norpac and bongo nets, a water sampler, and a conductivity-temperature-depth profiler. Surface (3-m) temperatures and salinities ranged from approximately 7 to 16 ºC and 16 to 32 PSU across inshore, strait, and coastal habitats for the four months. A total of 25,730 fish and squid, representing 27 taxa, were captured in 98 rope trawl hauls fished from June to August. Juvenile salmon comprised approximately 94% of the total fish catch with the exception of one large haul of capelin ($n$ = 10,452). Juvenile pink (*O. gorbuscha*), chum (*O. keta*), sockeye (*O. nerka*), and coho (*O. kisutch*) salmon occurred in 57-84% of the hauls by month and habitat, while juvenile Chinook salmon (*O. tshawytscha*) occurred in 34% of the hauls. Abundance of juvenile salmon was moderate in 2013; peak CPUE occurred in July in strait and coastal habitats. Coded-wire tags were recovered from 20 coho salmon and 14 Chinook salmon, mainly including hatchery and wild stocks originating in SEAK and captured in strait habitat; an additional 20 adipose-clipped individuals without tags (presumably originating from the Pacific Northwest) were recovered mainly in coastal habitat. Alaska enhanced stocks comprised 59%, 19%, and < 1% of chum, sockeye, and coho salmon, respectively. Predation on juvenile salmon was observed in 3 of 11 fish species examined. The long term seasonal time series of SECM juvenile salmon stock assessment and biophysical data is used in conjunction with basin-scale ecosystem metrics to annually forecast pink salmon harvest in SEAK. Long term seasonal monitoring of key stocks of juvenile salmon and associated ecologically-related species, including fish predators and prey, permits researchers to understand how growth, abundance, and interactions affect year-class strength of salmon during climate change in marine ecosystems.

# INTRODUCTION

The Southeast Coastal Monitoring (SECM) project, an ecosystem study in the northern region of southeastern Alaska (SEAK), was initiated in 1997 to annually study the early marine ecology of Pacific salmon (*Oncorhynchus* spp.) and associated epipelagic ichthyofauna and to better understand effects of climate change on salmon production. Salmon are a keystone species in SEAK whose role in marine ecosystems remains poorly understood. Fluctuations in the survival of this important living marine resource have broad ecological and socio-economic implications for coastal localities throughout the Pacific Rim.

Relationships between climate shifts and production have impacted year-class strength of Pacific salmon throughout their distribution (Beamish et al. 2010a, b). In particular, climate variables such as temperature have been associated with freshwater production (Bryant 2009; Taylor 2008) and ocean production and survival of both wild and hatchery salmon (Wertheimer et al. 2001; Beauchamp et al. 2007). Biophysical attributes of climate may influence trophic linkages and lead to variable growth and survival of salmon (Francis et al. 1998; Brodeur et al. 2007; Coyle et al. 2011). However, research is lacking on the links between salmon production and climate variability, intra- and interspecific competition and carrying capacity, and biological interactions among stock groups (Beamish et al. 2010a). In addition, past research has not provided adequate time series data to explain these links (Pearcy 1997; Beamish et al. 2008). Increases in salmon production throughout the Pacific Rim in recent decades has elevated the need to understand the consequences of population changes and potential interactions on the growth, distribution, migratory rates, and survival of all salmon species and stock groups (Rand et al. 2012). Furthermore, region-scale spatial effects that are important to salmon production (Pyper et al. 2005) may be linked to local dynamics in complex marine ecosystems like SEAK (Weingartner et al. 2008).

A goal of the SECM project is to identify mechanisms linking salmon production to climate change using a time series of synoptic data related to ocean conditions and salmon, including stock-specific life history characteristics. The SECM project obtains stock information from coded-wire tags (CWT; Jefferts et al. 1963) or otolith thermal marks (Hagen and Munk 1994; Courtney et al. 2000) from all five Pacific salmon species: pink (*O. gorbuscha*), chum (*O. keta*), sockeye (*O. nerka*), coho (*O. kisutch*), and Chinook (*O. tshawytscha*). Portions of wild and hatchery salmon stocks are tagged or marked prior to ocean entry by enhancement facilities or state and federal agencies in SEAK, Canada, and the Pacific Northwest states. Catches of these marked fish by the SECM project in the northern, southern, and coastal regions of SEAK have provided information on habitat use, migration rates, and timing (e.g., Orsi et al. 2004, 2007, 2008); in addition, interceptions in the regional common property fisheries have documented substantial contributions of enhanced fish to commercial harvests (White 2011). Therefore, examining trends in early marine ecology and potential interactions of these marked stock groups provides an opportunity to link increasing wild and hatchery salmon production to climate change (Ruggerone and Nielsen 2009; Rand et al. 2012 and papers in Special Volume).

Examining the extent of interactions between salmon stock groups and co-occurring species in marine ecosystems is also important with regard to carrying capacity, and should examine both “bottom-up” and “top-down” production controls (Miller et al. 2013). For example, increased hatchery production of juvenile chum salmon coincided with declines of some wild chum salmon stocks, suggesting the potential for negative stock interactions in the marine environment (Seeb et al. 2004; Reese et al. 2009). In SEAK, however, SECM and other studies have indicated that growth is not food limited and that stocks interact extensively with little negative impact (Bailey et al. 1975; Orsi et al. 2004; Sturdevant et al. 2004, 2012a). Zooplankton prey fields are more likely to be cropped by the more abundant planktivorous forage fish, including walleye pollock (*Theragra chalcogramma*) and Pacific herring (*Clupea pallasi*) (Orsi et al. 2004; Sigler and Csepp 2007), than by juvenile salmon. Seasonal and interannual changes in abundance of planktivorous jellyfish, another potential competitor with juvenile salmon, have been reported by SECM (Orsi et al. 2009). Therefore, monitoring abundance of jellyfish may be an important indicator of potential "bottom-up" trophic interactions (Purcell and Sturdevant 2001), particularly during periods of environmental change (Brodeur et al. 2008; Cieciel et al. 2009). Companion studies in Icy Strait also indicated that food quantity can be more important than food quality for growth and survival of juvenile salmon (Weitkamp and Sturdevant 2008). As a result, monitoring the composition, abundance, and timing of zooplankton taxa with different life history strategies may permit the detection of climate-related changes in the seasonality and interannual abundance of prey fields (Coyle and Paul 1990; Park et al. 2004; Coyle et al. 2011; Sturdevant et al. 2013a; Fergusson et al. 2014). In contrast, "top-down" predation events can also affect salmon year-class strength (Sturdevant et al. 2009, 2012b, 2013b). Highly abundant smaller juvenile salmon species, such as wild pink salmon, may be a predation buffer for less abundant, larger species, such as juvenile coho salmon (LaCroix et al. 2009; Weitkamp et al. 2011). These findings also stress the need to examine the entire epipelagic community in the context of trophic interactions (Cooney et al. 2001; Sturdevant et al. 2012b) and to compare ecological processes, community structure, and life history strategies among salmon production areas (Brodeur et al. 2007; Orsi et al. 2007, 2013a).

In 2013, SECM sampling was conducted in the northern region of SEAK for the 17$^{th}$ consecutive year to continue annual ecosystem and climate monitoring, to document juvenile salmon abundance in relation to biophysical parameters, and to support models to forecast adult pink salmon returns. This document summarizes data on juvenile salmon, ecologically-related species, and associated biophysical parameters collected by the SECM project in 2013. Subsets of the long term time series are examined in several recent documents (e.g., Fergusson et al. 2014; Orsi et al. 2014); a comprehensive report of the time series of catch and ecosystem metrics will be reported in a forthcoming NOAA Technical Memorandum.

## METHODS

Sampling was conducted in the northern region of SEAK monthly from May to August 2013 (Table 1). Spatially, sampling stations extended 250 km from inshore waters of the Alexander Archipelago along Chatham and Icy Straits to coastal waters 65 km offshore from Icy Point into the Gulf of Alaska (GOA), over the continental shelf break (Figure 1). At each station, the physical environment, zooplankton, and fish were sampled during daylight hours. Oceanographic sampling was conducted in May, while both oceanographic and trawl sampling were conducted June through August. The 12 m NOAA vessel R/V *Sashin* was used for sampling in May. The chartered fishing vessel, FV *Northwest Explorer* (*NWE*), a 52 m stern trawler with twin engines producing 1,800 HP, was used for sampling June through August.

Sampling stations (Table 1; Figure 1) were chosen to: 1) continue historical time series of biophysical data, 2) sample primary seaward migration corridors used by juvenile salmon, and 3) accommodate vessel logistics. Historical data existed for the inshore station and the four Icy Strait stations (e.g., Bruce et al. 1977; Jaenicke and Celewycz 1994; Orsi et al. 1997). The four Upper Chatham Strait stations were selected to intercept juvenile salmon entering Icy Strait from both the north and the south. Hatchery and wild salmon captured in Icy Strait have included stocks released from throughout SEAK (Orsi et al. 2013b). To meet vessel sampling constraints, stations in strait habitat were approximately 3 or 6 km offshore, whereas stations in coastal habitat were approximately 7, 23, 40, and 65 km offshore (Figure 1). Sampling operations in the different localities were also constrained to bottom depths > 75 m, sea wave height < 2.5 m, and winds < 12.5 m/sec. Bottom depth at ABM was too shallow to permit trawling (Table 1).

**Oceanographic sampling**

The oceanographic data collected at each station consisted of one conductivity-temperature-depth profiler (CTD) cast, one Secchi depth, one surface water sample, one light reading, and one or two plankton tows. The CTD data were collected with a Sea-Bird[1] SBE 19 plus Seacat profiler deployed to 200 m or within 10 m of the bottom. A CTD cast was typically taken for each haul unless hauls occurred less than two hours apart at the same station. The CTD profiles were used to determine the 3-m sea surface temperature (SST, °C) and salinity (PSU), the average 20-m integrated water column temperature and salinity, and the mixed layer depth (MLD, m). The 20-m water column depth bracketed typical seasonal pycnoclines, MLD, and the stratum fished by the surface trawl. The MLD established the active mixing layer and was defined as the depth where temperature was ⩾ 0.2 °C colder than the water at 5 m (Kara et al. 2000). Secchi depths (m) were estimated as the disappearance depth of the white CTD top during deployment. Surface water samples for chlorophyll (µg/L) concentrations were taken once at each station per month. Ambient light levels ($W/m^2$) were measured with a Li-Cor Model LI-250A light meter.

Zooplankton was sampled monthly with two net types. One shallow (20-m) vertical Norpac haul was made with a 50-cm, single ring frame with 243-µm mesh net. One double oblique bongo haul was made at stations along the Icy Strait and Icy Point transects and at ABM (≤ 200 m or within 20 m of bottom) using a 60-cm diameter tandem frame with 333- and 505-µm meshes. A VEMCO ML-08-TDR time-depth recorder was attached to the bongo frame to record the maximum sampling depth of each haul. General Oceanics Model 2031 flow meters were placed inside the bongo nets for calculation of water volumes filtered.

Zooplankton samples were immediately preserved in a 5% formalin-seawater solution. In the laboratory, zooplankton settled volumes (ZSV, ml), total settled volumes (TSV, ml), displacement volumes (DV, ml), standing stock ($DV/m^3$), and density ($number/m^3$) were determined for various samples. For Norpac samples, ZSV and TSV were measured after a 24-hr period in Imhof cones. Mean SVs were determined for stations pooled by habitat and month. For bongo samples, standing stock was calculated using DV and filtered water volumes. Detailed zooplankton species composition from the 333-µm samples was determined microscopically from subsamples obtained using a Folsom splitter. Densities were then estimated using the subsample counts, split fractions, and water volumes filtered. Percent total composition was summarized across species by major taxa, including small calanoid copepods (≤ 2.5 mm total length, TL), large calanoid copepods (> 2.5 mm TL), euphausiids (principally larval and juvenile stages), oikopleurans (Larvacea), decapod larvae, amphipods, chaetognaths, pteropods, and combined minor taxa.

**Fish sampling**

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[1]Reference to trade names does not imply endorsement by the Auke Bay Laboratories, National Marine Fisheries Service, NOAA Fisheries.

Fish sampling was accomplished with a Nordic 264 rope trawl modified to fish the surface water directly astern of the trawl vessel. The trawl was 184 m long and had a mouth opening of approximately 24 m wide by 30 m deep, with actual fishing dimensions of 18 m wide by 24 m deep (Sturdevant et al. 2012b). A pair of 3-m foam-filled Lite trawl doors, each weighing 544 kg (91 kg submerged), was used to spread the trawl open. Trawl mesh sizes from the jib lines aft to the cod end were 162.6 cm, 81.3 cm, 40.6 cm, 20.3 cm, 12.7 cm, and 10.1 cm over the 129.6-m meshed length of the rope trawl. A 6.1-m long, 0.8-cm knotless liner mesh was sewn into the cod end. The trawl also contained a small mesh panel of 10.2-cm mesh sewn along the jib lines on the top panel between the head rope and the 162.6-cm mesh to reduce loss of small fish. Two 50-kg chain-link weights were added to the corners of the foot rope as the trawl was deployed to maximize fishing depth. To keep the trawl head rope fishing at the surface, two clusters of three A-4 Polyform buoys (inflated to 0.75 m diameter and encased in knotted mesh bags) were clipped on the opposing corner wingtips of the head rope and one A-3 Polyform float (inflated to 0.5 m diameter) was clipped into a mesh kite pocket in the center of the head rope with a third-wire unit to monitor the net spread. Two AQUAmark 300 pingers (10 kHz, 132 dB) were attached to the corners of the head rope to deter porpoise interactions. The trawl was fished with approximately 150 m of 1.6-cm wire main warp attached to each door, a 9.1 m length of 1.6-cm TS-II Dyneema line trailing off the top and bottom of each trawl door (back strap). Each back strap was connected with a "G" hook and flat link to an 80-m parallel rigging system constructed of 1.6-cm TS-II Dyneema bridles.

For each haul, the trawl was fished across a station for 20 min at approximately 1.5 m/sec (3 knots) to cover 1.9 km (1.0 nautical mile) with the exception of the offshore stations which were fished for 30 min at approximately 1.5m/sec. Station coordinates were targeted as the midpoint of the trawl haul, and current, swell, and wind conditions usually dictated the setting direction. Twenty-eight hauls were scheduled in the strait habitat to meet sampling requirements for the forecasting model and to ensure that sufficient samples of marked juvenile salmon were obtained for interannual comparisons.

After each trawl haul, the fish were separated from the jellyfish, identified, enumerated, measured, labeled, bagged, and frozen. Jellyfish were identified to species when possible, counted, and total volume (including fragments) was measured to the nearest 0.1 liter (L) as a proxy for biomass. After the catch was sorted, all fish and squid were typically measured to the nearest mm fork length (FL) or mantle length. In instances of very large catches, all fish were counted, a subsample of each species (≤ 100) was processed, and excess fish were discarded. All Chinook and coho salmon were examined for missing adipose fins that could indicate the presence of implanted CWTs. Additionally, in the laboratory, all juvenile Chinook and coho salmon were screened with a magnetic detector and any CWTs detected were excised from the snouts. All tags were decoded and verified to determine the stock of origin.

Potential predators of juvenile salmon from each haul were identified, measured (FL, mm), weighed (g), and stomach contents were examined onboard the vessel. Stomachs were excised, weighed (0.1 g), and visually classified by percent fullness (0, 10, 25, 50, 75, 100, and distended). Stomach content weight was determined by subtracting the empty stomach weight from the full stomach weight. Feeding intensity was reported as percentage of fish with food in their guts. General prey composition was determined by visually estimating the contribution of major taxa to the nearest 10% of total volume, and the wet-weight contribution to the diets was calculated by multiplying the % by the total content weight (%W). Overall diets of each species were summarized by %W of major prey taxa. Whenever possible, fish prey was identified to species and FLs were measured.

Juvenile salmon catch data were adjusted using calibration coefficients between vessels to allow comparisons with the long term data collected using the NOAA ship *John N. Cobb* (1997-2007). No direct calibration of the *NWE* with a previously-used vessel was possible. The *NWE* was assumed to be comparable to the similarly-sized and -powered chartered vessel FV *Chellissa* that was calibrated to the RV *Medeia*, which was previously calibrated to the NOAA ship *John N. Cobb* (Wertheimer et al. 2010). These paired comparisons permitted the computation of species-specific calibration factors which were applied to the Ln (CPUE+1) for each trawl haul of the *NWE* to convert the data into "Cobb units" directly comparable to the previous 16 years of the SECM time series.

In the laboratory, frozen individual juvenile salmon were weighed (0.1 g) and otoliths were removed from the chum, sockeye, and coho salmon. Mean lengths, weights, Fulton condition factor ($g/mm^3 \cdot 10^5$; Cone 1989), and residuals from a length-weight linear regression (condition residuals, CR) were computed for each species by locality or habitat and sampling month. To determine stock of origin, sagittal otoliths were extracted from the crania and preserved in 95% ethyl alcohol, then later mounted on slides, ground down to the primordia, and examined for potential thermal marks (Secor et al. 1992). Stock composition and growth trajectories of thermally marked fish were determined for each month and habitat. An index of seasonal condition was obtained via calorimetry, using a 1425 Parr micro-bomb calorimeter. Whole body energy content (cal/g wet weight) was determined from ten fish of each species captured in July (Fergusson et al. 2010, 2013).

## RESULTS AND DISCUSSION

Thirteen stations were sampled near the end of each month from May to August 2013 (Figure 1). In total, data were collected from 98 rope trawl hauls, 100 CTD casts, 32 tandem bongo net samples, 36 Norpac net samples, 48 surface water samples, 109 Secchi readings, and 108 ambient light measures during 23 days at-sea (Table 2, Appendix 1).

### Oceanography

Overall, station mean SST values ranged from 6.5 to 16.0 ºC from May to August, and averaged 12.0 ºC (Table 3; Appendix 1). Seasonal SST patterns were similar among habitats (Figure 2a), with a peak in July. Monthly mean SSTs were lowest in strait habitat and highest in inshore or coastal habitat, differing by as much as ~3 ºC among localities. Compared to the SSTs, the monthly means for the 20-m integrated temperatures were colder yet followed the same seasonal pattern.

Surface salinities ranged from 16.3 to 32.2 PSU from May to August, and averaged 26.9 PSU (Table 3; Appendix 1). Salinities were lowest in inshore habitat and highest in coastal habitat. Seasonal PSU values trended downward from May to August in inshore and strait habitats (Figure 2b), whereas minimal seasonal variation occurred in coastal PSU values. Mean salinities for the 20-m integrated water column were higher and more seasonally stable than the 3-m values.

Water clarity depths ranged from 2.0 to 7.0 m (average 4.6 m; Appendix 1). Water clarity reached a seasonal low in June and/or July in all habitats and was lowest in inshore habitat (Figure 3a). The MLD ranged from 6 to 24 m (average 8.4 m; Appendix 1). Seasonal MLD patterns varied by habitat; the deepest values occurred in May in strait habitat, in August in coastal habitat, and in May and July in inshore habitat (Figure 3b). Thus, trawl sampling depths (~ 20 m) usually spanned a range of habitat conditions that varied with depth and location, including the active surface layer and the stable waters below the MLD.

Other physical data also showed seasonal and spatial differences across the stations and sampling season. Ambient light measurements ranged from 13 to 766 W/m$^2$ (Appendix 1). Chlorophyll concentrations ranged from 0.3 to 10.6 μg/L (mean of 2.2 μg/L), while phaeopigment concentrations ranged from 0.0 to 1.3 μg/L (mean of 0.4 μg/L) (Table 4). Chlorophyll was highest in May in inshore and strait habitats and in August in coastal habitat, but converged to similarly low values in July in all habitats (Figure 4a).

Zooplankton ZSVs from the Norpac net hauls ranged from 1 to 20 ml per station with an overall average of 8 ml from May to August (Appendix 1; Table 5). Seasonal patterns for ZSV differed by habitat and locality. Peak mean ZSVs occurred in June in all habitats (Figure 4b).

Zooplankton standing stock from bongo net hauls ranged from < 0.5 to 1.5 ml/m$^3$ for 333-μm mesh (mean of 0.7 ml/m$^3$) and from 0.1 to 0.9 ml/m$^3$ for 505-μm mesh (mean of 0.5 ml/m$^3$; Table 6) from May to August. Mean standing stock was highest in strait habitat and lowest in inshore and coastal habitats for both mesh size fractions. Seasonal patterns varied between habitats (Figure 5).

Seasonal total density of zooplankton prey fields (333-μm mesh) at stations in Icy Strait ranged from 653 to 1,639 organisms/m$^3$ (mean of 999 organisms/m$^3$; Table 6). Mean density was lowest in August and station variability was highest in May (Figure 6a). Zooplankton composition was dominated by either large and/or small calanoid copepods in all months (Figure 6b). Small calanoids included *Pseudocalanus*, *Centropages*, and *Acartia* and accounted for 30-75% of the composition from May through August. Large calanoids included *Metridia* spp., *Neocalanus plumchrus/flemingeri*, and *Calanus marshallae* and accounted for 11-37% of the composition from May through August. Zooplankton taxa such as barnacle, euphausiid, and decapod larvae, larvaceans, pteropods, and pelagic amphipods comprised a much smaller portion of the zooplankton composition (< 15%) despite being the prey selected by juvenile salmon and other planktivores (Coyle and Paul 1992; Landingham et al. 1998; Sturdevant et al. 2004, 2012b).

**Catch composition**

Jellyfish catches included five species (*Aequorea* sp., *Aurelia labiata*, *Chrysaora melanaster, Cyanea capillata, and Staurophora* sp.) and an "other" category (Table 7). Total biomass (volume) of jellyfish ranged from 0 to 52 L per haul from June to August. Jellyfish monthly biomass and species composition varied by month and habitat (Figure 7). In coastal habitat, the dominant species was *Chrysaora melanaster* in June and July then switched to *Aequorea* sp. in August. In strait habitat, small numbers (<0.5 L) of *Chrysaora melanaster* and *Cyanea capillata* were present in June, however high abundances of *Aequorea* sp. (9-12 L) And *Cyanea capillata* (1-3 L) were caught in July and August.

In total, 25,730 fish and squid, representing 27 taxa, were captured in 98 rope trawl hauls in strait and coastal habitats (Table 8). Excluding one large haul of capelin (*n* = 10,452) in August, juvenile salmon comprised approximately 94% of the total fish catch (Figure 8) and occurred more frequently in strait habitat than in coastal habitat. Adult salmon were most abundant in June and July, whereas immature Chinook salmon were most abundant in June. Juvenile pink, chum, sockeye, and coho salmon occurred in 57-84% of the trawls, while juvenile Chinook salmon occurred in 34% of the hauls (Table 9). Juvenile pink, chum, and sockeye salmon catches peaked in July in both strait and coastal habitats. In contrast, juvenile coho catches were high in both June and July in strait habitat and July in coastal habitat. Juvenile Chinook salmon catches were highest in August in strait habitat and July in coastal habitat (Table 10, Figure 9). Non-salmonids were not very abundant in catches in either strait or coastal habitats, with the exception of walleye pollock (June) and capelin (August; Table 8).

Length, weight, and condition of juvenile salmon differed among species and months (Tables 11–15, Figures 10–13). Most species increased monthly in both length and weight, indicating growth despite the influx of additional stocks with varied times of saltwater entry. From June to August, mean FLs of juvenile salmon increased from approximately 102 to 170 mm for pink; 95 to 165 mm for chum; 132-171 mm for sockeye; 172 to 240 mm for coho; and 233-259 mm for Chinook salmon (Tables 11–15, Figure 10). Mean weights of juvenile salmon increased monthly from 10 to 50 g for pink; 9 to 49 g for chum; 26 to 55 g for sockeye; 67 to 164 g for coho; and 173 to 224 for Chinook salmon (Tables 11–15, Figure 11). Juvenile coho and Chinook salmon were consistently larger than the other three species, and coho captured in coastal habitat were generally larger than those captured in strait habitat. Mean conditions of juvenile salmon were fairly consistent in both strait and coastal habitats. In strait habitat, the CRs for juvenile pink, chum, and sockeye salmon were positive while the CRs for juvenile coho and Chinook salmon were negative (Figure 13). In coastal habitat (with limited sample sizes), the CRs were negative for pink, chum and sockeye salmon and positive for coho salmon. These positive CRs suggest favorable marine conditions for juvenile salmon growth in 2013.

All coho ($n$ = 931) and Chinook ($n$ = 193) salmon were scanned (either visually onboard the vessel or electronically in the laboratory) for the presence of CWTs. Stock-specific information was obtained from 34 CWT recoveries from a total of 53 salmon lacking the adipose fin and one with the adipose fin intact. For coho salmon, a total of 20 CWTs were recovered from 19 juveniles and 1 adult. For Chinook salmon, a total of 14 CWTs were recovered from 4 juveniles and 10 immatures (Table 16). All of the tagged coho salmon originated from hatchery and wild stocks in the northern region of SEAK except for three coho salmon that originated from Washington (WA), including one whose adipose fin was intact. The tagged Chinook salmon originated from SEAK, Idaho (ID), British Columbia (BC), and Oregon (OR). In the coastal habitat, most adipose-clipped juvenile salmon were not tagged and presumably originated from Pacific Northwest (PNW) hatcheries. These facilities are mandated to adipose-clip but not necessarily tag all fish released, a practice not used in Alaska. Migration rates of the 34 CWT juvenile salmon ranged from 0.1 to 19.0 km/day and averaged 4.4 km/day.

Stock-specific information was also obtained from recoveries of otolith-marked hatchery chum, sockeye, and coho salmon, using the same individuals that were subsampled for weight and condition. Releases of these species from SEAK enhancement facilities are commonly mass-marked and not tagged. These facilities include: Douglas Island Pink and Chum Hatchery (DIPAC), Northern Southeast Regional Aquaculture Association (NSRAA), Southern Southeast Regional Aquaculture Association (SSRAA), Armstrong Keta Incorporated (AKI), Prince of Wales Hatchery Association (PWHA), and Kake Non-profit Fisheries Corporation (KNFC). A total of 2,346 juvenile chum, sockeye, and coho salmon otoliths were examined for thermal marks (Tables 17-19; Figures 14-17).

For juvenile chum salmon, stock-specific information was derived from a subsample of 1,204 fish, representing 14% of the 8,881 caught (Tables 8 and 17; Figure 14). Of all chum salmon otoliths examined, 710 (59%) were marked by hatcheries in SEAK and 494 (41%) were not marked. Of the marked fish, 552 (78%) were from DIPAC, 132 (19%) were from NSRAA, 16 (2%) were from SSRAA, 4 (1%) were from AKI, and 6 (1%) were from KNFC. Hatchery chum salmon catch composition was relatively stable for all months and across habitats, ranging from 52% to 62%. Catches of SSRAA and KNFC hatchery chum salmon indicated northward movement by these stocks, particularly during August (Table 17).

For juvenile sockeye salmon, stock-specific information was derived from the otoliths of a subsample of 692 fish, representing 60% of the 1,161 caught (Tables 8 and 18; Figure 15). Of all the sockeye salmon otoliths examined, 134 (19%) were marked and 558 (81%) were not marked. Of the marked fish, 117 (87%) were from Speel Arm, SEAK, 13 (10%) were from Tahltan Lake/Stikine River, British Columbia, 3 (2%) were from Tuya Lake/Stikine River, British Columbia, and 1 (1%) was from Sweetheart Lake, SEAK. The two stocks that migrated through the Stikine River drainage to marine waters in central SEAK were sampled in Icy Strait in July and August, suggesting a protracted northward migration.

For juvenile coho salmon, stock-specific information was derived from the otoliths of a subsample of 450 fish representing 50% of the 902 caught (Tables 8 and 19; Figure 16). Of all the coho salmon otoliths examined, 3 (< 1%) were marked and originated from the PWHA hatchery in Klawock. The remaining 932 (91%) were unmarked and presumably from wild stocks. This is the first year that DIPAC had not otolith marked their coho.

Stock-specific sizes of otolith-marked juvenile chum and sockeye salmon increased monthly for all stock groups. Average weights of these fish were used to plot monthly growth trajectories (Figure 17). In 2013, chum salmon were released in April–May at 1–4 g and sockeye salmon were released in April–June at 5–10 g. Weights of chum salmon that out-migrated as fry generally doubled from June to July and from July to August; weights of sockeye salmon that out-migrated as smolts showed a similar increase from July to August. The limited recovery of marked coho salmon prevented stock-specific size analysis.

Stomachs of 450 potential predators of juvenile salmon were examined onboard from a suite of 11 fish species (Table 20). Juvenile salmon were consumed by three predator species: black rockfish (*Sebastes melanops*, *n* = 3 of 5), adult coho (*n* = 7 of 30) and pink salmon (*n* = 1 of 179; Table 21; Figure 18). Most fish examined for diet had been feeding (79%) and diet composition varied considerably among the species (Table 21; Figure 18). Other major prey taxa included non-salmonid fish and fish remains, amphipods, and decapod larvae.

**Summary**

This document summarizes SECM data collected on juvenile salmon, ecologically-related species, and associated biophysical parameters collected from May to August in 2013 in the northern region of SEAK. These data continue to be used in conjunction with basin-scale data to develop forecast models and predictive tools for adult pink salmon harvest in SEAK (e.g., Orsi et al. 2012; Wertheimer et al. 2013) and to explore year-class strength relationships for other species such as Chinook salmon and sablefish (*Anoplopoma fimbria*; Martinson et al. 2013; Orsi et al. 2013a). Subsets of the 17-year long term time series are also examined in recent ecosystem documents (Fergusson et al. 2014; Orsi et al. 2014; Yasumiishi et al. 2014). Comparing annual effects of biophysical parameters to long term mean values permits climate-related changes in marine conditions to be detected. Therefore, a comprehensive report of the time series of catch and ecosystem metrics will be reported in a forthcoming NOAA Technical Memorandum. Long term monitoring of key stocks of juvenile salmon, on seasonal and interannual time scales, will permit researchers to understand how growth, abundance, and ecological interactions affect year-class strength of salmon in SEAK and to better understand their role in North Pacific marine ecosystems.

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## LITERATURE CITED


Bailey, J. E., B. L. Wing, and C. R. Mattson. 1975. Zooplankton abundance and feeding habits of fry of pink salmon, *Oncorhynchus gorbuscha*, and chum salmon, *Oncorhynchus keta*, in Traitors Cove, Alaska, with speculations on the carrying capacity of the area. Fish. Bull. U.S. 73(4):846-861.

Beamish, R., R. M. Sweeting, K. L. Lange, and C. M. Neville. 2008. Changes in the population ecology of hatchery and wild coho salmon in the Strait of Georgia. Trans. Amer. Fish. Soc. 137(2): 503-520.

Beamish, R. J., B.E. Riddell, K. L. Lange, E. Farley Jr., S. Kang, T. Nagasawa, V. Radchenko, O. Temnykh, and S. Urawa. 2010a. The effects of climate on Pacific salmon - A summary of published literature. North Pac. Anadr. Fish Comm. Spec. Pub. 2:1-11.

Beamish , R. J., K. L. Lange, B. E. Riddell, and S. Urawa. 2010b. Climate impacts on Pacific salmon: bibliography. North Pac. Anadr. Fish Comm. Spec. Pub. 2, 172 pgs. Vancouver, B.C.

Beauchamp, D. A., A. D. Cross, J. L. Armstrong, K. W. Meyers, J. H. Moss, J. L. Boldt, and L. J. Haldorson. 2007. Bioenergetics responses by Pacific salmon to climate and ecosystem variation. North Pac. Anadr. Fish Comm. Bull. 4:257-269.

Brodeur, R. D., E. A. Daly, R. A. Schabetsberger, and K. L. Mier. 2007. Interannual and interdecadal variability in juvenile coho salmon (*Oncorhynchus kisutch*) diets in relation to environmental changes in the northern California Current. Fish. Oceanog.16:395-408.

Brodeur, R. D., M. B. Decker, L. Ciannelli, J. E. Purcell, N. A. Bond, P. J. Stabeno, E. Acuna, and G. L. Hunt, Jr. 2008. Rise and fall of jellyfish in the eastern Bering Sea in relation to climate regime shifts. Prog. Oceanogr. 77: 103–111.

Bruce, H. E., D. R. McLain, and B. L. Wing. 1977. Annual physical and chemical oceanographic cycles of Auke Bay, southeastern Alaska. NOAA Tech. Rep. NMFS SSRF-712, 11 pages.

Bryant, M. D. 2009. Global climate change and potential effects on Pacific salmonids in freshwater ecosystems of southeast Alaska. Climatic Change 95:169–193.

Cieciel, K., E.V. Farley, Jr., and L.B. Eisner 2009. Jellyfish and juvenile salmon associations with oceanographic characteristics during warm and cool years in the eastern Bering Sea. North Pac. Anadr. Fish Comm. Bull. 5: 209–224.

Cone, R. S. 1989. The need to reconsider the use of condition indices in fishery science. Trans. Amer. Fish. Soc. 118:510-514.

Cooney, R. T., J. R. Allen, M. A. Bishop, D. L. Eslinger, T. Kline, B. L. Norcross, C. P. McRoy, J. Milton, J. Olsen, V. Patrick, A. J. Paul, D. Salmon, D. Scheel, G. L. Thomas, S. L. Vaughan, and T. M. Willette. 2001. Ecosystem controls of juvenile pink salmon (*Oncorhynchus gorbuscha*) and Pacific herring (*Clupea pallasi*) populations in Prince William Sound, Alaska. Fish. Oceanog. 10(Suppl. 1):1-13.

Courtney, D. L., D. G. Mortensen, J. A. Orsi, and K. M. Munk. 2000. Origin of juvenile Pacific salmon recovered from coastal southeastern Alaska identified by otolith thermal marks and coded wire tags. Fish. Res. 46:267-278.

Coyle, K. O., and A. J. Paul. 1990. Abundance and biomass of meroplankton during the spring bloom in an Alaska Bay. Ophelia 32(3):199-210.

Coyle, K. O., and A. J. Paul. 1992. Interannual differences in prey taken by capelin, herring, and red salmon relative to zooplankton abundance during the spring bloom in a southeast Alaskan embayment. Fish. Oceanog. 1(4):294–305.

Coyle, K. O., L. B. Eisner, F. J. Mueter, A. I. Pinchuk, M. A. Janout, K. D. Cieciel, E. V. Farley, and A. G. Andrews. 2011. Climate change in the southeastern Bering Sea: impacts on pollock stocks and implications for the oscillating control hypothesis. Fish. Oceanog. 20:139-156.

Fergusson, E. A., M. V. Sturdevant, and J. A. Orsi. 2010. Effects of starvation on energy density of juvenile chum salmon (*Oncorhynchus keta*) captured in marine waters of Southeastern Alaska. Fish. Bull. U.S. 108:218-225.

Fergusson, E. A., M. V. Sturdevant, and J. A. Orsi. 2013. Trophic relationships among juvenile salmon during a 16-year time series of climate variability in Southeast Alaska. North Pac. Anadr. Fish Comm. Tech. Rep. 9. (Available at http://www.npafc.org).

Fergusson, E., J. Orsi, M. Sturdevant. 2014 [in prep]. Long term Zooplankton and Temperature Trends in Icy Strait, Southeast Alaska. in S. Zador, editor. NOAA Ecosystems Considerations Report for 2014, Stock Assessment and Fishery Evaluation (SAFE) Report. North Pacific Fishery Management Council. (Available at http://access.afsc.noaa.gov/reem/ecoweb/).

Francis, R., Hare, S., Hollowed, A., and Wooster, W. 1998. Effects of interdecadal climate variability on the oceanic ecosystems of the NE Pacific. Fish. Oceanog. 7(1):1-21.

Hagen, P., and K. Munk. 1994. Stock separation by thermally induced otolith microstructure marks. Pages 149-156 *In*: Proceedings of the 16th Northeast Pacific Pink and Chum Salmon Workshop. Alaska Sea Grant College Program AK-SG-94-02, University of Alaska, Fairbanks.

Jaenicke, H. W., and A. C. Celewycz. 1994. Marine distribution and size of juvenile Pacific salmon in Southeast Alaska and northern British Columbia. Fish. Bull. U.S. 92:79-90.

Jefferts, K. B., P. K. Bergman, and H. F. Fiscus. 1963. A coded wire identification system for macro-organisms. Nature (Lond.) 198:460-462.

Kara, A. B., P. A. Rochford, and H. E. Hurlburt. 2000. An optimal definition for the ocean mixed layer depth. J. Geophys. Res. 105:16,803–16,821.

LaCroix, J. J., A. C. Wertheimer, J. A. Orsi, M. V. Sturdevant, E. A. Fergusson, and N. A. Bond. 2009. A top-down survival mechanism during early marine residency explains coho salmon year-class strength in Southeast Alaska. Deep Sea Research II 56:2560-2569.

Landingham, J. H., M. V. Sturdevant, and R. D. Brodeur. 1998. Feeding habits of juvenile Pacific salmon in marine waters of southeastern Alaska and northern British Columbia. Fish. Bull. U.S. 96:285-302.

Martinson, E., J. Orsi, M. Sturdevant, and E. Fergusson. 2013. Southeast Coastal Monitoring Survey indices and the recruitment of Gulf of Alaska sablefish. Pages 148-151 in S. Zador, editor. NOAA Ecosystems Considerations Report for 2013, Stock Assessment and Fishery Evaluation (SAFE) Report. North Pacific Fishery Management Council (Available at http://access.afsc.noaa.gov/reem/ecoweb/).

Miller, J. A., D. Teel, A. Baptista, and C. Morgan. 2013. Disentangling bottom-up and top-down effects on survival during early ocean residence in a population of Chinook salmon (*Oncorhynchus tshawytscha*). Can. J. Fish. Aquat. Sci. 70:617–629.

Orsi, J. A., J. M. Murphy, and A. L. J. Brase. 1997. Survey of juvenile salmon in the marine waters of southeastern Alaska, May–August 1997. (NPAFC Doc. 277) Auke Bay Lab., Alaska Fish. Sci. Cen., Nat. Mar. Fish. Serv., NOAA, 11305 Glacier Highway, Juneau, AK 99801-8626, USA, 27 pp. (Available at http://www.npafc.org).

Orsi, J. A., A. C. Wertheimer, M. V. Sturdevant, E. A. Fergusson, D. G. Mortensen, and B. L. Wing. 2004. Juvenile chum salmon consumption of zooplankton in marine waters of southeastern Alaska: a bioenergetics approach to implications of hatchery stock interactions. Rev. Fish Biol. Fish. 14:335-359.

Orsi, J. A., J. A. Harding, S. S. Pool, R. D. Brodeur, L. J. Haldorson, J. M. Murphy, J. H. Moss, E. V. Farley, Jr., R. M. Sweeting, J. F. T. Morris, M. Trudel, R. J. Beamish, R.L. Emmett, and E. A. Fergusson. 2007. Epipelagic fish assemblages associated with juvenile Pacific salmon in neritic waters of the California Current and the Alaska Current. Am. Fish. Soc. Symp. 57:105–155.

Orsi, J. A., A. C. Wertheimer, E.A. Fergusson, and M. V. Sturdevant. 2008. Interactions of hatchery chum salmon with juvenile chum and pink salmon in the marine waters of southeastern Alaska. Pages 20-24 *In*: K. Neely, O. Johnson, J. Hard, L Weitkamp, and K. Adicks (Rapporteurs). Proceedings of the 23rd Northeast Pacific Pink and Chum Salmon Workshop, February 19-21, 2008, Bellingham, Washington, 95 pgs.

Orsi J. A., A. Wertheimer, M. V. Sturdevant, E. A. Fergusson, B. L. Wing. 2009. Insights from a 12-year biophysical time series of juvenile Pacific salmon in southeast Alaska: the Southeast Alaska Coastal Monitoring Project (SECM). Alaska Fisheries Science Center's Quarterly Report Feature, July August September 2009, 8 pages. (Available at http://www.afsc.noaa.gov/Quarterly/jas2009/JAS09featurelead.htm).

Orsi, J. A., E. A. Fergusson, and M. V. Sturdevant. 2012. Recent harvest trends of pink and chum salmon in Southeast Alaska: Can marine ecosystem indicators be used as predictive tools for management? North Pac. Anadr. Fish Comm. Tech. Rep. 8:130-134. (Available at http://www.npafc.org).

Orsi, J. A., M. V. Sturdevant, E. A. Fergusson, W. R. Heard, and E. V. Farley, Jr. 2013a. Chinook salmon marine migration and production mechanisms in Alaska. North Pac. Anadr. Fish Comm. Tech. Rep. 9. (Available at http://www.npafc.org).

Orsi, J. A., E. A. Fergusson, M. V. Sturdevant, W. R. Heard, and E. V. Farley, Jr. 2013b. Annual survey of juvenile salmon, ecologically-related species, and biophysical factors in the marine waters of southeastern Alaska, May–August 2012. NPAFC Doc.1485, 92 pp. Auke Bay Lab., Alaska Fish. Sci. Cent., Natl. Mar. Fish., NOAA, NMFS, 17109 Point Lena Loop Road, Juneau, 99801, USA. (Available at http://www.npafc.org).

Orsi, J., E. Fergusson, M. Sturdevant, and A. Wertheimer. 2014 [in prep]. Using Ecosystem Indicators from the Southeast Alaska Coastal Monitoring (SECM) Project to Forecast Pink Salmon Harvest and develop a Chinook Salmon Abundance Index for Southeast Alaska. in S. Zador, editor. NOAA Ecosystems Considerations Report for 2014, Stock Assessment and Fishery Evaluation (SAFE) Report. North Pacific Fishery Management Council. (Available at http://access.afsc.noaa.gov/reem/ecoweb/).

Park, W., M. Sturdevant, J. Orsi, A. Wertheimer, E. Fergusson, W. Heard, and T. Shirley. 2004. Interannual abundance patterns of copepods during an ENSO event in Icy Strait, southeastern Alaska. ICES J. Mar. Sci. 61(4):464-477.

Pearcy, W. G. 1997. What have we learned in the last decade? What are research priorities? Pages 271–277 *In*: R. L. Emmett and M. H. Schiewe (eds.), Estuarine and ocean survival of northeastern Pacific salmon: Proceedings of the workshop. NOAA Tech. Memo. NMFS-NWFSC-29.

Purcell, J. E., and M. V. Sturdevant. 2001. Prey selection and dietary overlap among zooplanktivorous jellyfish and juvenile fishes in Prince William Sound, Alaska. Mar. Ecol. Prog. Ser. 210:67-83.

Pyper, B. J., F. J. Mueter, and R. M. Peterman. 2005. Across species comparisons of spatial scales of environmental effects on survival rates of Northeast Pacific salmon. Trans. Am. Fish. Soc. 134:86–104.

Rand, P. S., B. A. Berejikian, A. Bidlack, D. Bottom, J. Gardner, M. Kaeriyama, R. Lincoln, M. Nagata, T. N. Pearsons, M. Schmidt, W. W. Smoker, L. A. Weitkamp, and L. A. Zhivotovsky. 2012. Ecological interactions between wild and hatchery salmonids and key recommendations for research and management actions in selected regions of the North Pacific. Environ. Biol. Fish 94:343-358.

Reese, C., N. Hillgruber, M. Sturdevant, A. Wertheimer, W. Smoker, and R. Focht. 2009. Spatial and temporal distribution and the potential for estuarine interactions between wild and hatchery chum salmon (*Oncorhynchus keta*) in Taku Inlet, Alaska. Fish. Bull. U.S. 107:433-450.

Ruggerone, G. T., and J. L. Nielsen. 2009. A review of growth and survival of salmon at sea in response to competition and climate change. Am. Fish. Soc. Symp. 70:241–265.

Seeb, L. C., P. A, Crane, C. M. Kondzela, R. L. Wilmot, S. Urawa, N. V. Varnavskaya, and J. E. Seeb. 2004. Migration of Pacific Rim Chum Salmon on the High Seas: Insights from Genetic Data. Env. Biol. Fish 69(1-4):21-36.

Secor, D. H., J. M. Dean, and E. H. Laban. 1992. Otolith removal and preparation for microstructure examination. Can. Spec. Publ. Fish. Aquat. Sci. 117:19-57.

Sigler, M. F., and D. J. Csepp. 2007. Seasonal abundance of two important forage species in the North Pacific Ocean, Pacific herring and walleye pollock. Fish. Res. 83:319-331.

Sturdevant, M. V., E. A. Fergusson, J. A. Orsi, and A. C. Wertheimer. 2004. Diel feeding and gastric evacuation of juvenile pink and chum salmon in Icy Strait, southeastern Alaska, May-September 2001. North Pac. Anadr. Fish Comm. Tech. Rep. 5:107-109. (Available at http://www.npafc.org).

Sturdevant, M. V., M. F. Sigler, and J. A. Orsi. 2009. Sablefish predation on juvenile salmon in the coastal marine waters of Southeast Alaska in 1999. Trans. Am. Fish. Soc. 138:675-691.

Sturdevant, M., E. Fergusson, N. Hillgruber, C. Reese, J. Orsi, R. Focht, A. Wertheimer, And W. Smoker. 2012a. Lack of trophic competition among wild and hatchery juvenile chum salmon during early marine residence in Taku Inlet, Southeast Alaska. Environ. Biol. Fishes 94:101-116.

Sturdevant, M.V., J.A. Orsi, and E.A. Fergusson. 2012b. Diets and trophic linkages of epipelagic fish predators in coastal Southeast Alaska during a period of warm and cold climate years, 1997-2011. Mar. Coastal Fish. 4(1):526-545.

Sturdevant, M., E. Fergusson, and J. Orsi. 2013a. Long-term zooplankton trends in Icy Strait, Southeast Alaska. Pages 111-115 in S. Zador, editor. Ecosystem Considerations 2013, Stock Assessment and Fishery Evaluation (SAFE) Report. North Pacific Fishery Management Council, 605 W. 4th Ave. Suite 306, Anchorage, AK 99501. (Available at http://access.afsc.noaa.gov/reem/ecoweb/).

Sturdevant, M. V., R. Brenner, E. Fergusson, J. Orsi, and B. Heard. 2013b. Does predation by returning adult pink salmon regulate pink salmon or herring abundance? North Pac. Anadr. Fish Comm.Tech. Rep. 9. (Available at http://www.npafc.org).

Taylor, S. G. 2008. Climate warming causes phenological shift in pink salmon, *Oncorhynchus gorbuscha*, behavior at Auke Creek, Alaska. Global Change Biology 14:229-235.

Weingartner, T., L. Eisner, G. L. Eckert, and S. Danielson. 2008. Southeast Alaska: oceanographic habitats and linkages. J. Biogeog. Spec. Vol. 36:387-400.

Weitkamp, L. A., and M. V. Sturdevant. 2008. Food habits and marine survival of juvenile Chinook and coho salmon from marine waters of Southeast Alaska. Fish. Oceanogr. 17(5):380–395.

Weitkamp, L. A., J. A. Orsi, K. W. Myers, and R. C. Francis. 2011. Contrasting early marine ecology of Chinook salmon and coho salmon in Southeast Alaska: insight into factors affecting marine survival. Mar. Coastal Fish. 3(1):233-249.

Wertheimer, A. C., W. W. Smoker, T. L. Joyce, and W. R. Heard. 2001. Comment: A review of the hatchery programs for pink salmon in Prince William Sound and Kodiak Island, Alaska. Trans. Amer. Fish. Soc. 130:712-720.

Wertheimer, A. C., J. A. Orsi, E. A. Fergusson, and M. V. Sturdevant. 2010. Calibration of juvenile salmon catches using paired comparisons between two research vessels fishing Nordic 264 surface trawls in Southeast Alaska, July 2009. (NPAFC Doc. 1277) Auke Bay Lab., Alaska Fish. Sci. Cen., Nat. Mar. Fish. Serv., NOAA, 17109 Point Lena Loop Road, Juneau, 99801, USA. 19 pages. (Available at http://www.npafc.org).

Wertheimer, A. C., J. A. Orsi, E. A. Fergusson, and M. V. Sturdevant. 2013. Forecasting pink salmon harvest in Southeast Alaska from juvenile salmon abundance and associated biophysical parameters: 2012 returns and 2013 forecast. NPAFC Doc. 1486, 23 pages. (Available at http://www.npafc.org).

White, B. 2011. Alaska salmon fisheries enhancement program 2010 annual report. Alaska Department of Fish and Game, Fishery Management Report No. 11-04, Anchorage, 53 pages. (Available at http://www.adfg.alaska.gov/FedAidPDFs/FMR11-04.pdf).

Yasumiishi, E., K. Shotwell, D. Hanselman, J. Orsi, and E. Fergusson. 2014 [in prep]. Southeast Coastal Monitoring Survey Indices and the Recruitment of Gulf of Alaska Sablefish. in S. Zador, editor. NOAA Ecosystems Considerations Report for 2014, Stock Assessment and Fishery Evaluation (SAFE) Report. North Pacific Fishery Management Council. (Available at http://access.afsc.noaa.gov/reem/ecoweb/).

Table 1.—Localities and coordinates of thirteen stations sampled by the Southeast Coastal Monitoring (SECM) project in the marine waters of the northern region of southeastern Alaska, May–August 2013. Transect and station positions are shown in Figure 1.

| Station | Latitude N | Longitude W | Distance: Offshore (km) | Distance: Between adjacent station (km) | Bottom depth (m) |
|---|---|---|---|---|---|
| | | Auke Bay Monitor | | | |
| ABM | 58°22.00' | 134°40.00' | 1.5 | — | 60 |
| | | Upper Chatham Strait transect | | | |
| UCA | 58°04.57' | 135°00.08' | 3.2 | 3.2 | 400 |
| UCB | 58°06.22' | 135°00.91' | 6.4 | 3.2 | 100 |
| UCC | 58°07.95' | 135°01.69' | 6.4 | 3.2 | 100 |
| UCD | 58°09.64' | 135°02.52' | 3.2 | 3.2 | 200 |
| | | Icy Strait transect | | | |
| ISA | 58°13.25' | 135°31.76' | 3.2 | 3.2 | 128 |
| ISB | 58°14.22' | 135°29.26' | 6.4 | 3.2 | 200 |
| ISC | 58°15.28' | 135°26.65' | 6.4 | 3.2 | 200 |
| ISD | 58°16.38' | 135°23.98' | 3.2 | 3.2 | 234 |
| | | Icy Point transect | | | |
| IPA | 58°20.12' | 137°07.16' | 6.9 | 16.8 | 160 |
| IPB | 58°12.71' | 137°16.96' | 23.4 | 16.8 | 130 |
| IPC | 58°05.28' | 137°26.75' | 40.2 | 16.8 | 150 |
| IPD | 57°53.50' | 137°42.60' | 65.0 | 24.8 | 1,300 |

Table 2.—Numbers and types of samples collected in inshore, strait, and coastal habitats by month in the marine waters of the northern region of southeastern Alaska, May–August 2013.

| | | | Data collection type[1] | | | | |
|---|---|---|---|---|---|---|---|
| Dates (days) | Vessel | Habitat | Rope trawl | CTD cast | Oblique bongo | 20-m Norpac | Chlorophyll & nutrients |
| 22-23 May (2 days) | R/V *Sashin* | Inshore | 0 | 1 | 1 | 1 | 1 |
| | | Strait | 0 | 8 | 4 | 8 | 8 |
| | | Coastal | 0 | 0 | 0 | 0 | 0 |
| 23-29 June (7 days) | F/V *Northwest Explorer* | Inshore | 0 | 1 | 1 | 1 | 1 |
| | | Strait | 28 | 28 | 4 | 8 | 8 |
| | | Coastal | 4 | 4 | 4 | 4 | 4 |
| 25-31 July (7 days) | F/V *Northwest Explorer* | Inshore | 0 | 1 | 1 | 1 | 1 |
| | | Strait | 28 | 4 | 4 | 8 | 8 |
| | | Coastal | 4 | 28 | 4 | 4 | 4 |
| 27 August-2 September (7 days) | F/V *Northwest Explorer* | Inshore | 0 | 1 | 1 | 1 | 1 |
| | | Strait | 30 | 4 | 4 | 9 | 7 |
| | | Coastal | 4 | 20 | 4 | 4 | 4 |
| **Total** | | | **98** | **100** | **32** | **49** | **47** |

[1]Rope trawl = 20-min hauls with Nordic 264 surface trawl 18 m wide by 24 m deep; CTD casts = to 200 m or within 10 m of the bottom; oblique bongo = 60-cm diameter frame, 505- and 333-μm meshes, towed double obliquely down to and up from a depth of 200 m or within 20 m of the bottom; 20-m Norpac = 50-cm diameter frame, 243-μm conical net towed vertically from 20 m; chlorophyll and nutrients are from surface seawater samples.

Table 3.—Mean surface (3-m) temperature (ºC) and salinity (PSU) data collected monthly at stations in the marine waters of the northern region of southeastern Alaska, May–August 2013. *n* = number of station visits. Station code acronyms are listed in Table 1.

| Month | *n* | Temp (ºC) | Salinity (PSU) | *n* | Temp (ºC) | Salinity (PSU) | *n* | Temp (ºC) | Salinity (PSU) | *n* | Temp (ºC) | Salinity (PSU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Auke Bay Monitor | | | | | | |
| | ABM | | | | | | | | | | | |
| May | 1 | 6.5 | 29.5 | | | | | | | | | |
| June | 1 | 14.2 | 18.0 | | | | | | | | | |
| July | 1 | 15.1 | 18.0 | | | | | | | | | |
| August | 1 | 13.2 | 19.7 | | | | | | | | | |
| | | | | | | Upper Chatham Strait transect | | | | | | |
| | UCA | | | UCB | | | UCC | | | UCD | | |
| May | 1 | 7.0 | 29.1 | 1 | 7.2 | 28.9 | 1 | 7.0 | 28.4 | 1 | 7.0 | 28.7 |
| June | 3 | 11.9 | 26.8 | 2 | 12.7 | | 3 | 12.3 | 28.0 | 3 | 12.6 | 26.2 |
| July | 3 | 15.0 | 16.3 | 3 | 14.3 | 21.8 | 3 | 13.1 | 25.1 | 3 | 13.1 | 23.0 |
| August | 3 | 11.9 | 23.1 | 3 | 12.2 | 16.3 | 3 | 12.5 | 17.7 | 3 | 11.5 | 26.6 |
| | | | | | | Icy Strait transect | | | | | | |
| | ISA | | | ISB | | | ISC | | | ISD | | |
| May | 1 | 7.8 | 30.3 | 1 | 7.6 | 30.4 | 1 | 7.1 | 30.6 | 1 | 6.7 | 29.7 |
| June | 4 | 9.5 | 27.7 | 4 | 11.6 | 25.9 | 4 | 12.1 | 27.1 | 4 | 11.7 | 27.1 |
| July | 4 | 11.6 | 29.9 | 4 | 13.3 | 25.0 | 4 | 13.5 | 23.7 | 4 | 13.4 | 26.7 |
| August | 5 | 12.1 | 27.7 | 5 | 13.5 | 24.0 | 4 | 13.5 | 21.4 | 4 | 13.5 | 21.2 |

Table 3.—cont.

| Month | *n* | Temp (ºC) | Salinity (PSU) | *n* | Temp (ºC) | Salinity (PSU) | *n* | Temp (ºC) | Salinity (PSU) | *n* | Temp (ºC) | Salinity (PSU) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Icy Point transect | | | | | | | | | | | | |
| | IPA | | | IPB | | | IPC | | | IPD | | |
| May | — | — | — | — | — | — | — | — | — | — | — | — |
| June | 1 | 13.3 | 32.0 | 1 | 12.5 | 32.0 | 1 | 13.3 | 31.9 | 1 | 13.3 | 31.9 |
| July | 1 | 15.5 | 32.0 | 1 | 14.0 | 31.9 | 1 | 12.4 | 31.9 | 1 | 16.0 | 32.2 |
| August | 1 | 14.2 | 31.7 | 1 | 13.9 | 31.5 | 1 | 14.0 | 31.5 | 1 | 14.9 | 32.2 |

Table 4.—Chlorophyll and phaeopigment (µg/L) concentrations from 200-ml surface water samples collected monthly at stations in the marine waters of the northern region of southeastern Alaska, May–August 2013. Station code acronyms are listed in Table 1.

| Month | Chloro (µg/L) | Phaeo (µg/L) | Chloro (µg/L) | Phaeo (µg/L) | Chloro (µg/L) | Phaeo (µg/L) | Chloro (µg/L) | Phaeo (µg/L) |
|---|---|---|---|---|---|---|---|---|
| **Auke Bay Monitor** | | | | | | | | |
| | ABM | | | | | | | |
| May | 3.25 | 0.24 | | | | | | |
| June | 2.39 | 0.39 | | | | | | |
| July | 0.86 | 0.12 | | | | | | |
| August | 0.49 | 0.10 | | | | | | |
| **Upper Chatham Strait transect** | | | | | | | | |
| | UCA | | UCB | | UCC | | UCD | |
| May | 6.63 | 0.66 | 5.40 | 0.41 | 8.93 | 1.09 | 10.61 | 1.30 |
| June | 1.56 | 0.05 | 1.71 | 0.21 | 1.51 | 0.23 | 2.63 | 0.32 |
| July | 0.25 | 0.04 | 0.27 | 0.06 | 0.72 | 0.23 | 0.58 | 0.18 |
| August | 0.95 | 0.31 | 0.62 | 0.13 | 0.77 | 0.22 | 0.70 | 0.22 |
| **Icy Strait transect** | | | | | | | | |
| | ISA | | ISB | | ISC | | ISD | |
| May | 1.92 | 0.33 | 2.44 | 0.37 | 5.53 | 0.98 | 7.60 | 0.76 |
| June | 2.95 | 0.50 | 2.37 | 0.31 | 3.46 | 0.71 | 3.14 | 0.63 |
| July | 3.70 | 0.57 | 1.32 | 0.23 | 1.36 | 0.30 | 1.76 | 0.51 |
| August | 1.26 | 0.29 | 1.16 | 0.35 | 1.32 | 0.26 | 1.92 | 0.40 |
| **Icy Point transect** | | | | | | | | |
| | IPA | | IPB | | IPC | | IPD | |
| May | — | — | — | — | — | — | — | — |
| June | 0.74 | 0.16 | 2.46 | 0.41 | 0.73 | 0.20 | 0.57 | 0.14 |
| July | 0.38 | 0.12 | 1.36 | 0.46 | 1.14 | 0.39 | 0.51 | 0.15 |
| August | 1.69 | 0.62 | 1.34 | 0.51 | 1.13 | 0.46 | 1.04 | 0.24 |

Table 5.—Mean zooplankton settled volumes (ZSV, ml) and total plankton settled volumes (TSV, ml) from vertical 20-m Norpac hauls (0.5 m diameter, 243-µm mesh) collected monthly at stations in the marine waters of the northern region of southeastern Alaska, May–August 2013. Station code acronyms are listed in Table 1. Volume differences between ZSV and TSV are caused by presence of phytoplankton or slub in the sample. Standing stock (ml/$m^3$) can be computed by dividing by the water volume filtered, a constant factor of 3.9 $m^3$ for these samples.

| Month | *n* | ZSV | TSV | *n* | ZSV | TSV | *n* | ZSV | TSV | *n* | ZSV | TSV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Auke Bay Monitor | | | | | | |
| | | ABM | | | | | | | | | | |
| May | 1 | 9.0 | 14.0 | | | | | | | | | |
| June | 1 | 15.0 | 15.0 | | | | | | | | | |
| July | 1 | 2.0 | 4.0 | | | | | | | | | |
| August | 1 | 8.0 | 8.0 | | | | | | | | | |
| | | | | | | Upper Chatham Strait transect | | | | | | |
| | | UCA | | | UCB | | | UCC | | | UCD | |
| May | 1 | 11.0 | 16.0 | — | — | — | 1.0 | 15.0 | 22.0 | 1.0 | 7.0 | 9.0 |
| June | 1 | 20.0 | 40.0 | 1.0 | 15.0 | 30.0 | 1.0 | 14.0 | 28.0 | 1.0 | 10.0 | 20.0 |
| July | 1 | 0.5 | 1.0 | 1.0 | 0.5 | 1.0 | 1.0 | 0.5 | 1.0 | 1.0 | 1.0 | 2.0 |
| August | 1 | 3.0 | 3.0 | 1.0 | 2.0 | 2.0 | 1.0 | 3.5 | 3.5 | 1.0 | 4.0 | 4.0 |
| | | | | | | Icy Strait transect | | | | | | |
| | | ISA | | | ISB | | | ISC | | | ISD | |
| May | 1 | 7.0 | 10.0 | 1 | 5.0 | 10.0 | 1 | 8.0 | 10.0 | 1 | 4.0 | 5.0 |
| June | 1 | 7.5 | 15.0 | 1 | 20.0 | 40.0 | 1 | 15.0 | 30.0 | 1 | 7.0 | 14.0 |
| July | 1 | 10.0 | 20.0 | 1 | 2.0 | 4.0 | 1 | 3.5 | 6.5 | 1 | 2.0 | 4.0 |
| August | 1 | 12.0 | 12.0 | 1 | 20.0 | 20.0 | 1 | 13.0 | 13.0 | 1 | 9.5 | 9.5 |
| | | | | | | Icy Point transect | | | | | | |
| | | IPA | | | IPB | | | IPC | | | IPD | |
| May | — | — | — | — | — | — | — | — | — | — | — | — |
| June | 1 | 11.0 | 11.0 | 1 | 16.0 | 16.0 | 1 | 10.0 | 10.0 | 1 | 17.0 | 17.0 |
| July | 1 | 13.0 | 13.0 | 1 | 5.0 | 5.0 | 1 | 15.0 | 15.0 | 1 | 4.0 | 4.0 |
| August | 1 | 8.0 | 8.0 | 1 | 2.5 | 2.5 | 1 | 5.0 | 5.0 | 1 | 5.0 | 5.0 |

Table 6.—Zooplankton displacement volumes (DV, ml), standing stock (DV/m$^3$), and total density (number/m$^3$, 333-µm mesh only) from double oblique bongo (0.6 m diameter, 333- and 505-µm mesh) hauls collected monthly at stations in the marine waters of the northern region of southeastern Alaska, May–August 2013. Standing stock (ml/m$^3$) is computed using flowmeter readings to determine water volume filtered. A 1 ml zooplankton volume approximates 1 g biomass. Dash indicates no data. Station code acronyms are listed in Table 1.

| Month | Depth (m) | DV | DV/m$^3$ | Total density | Depth (m) | DV | DV/m$^3$ | Total density | Depth (m) | DV | DV/m$^3$ | Total density | Depth (m) | DV | DV/m$^3$ | Total density |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Auke Bay Monitor (ABM)** | | | | | | | | | | | | | | | | |
| | | | | | 333-µm mesh | | | | 505-µm mesh | | | | | | | |
| May | | | | | 42 | 50 | 0.9 | — | 42 | 30 | 0.4 | — | | | | |
| June | | | | | 43 | 25 | 0.4 | — | 43 | 15 | 0.2 | — | | | | |
| July | | | | | 30 | 10 | 0.2 | — | 30 | 5 | 0.1 | — | | | | |
| August | | | | | 30 | 5 | 0.1 | — | 30 | 5 | 0.1 | — | | | | |
| **Icy Strait** | | | | | | | | | | | | | | | | |
| 333-µm mesh | | | | | | | | | | | | | | | | |
| | ISA | | | | ISB | | | | ISC | | | | ISD | | | |
| May | 79 | 50 | 0.9 | 1,185.1 | 164 | 150 | 1.3 | 1,638.9 | 225 | 145 | 1.5 | 771.9 | 214 | 150 | 0.8 | 1,424.7 |
| June | 163 | 65 | 0.5 | 1,018.9 | 195 | 140 | 0.5 | 789.4 | 223 | 165 | 0.7 | 1,107.8 | 207 | 135 | 0.5 | 737.5 |
| July | 92 | 85 | 0.8 | 1,080.5 | 177 | 105 | 0.6 | 933.4 | 217 | 145 | 0.6 | 887.6 | 215 | 185 | 0.7 | 938.8 |
| August | 80 | 55 | 0.6 | 1,013.3 | 149 | 85 | 0.5 | 963.5 | 225 | 145 | 0.6 | 839.9 | 220 | 120 | 0.5 | 653.3 |
| 505-µm mesh | | | | | | | | | | | | | | | | |
| | ISA | | | | ISB | | | | ISC | | | | ISD | | | |
| May | 79 | 55 | 0.4 | — | 164 | 100 | 0.6 | — | 225 | 140 | 0.9 | — | 214 | 130 | 0.6 | — |
| June | 163 | 40 | 0.3 | — | 195 | 100 | 0.3 | — | 223 | 125 | 0.4 | — | 207 | 105 | 0.3 | — |

Table 6.—cont.

| Month | Depth (m) | DV | DV/m³ | Total density | Depth (m) | DV | DV/m³ | Total density | Depth (m) | DV | DV/m³ | Total density | Depth (m) | DV | DV/m³ | Total density |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July | 0 | 75 | 0.7 | — | 0 | 85 | 0.5 | — | 0 | 115 | 0.4 | — | 215 | 170 | 0.7 | — |
| August | 80 | 10 | 0.1 | — | 149 | 50 | 0.3 | — | 225 | 100 | 0.4 | — | 220 | 105 | 0.4 | — |

**Icy Point**

333-µm mesh

| | IPA | | | | IPB | | | | IPC | | | | IPD | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May | | | | | | | | | | | | | | | | |
| June | 155 | 55 | 0.3 | — | 108 | 45 | 0.3 | — | 119 | 50 | 0.3 | — | 215 | 65 | 0.2 | — |
| July | 140 | 45 | 0.2 | — | 93 | 25 | 0.2 | — | 101 | 35 | 0.2 | — | 236 | 25 | 0.1 | — |
| August | 151 | 25 | 0.1 | — | 106 | 30 | 0.2 | — | 114 | 15 | 0.1 | — | 196 | 10 | 0.0 | — |

505-µm mesh

| | IPA | | | | IPB | | | | IPC | | | | IPD | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May | | | | | | | | | | | | | | | | |
| June | 155 | 35 | 0.2 | — | 108 | 55 | 0.4 | — | 119 | 55 | 0.4 | — | 215 | 45 | 0.2 | — |
| July | 140 | 30 | 0.2 | — | 93 | 15 | 0.1 | — | 101 | 15 | 0.1 | — | 236 | 25 | 0.1 | — |
| August | 151 | 20 | 0.1 | — | 106 | 10 | 0.1 | — | 114 | 5 | 0.0 | — | 196 | 45 | 0.2 | — |

Table 7.—Mean volume (L) of jellyfish captured in rope trawl hauls monthly at stations in the marine waters of the northern region of southeastern Alaska, June-August 2013.

| | Icy Strait | | | | Upper Chatham Strait | | | | Icy Point | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | *Aequorea* sp. | | | | | | | |
| | ISA | ISB | ISC | ISD | UCA | UCB | UCC | UCD | IPA | IPB | IPC | IPD |
| June | 1.2 | 2.5 | 0.5 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| July | 4.0 | 2.3 | 5.2 | 5.5 | 1.6 | 7.1 | 12.5 | 20.9 | 4.0 | 1.5 | 10.4 | 6.3 |
| August | 12.0 | 13.5 | 3.4 | 2.5 | 17.0 | 26.1 | 7.6 | 7.9 | 12.5 | 3.5 | 3.6 | 5.7 |
| | | | | | *Aurelia labiata* | | | | | | | |
| | ISA | ISB | ISC | ISD | UCA | UCB | UCC | UCD | IPA | IPB | IPC | IPD |
| June | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| July | 0.0 | 0.1 | 0.0 | 0.0 | 0.3 | 0.2 | 1.8 | 0.7 | 0.2 | 2.3 | 2.8 | 1.7 |
| August | 1.4 | 0.1 | 0.0 | 0.5 | 1.7 | 1.0 | 1.7 | 2.9 | 2.3 | 0.3 | 1.6 | 3.7 |
| | | | | | *Chrysaora melanaster* | | | | | | | |
| | ISA | ISB | ISC | ISD | UCA | UCB | UCC | UCD | IPA | IPB | IPC | IPD |
| June | 5.0 | 8.4 | 6.0 | 52.3 | 0.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| July | 9.0 | 2.0 | 27.5 | 0.6 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.1 | 0.3 | 0.1 |
| August | 1.3 | 0.3 | 0.0 | 0.0 | 0.2 | 0.0 | 0.4 | 0.0 | 0.0 | 0.2 | 0.4 | 0.2 |
| | | | | | *Cyanea capillata* | | | | | | | |
| | ISA | ISB | ISC | ISD | UCA | UCB | UCC | UCD | IPA | IPB | IPC | IPD |
| June | 0.4 | 0.4 | 0.0 | 0.2 | 0.0 | 0.2 | 0.1 | 0.1 | 0.3 | 0.4 | 0.2 | 0.2 |
| July | 1.0 | 0.5 | 1.5 | 1.0 | 3.4 | 1.4 | 1.7 | 1.0 | 0.2 | 0.4 | 0.3 | 0.3 |
| August | 0.8 | 0.0 | 0.0 | 0.0 | 3.8 | 2.2 | 1.1 | 0.9 | 2.5 | 4.5 | 2.8 | 2.8 |

Table 7.—cont.

| | Icy Strait | | | | Upper Chatham Strait | | | | Icy Point | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Staurophora* sp. | | | | | | | | | | | |
| | ISA | ISB | ISC | ISD | UCA | UCB | UCC | UCD | IPA | IPB | IPC | IPD |
| June | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| July | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| August | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Other[1] | | | | | | | | | | | |
| | ISA | ISB | ISC | ISD | UCA | UCB | UCC | UCD | IPA | IPB | IPC | IPD |
| June | 0.1 | 0.2 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| July | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| August | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

[1] Other: Ctenophores, *Phacellophora* sp., and unknown species

Table 8.—Salmonid and non-salmonid catches from rope trawl hauls in strait ($n$ = 86) and coastal ($n$ = 12) marine habitats of the northern region of southeastern Alaska, June–August 2013. Dash indicates no samples. See Table 2 for sampling effort by month and habitat. Catches were not adjusted for standard 20-min trawl durations or vessel calibrations; see Appendix 2 and Table 10.

| | | Strait | | | Coastal | | |
|---|---|---|---|---|---|---|---|
| Common Name | Scientific name | June | July | August | June | July | August |
| | **Salmonids** | | | | | | |
| Chum salmon[1] | *Oncorhynchus keta* | 810 | 7,342 | 624 | — | 83 | 22 |
| Pink salmon[1] | *O. gorbuscha* | 185 | 2,816 | 344 | — | 62 | 15 |
| Sockeye salmon[1] | *O. kisutch* | 117 | 817 | 213 | — | 13 | 1 |
| Coho salmon[1] | *O. nerka* | 371 | 365 | 82 | 18 | 52 | 14 |
| Pink salmon[3] | *O. gorbuscha* | 51 | 100 | 22 | 31 | 2 | 1 |
| Chinook salmon[2] | *O. tshawytscha* | 97 | 5 | 12 | 8 | 2 | — |
| Chum salmon[3] | *O. keta* | 40 | 3 | 5 | 3 | 2 | — |
| Chinook salmon[1] | *O. tshawytscha* | 14 | 6 | 16 | 7 | 4 | — |
| Coho salmon[3] | *O. kisutch* | 4 | 6 | 19 | — | — | — |
| Dolly Varden | *Salvelinus malma* | 22 | — | — | — | — | — |
| Chinook salmon[3] | *O. tshawytscha* | 20 | 1 | — | 1 | — | — |
| Sockeye salmon[3] | *O. nerka* | 3 | — | — | — | — | — |
| Sockeye salmon[2] | *O. nerka* | — | — | 1 | 1 | — | — |
| Steelhead | *O. mykiss* | — | — | — | 1 | — | — |
| Salmonid subtotals | | 1,735 | 11,461 | 1,338 | 70 | 220 | 53 |
| | **Non-salmonids** | | | | | | |
| Capelin | *Mallotus villosus* | 1 | — | 10,455 | — | — | — |
| Walleye pollock[3] | *Gadus chalcogramma* | 146 | — | 7 | 2 | 1 | — |
| Crested sculpin | *Blepsias bilobus* | 4 | 26 | 46 | 1 | — | — |
| Pacific saury | *Cololabis saira* | — | — | — | — | — | 37 |

Table 8.—cont.

| | | Strait | | | Coastal | | |
|---|---|---|---|---|---|---|---|
| Common Name | Scientific name | June | July | August | June | July | August |
| Arrowtooth flounder | Reinhardtius stomias | — | — | — | 21 | — | — |
| Smooth Lumpsucker | *Aptocyclus ventricosus* | 8 | 1 | 5 | — | — | — |
| Pacific herring | *Clupea pallasi* | 1 | 7 | 3 | — | 1 | — |
| Spiny Lumpsucker | *Eumicrotremus orbis* | — | 5 | 3 | — | — | — |
| Soft sculpin | *Gilbertidia sigalutes* | 7 | — | — | 3 | — | — |
| Walleye pollock[4] | *Theragra chalcogramma* | 6 | — | 1 | 2 | 5 | — |
| Prowfish | *Zaprora silenus* | — | 4 | 1 | — | 1 | — |
| Pacific sandfish | *Trichodon trichodon* | 4 | — | 1 | — | — | 1 |
| Black rockfish | *Sebastes melanops* | — | — | — | 2 | 3 | |
| Lingcod | *Ophiodon elongatus* | — | — | — | 5 | — | — |
| Salmon shark | *Lamna ditropis* | — | 1 | 1 | — | — | — |
| Poacher | Agonidae | 1 | — | — | — | — | — |
| Wolf-eel | *Anarrhichthys ocellatus* | — | 1 | — | — | — | — |
| Squid | Gonatidae | 1 | — | — | 17 | — | 1 |
| Skate | Rajidae | — | — | 1 | — | — | — |
| Spiny dogfish | *Squalus acanthias* | — | — | — | — | 1 | — |
| Jack mackerel | *Trachurus symmetricus* | — | — | — | 1 | — | — |
| Non-salmonid subtotals | | 179 | 45 | 10,524 | 54 | 12 | 39 |

[1]Juvenile
[2]Immature
[3]Adult
[4]Larvae or young-of-the-year

Table 9.—Frequency of occurrence of monthly salmonid and non-salmonid catches from rope trawl hauls in strait (*n* = 86) and coastal (*n* = 12) marine habitats of the northern region of southeastern Alaska, June–August 2013. The percent frequency of occurrence is shown in parentheses. Dash indicates no samples. See Table 2 for sampling effort by month and habitat.

| | | Strait | | | | Coastal | | | |
|---|---|---|---|---|---|---|---|---|---|
| Common name | Scientific name | June | July | August | (%) | June | July | August | (%) |
| | | **Salmonids** | | | | | | | |
| Chum salmon[1] | *Oncorhynchus keta* | 12 | 27 | 27 | (77) | — | 3 | 3 | (50) |
| Pink salmon[1] | *O. gorbuscha* | 8 | 22 | 22 | (60) | — | 3 | 1 | (33) |
| Sockeye salmon[1] | *O. kisutch* | 16 | 26 | 24 | (77) | — | 3 | 1 | (33) |
| Coho salmon[1] | *O. nerka* | 22 | 26 | 24 | (84) | 3 | 3 | 4 | (83) |
| Pink salmon[3] | *O. gorbuscha* | 19 | 22 | 11 | (60) | 4 | 2 | 1 | (58) |
| Chinook salmon[2] | *O. tshawytscha* | 25 | 5 | 8 | (44) | 3 | 1 | — | (33) |
| Chum salmon[3] | *O. keta* | 16 | 2 | 4 | (26) | 1 | 2 | — | (25) |
| Chinook salmon[1] | *O. tshawytscha* | 12 | 6 | 11 | (34) | 2 | 2 | — | (33) |
| Coho salmon[3] | *O. kisutch* | 3 | 5 | 11 | (22) | — | — | — | (0) |
| Dolly Varden | *Salvelinus malma* | 13 | — | — | (15) | — | — | — | (0) |
| Chinook salmon[3] | *O. tshawytscha* | 7 | 1 | — | (9) | 1 | — | — | (8) |
| Sockeye salmon[3] | *O. nerka* | 3 | — | — | (3) | — | — | — | (0) |
| Sockeye salmon[2] | *O. nerka* | — | — | 1 | (1) | 1 | — | — | (8) |
| Steelhead | *O. mykiss* | — | — | — | (0) | 1 | — | — | (8) |
| | | **Non-salmonids** | | | | | | | |
| Capelin | *Mallotus villosus* | 1 | — | 2 | (3) | — | — | — | (0) |
| Walleye pollock[3] | *Gadus chalcogramma* | 23 | — | 6 | (34) | 2 | 1 | — | (25) |
| Crested sculpin | *Blepsias bilobus* | 4 | 15 | 24 | (50) | 1 | — | — | (8) |
| Pacific saury | *Cololabis saira* | — | — | — | (0) | — | — | 1 | (8) |
| Arrowtooth flounder | Reinhardtius stomias | — | — | — | (0) | 2 | — | — | (17) |
| Smooth Lumpsucker | *Aptocyclus ventricosus* | 7 | 1 | 4 | (14) | — | — | — | (0) |

Table 9.—cont.

| Common name | Scientific name | Strait June | Strait July | Strait August | Strait (%) | Coastal June | Coastal July | Coastal August | Coastal (%) |
|---|---|---|---|---|---|---|---|---|---|
| Pacific herring | *Clupea pallasi* | 1 | 5 | 3 | (10) | — | 1 | — | (8) |
| Spiny Lumpsucker | *Eumicrotremus orbis* | — | 5 | 3 | (9) | — | — | — | (0) |
| Soft sculpin | *Gilbertidia sigalutes* | 3 | — | — | (3) | 3 | — | — | (25) |
| Walleye pollock[4] | *Theragra chalcogramma* | 3 | — | 1 | (5) | 2 | 1 | — | (25) |
| Prowfish | *Zaprora silenus* | — | 4 | 1 | (6) | — | 1 | — | (8) |
| Pacific sandfish | *Trichodon trichodon* | 4 | — | 1 | (6) | — | — | 1 | (8) |
| Black rockfish | *Sebastes melanops* | — | — | — | (0) | 2 | 2 | — | (33) |
| Lingcod | *Ophiodon elongatus* | — | — | — | (0) | 2 | — | — | (17) |
| Salmon shark | *Lamna ditropis* | — | 1 | 1 | (2) | — | — | — | (0) |
| Poacher | Agonidae | 1 | — | — | (1) | — | — | — | (0) |
| Wolf-eel | *Anarrhichthys ocellatus* | — | 1 | — | (1) | — | — | — | (0) |
| Squid | Gonatidae | 1 | — | — | (1) | 3 | — | 1 | (33) |
| Skate | Rajidae | — | — | 1 | (1) | — | — | — | (0) |
| Spiny dogfish | *Squalus acanthias* | — | — | — | (0) | — | 1 | — | (8) |
| Pacific jack mackerel | *Trachurus symmetricus* | — | — | — | (0) | 1 | — | — | (8) |

[1]Juvenile
[2]Immature
[3]Adult
[4]Larvae or young-of-the-year (YOY)

Table 10.—Juvenile salmon catch conversions for the FV *Northwest Explorer* (*NWE*) from rope trawl hauls in strait habitat of the marine waters of the northern region of southeastern Alaska, June-August 2013: mean catch-per-unit-effort (CPUE); mean Ln(CPUE+1); calibration factors; mean calibrated Ln(CPUE+1); and back-calculated mean nominal CPUE. Calibration factors were developed from paired comparisons between commercial and research vessels, and were used to standardize catches to the NOAA ship *John N. Cobb* ("Cobb units"; Wertheimer et al. 2010).

| | | *NWE* | | Calibration | "Cobb units" | |
|---|---|---|---|---|---|---|
| Species | Month | CPUE | Ln(CPUE+1) | Factor | Ln(CPUE+1) | CPUE |
| Pink | June | 6.6 | 2.36 | 0.659 | 0.46 | 1.7 |
| | July | 100.3 | 4.78 | | 1.91 | 15.0 |
| | August | 11.5 | 4.30 | | 1.12 | 3.4 |
| Chum | June | 28.9 | 1.78 | 0.705 | 0.92 | 6.4 |
| | July | 262.2 | 4.26 | | 2.98 | 40.7 |
| | August | 20.8 | 2.73 | | 1.58 | 6.5 |
| Sockeye | June | 4.1 | 0.99 | 0.848 | 0.91 | 2.8 |
| | July | 29.4 | 2.71 | | 2.35 | 16.1 |
| | August | 7.1 | 1.69 | | 1.34 | 4.6 |
| Coho | June | 13.3 | 1.51 | 0.803 | 1.48 | 6.6 |
| | July | 13.0 | 2.92 | | 1.84 | 7.0 |
| | August | 2.7 | 2.27 | | 0.89 | 1.8 |

Table 11.—Length (mm, fork), weight (g), Fulton's condition [$(g/mm^3)\cdot(10^5)$], and condition residuals (CR) from length-weight regression analysis of juvenile pink salmon captured in the marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2013.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | *n* | range | mean | se | *n* | range | mean | se | *n* | range | mean | se |
| Upper Chatham Strait | Length | 178 | 74-121 | 102 | 1 | 105 | 94-168 | 133 | 1 | 79 | 145-214 | 182 | 2 |
| | Weight | 143 | 3.6-18.7 | 10.6 | 0.2 | 82 | 8.2-44.5 | 23.0 | 0.7 | 79 | 29.6-104.1 | 62.6 | 2.1 |
| | Condition | 143 | 0.8-1.1 | 1.0 | 0.0 | 82 | 0.6-1.1 | 0.9 | 0.0 | 79 | 0.8-1.5 | 1.0 | 0.0 |
| | CR | 143 | -0.08-0.25 | 0.08 | 0.01 | 82 | -0.51-0.21 | 0.02 | 0.01 | 79 | -0.18-0.41 | 0.02 | 0.01 |
| Icy Strait | Length | 7 | 73-103 | 85 | 5 | 764 | 94-170 | 133 | 0 | 222 | 125-215 | 167 | 1 |
| | Weight | 7 | 3.2-9.6 | 5.5 | 1.0 | 502 | 6.7-45.7 | 22.0 | 0.3 | 172 | 17.0-93.8 | 44.0 | 0.9 |
| | Condition | 7 | 0.8-0.9 | 0.9 | 0.0 | 502 | 0.7-1.7 | 0.9 | 0.0 | 172 | 0.4-1.1 | 0.9 | 0.0 |
| | CR | 7 | -0.09-0.09 | 0.01 | 0.02 | 502 | -0.22-0.62 | 0.00 | 0.00 | 172 | -0.89-0.16 | -0.03 | 0.01 |
| Icy Point | Length | — | — | — | — | 62 | 104-181 | 130 | 2 | 15 | 134-197 | 166 | 5 |
| | Weight | — | — | — | — | 62 | 8.4-58.3 | 20.7 | 1.0 | 15 | 24.3-74.0 | 44.2 | 3.6 |
| | Condition | — | — | — | — | 62 | 0.7-1.1 | 0.9 | 0.0 | 15 | 0.9-1.0 | 0.9 | 0.0 |
| | CR | — | — | — | — | 62 | -0.20-0.15 | -0.01 | 0.01 | 15 | -0.14-0.09 | -0.03 | 0.01 |
| Total | Length | 185 | 73-121 | 102 | 1 | 931 | 94-181 | 132 | 0 | 316 | 125-215 | 170 | 1 |
| | Weight | 150 | 3.2-18.7 | 10.4 | 0.2 | 646 | 6.7-58.3 | 22.0 | 0.3 | 266 | 17.0-104.1 | 49.6 | 1.0 |
| | Condition | 150 | 0.8-1.1 | 1.0 | 0.0 | 646 | 0.6-1.7 | 0.9 | 0.0 | 266 | 0.4-1.5 | 1.0 | 0.0 |
| | CR | 150 | -0.09-0.25 | 0.08 | 0.01 | 646 | -0.51-0.62 | 0.00 | 0.00 | 266 | -0.89-0.41 | -0.01 | 0.01 |

Table 12.—Length (mm, fork), weight (g), Fulton's condition [$(g/mm^3)\cdot(10^5)$], and condition residuals (CR) from length-weight regression analysis of juvenile chum salmon captured in the marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2013.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | *n* | range | mean | se | *n* | range | mean | se | *n* | range | mean | se |
| Upper Chatham Strait | Length | 441 | 79-128 | 96 | 0 | 301 | 96-174 | 128 | 1 | 174 | 110-230 | 171 | 2 |
| | Weight | 290 | 4.5-19.9 | 8.7 | 0.1 | 201 | 10.6-50.3 | 20.9 | 0.4 | 136 | 14.3-125.5 | 58.0 | 2.1 |
| | Condition | 290 | 0.7-1.2 | 0.9 | 0.0 | 201 | 0.8-1.1 | 1.0 | 0.0 | 136 | 0.9-1.2 | 1.0 | 0.0 |
| | CR | 290 | -0.27-0.27 | 0.01 | 0.00 | 201 | -0.17-0.16 | 0.00 | 0.00 | 136 | -0.13-0.17 | 0.02 | 0.01 |
| Icy Strait | Length | 27 | 73-116 | 90 | 2 | 810 | 95-175 | 132 | 0 | 389 | 110-229 | 163 | 1 |
| | Weight | 26 | 3.0-15.1 | 6.7 | 0.6 | 505 | 7.6-51.7 | 23.2 | 0.3 | 285 | 11.6-121.4 | 44.5 | 1.0 |
| | Condition | 26 | 0.8-1.0 | 0.9 | 0.0 | 505 | 0.8-1.2 | 1.0 | 0.0 | 285 | 0.8-1.2 | 1.0 | 0.0 |
| | CR | 26 | -0.17-0.08 | -0.07 | 0.01 | 505 | -0.21-0.21 | 0.01 | 0.00 | 285 | -0.19-0.20 | -0.01 | 0.00 |
| Icy Point | Length | — | — | — | — | 83 | 89-209 | 130 | 2 | 22 | 128-206 | 170 | 4 |
| | Weight | — | — | — | — | 83 | 5.9-91.7 | 22.5 | 1.3 | 22 | 18.5-87.1 | 50.3 | 3.7 |
| | Condition | — | — | — | — | 83 | 0.8-1.2 | 1.0 | 0.0 | 22 | 0.9-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | 83 | -0.23-0.17 | -0.02 | 0.01 | 22 | -0.09-0.10 | -0.01 | 0.01 |
| Total | Length | 468 | 73-128 | 95 | 0 | 1194 | 89-209 | 131 | 0 | 585 | 110-230 | 165 | 1 |
| | Weight | 316 | 3.0-19.9 | 8.5 | 0.1 | 789 | 5.9-91.7 | 22.5 | 0.3 | 443 | 11.6-125.5 | 48.9 | 1.0 |
| | Condition | 316 | 0.7-1.2 | 0.9 | 0.0 | 789 | 0.8-1.2 | 1.0 | 0.0 | 443 | 0.8-1.2 | 1.0 | 0.0 |
| | CR | 316 | -0.27-0.27 | 0.00 | 0.00 | 789 | -0.23-0.21 | 0.00 | 0.00 | 443 | -0.19-0.20 | 0.00 | 0.00 |

Table 13.—Length (mm, fork), weight (g), Fulton's condition [$(g/mm^3)\cdot(10^5)$], and condition residuals (CR) from length-weight regression analysis of juvenile sockeye salmon captured in the marine habitat of the northern region of southeastern Alaska by rope trawl, June–August 2013. Dash indicates no samples.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | *n* | range | mean | se | *n* | range | mean | se | *n* | range | mean | se |
| Upper Chatham Strait | Length | 73 | 87-182 | 118 | 2 | 192 | 79-195 | 134 | 1 | 133 | 135-231 | 173 | 1 |
| | Weight | 73 | 6.4-65.5 | 18.5 | 1.3 | 152 | 4.2-80.1 | 27.4 | 1.0 | 133 | 27.9-135.6 | 57.5 | 1.5 |
| | Condition | 73 | 0.8-1.2 | 1.0 | 0.0 | 152 | 0.8-1.2 | 1.0 | 0.0 | 133 | 0.8-1.2 | 1.1 | 0.0 |
| | CR | 73 | -0.16-0.18 | 0.01 | 0.01 | 152 | -0.19-0.20 | 0.03 | 0.01 | 133 | -0.26-0.19 | 0.04 | 0.01 |
| Icy Strait | Length | 43 | 97-215 | 154 | 3 | 474 | 90-219 | 149 | 1 | 77 | 102-204 | 167 | 2 |
| | Weight | 43 | 9.5-105.5 | 38.6 | 2.8 | 391 | 6.8-116.8 | 36.9 | 0.8 | 77 | 10.7-87.6 | 50.6 | 1.7 |
| | Condition | 43 | 0.9-1.1 | 1.0 | 0.0 | 391 | 0.8-1.2 | 1.0 | 0.0 | 77 | 1.0-1.2 | 1.1 | 0.0 |
| | CR | 43 | -0.15-0.07 | -0.04 | 0.01 | 391 | -0.32-0.19 | 0.02 | 0.00 | 77 | -0.06-0.18 | 0.03 | 0.01 |
| Icy Point | Length | — | — | — | — | 13 | 140-200 | 164 | 5 | 1 | | 178 | |
| | Weight | — | — | — | — | 13 | 28.6-80.9 | 47.9 | 5.0 | 1 | | 55.1 | |
| | Condition | — | — | — | — | 13 | 0.9-1.2 | 1.0 | 0.0 | 1 | | 1.0 | |
| | CR | — | — | — | — | 13 | -0.09-0.15 | 0.01 | 0.02 | 1 | | -0.06 | |
| Total | Length | 116 | 87-215 | 132 | 3 | 679 | 79-219 | 145 | 1 | 211 | 102-231 | 171 | 1 |
| | Weight | 116 | 6.4-105.5 | 25.9 | 1.6 | 556 | 4.2-116.8 | 34.6 | 0.7 | 211 | 10.7-135.6 | 55.0 | 1.1 |
| | Condition | 116 | 0.8-1.2 | 1.0 | 0.0 | 556 | 0.8-1.2 | 1.0 | 0.0 | 211 | 0.8-1.2 | 1.1 | 0.0 |
| | CR | 116 | -0.16-0.18 | -0.01 | 0.01 | 556 | -0.32-0.20 | 0.03 | 0.00 | 211 | -0.26-0.19 | 0.03 | 0.00 |

Table 14.—Length (mm, fork), weight (g), Fulton's condition [$(g/mm^3)\cdot(10^5)$], and condition residuals (CR) from length-weight regression analysis of juvenile coho salmon captured in the marine habitat of the northern region of southeastern Alaska by rope trawl, June–August 2013.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | *n* | range | mean | se | *n* | range | mean | se | *n* | range | mean | se |
| Upper Chatham Strait | Length | 211 | 111-244 | 165 | 2 | 78 | 152-260 | 198 | 3 | 47 | 200-285 | 235 | 3 |
| | Weight | 143 | 15.2-171.7 | 59.4 | 2.2 | 78 | 36.0-204.6 | 94.8 | 4.0 | 47 | 93.4-267.0 | 155.1 | 7.1 |
| | Condition | 143 | 1.0-1.4 | 1.2 | 0.0 | 78 | 1.0-1.4 | 1.2 | 0.0 | 47 | 1.0-1.4 | 1.2 | 0.0 |
| | CR | 143 | -0.09-0.22 | 0.04 | 0.01 | 78 | -0.13-0.20 | 0.01 | 0.01 | 47 | -0.13-0.15 | -0.01 | 0.01 |
| Icy Strait | Length | 160 | 96-242 | 174 | 2 | 287 | 143-269 | 198 | 1 | 35 | 196-275 | 237 | 3 |
| | Weight | 159 | 10.0-163.1 | 64.6 | 2.2 | 287 | 32.2-229.3 | 92.1 | 1.9 | 35 | 85.4-246.3 | 151.4 | 7.2 |
| | Condition | 159 | 1.0-1.3 | 1.2 | 0.0 | 287 | 0.9-1.4 | 1.1 | 0.0 | 35 | 0.9-1.3 | 1.1 | 0.0 |
| | CR | 159 | -0.13-0.19 | 0.02 | 0.00 | 287 | -0.33-0.21 | -0.01 | 0.00 | 35 | -0.27-0.07 | -0.07 | 0.01 |
| Icy Point | Length | 18 | 179-281 | 228.1 | 6.4 | 52 | 170-289 | 236 | 3 | 14 | 227-305 | 265 | 7 |
| | Weight | 18 | 64.9-310.7 | 153.0 | 14.7 | 52 | 55.0-297.2 | 163.8 | 6.3 | 14 | 128-402.2 | 222.9 | 20.6 |
| | Condition | 18 | 1.1-1.4 | 1.2 | 0.0 | 52 | 1.0-1.4 | 1.2 | 0.0 | 14 | 1-1.4 | 1.2 | 0.0 |
| | CR | 18 | -0.06-0.15 | 0.04 | 0.01 | 52 | -0.12-0.23 | 0.03 | 0.01 | 14 | -0.19-0.15 | -0.04 | 0.03 |
| Total | Length | 389 | 96-281 | 172 | 1 | 417 | 143-289 | 203 | 1 | 96 | 196-305 | 240 | 2 |
| | Weight | 320 | 10.0-310.7 | 67.2 | 2.0 | 417 | 32.2-297.2 | 101.5 | 2.1 | 96 | 85.4-402.2 | 163.6 | 5.8 |
| | Condition | 320 | 1.0-1.4 | 1.2 | 0.0 | 417 | 0.9-1.4 | 1.2 | 0.0 | 96 | 0.9-1.4 | 1.1 | 0.0 |
| | CR | 320 | -0.13-0.22 | 0.03 | 0.00 | 417 | -0.33-0.23 | 0.00 | 0.00 | 96 | -0.27-0.15 | -0.04 | 0.01 |

Table 15.—Length (mm, fork), weight (g), Fulton's condition [$(g/mm^3)\cdot(10^5)$], and condition residuals (CR) from length-weight regression analysis of juvenile Chinook salmon captured in the marine habitat of the northern region of southeastern Alaska by rope trawl, June–August 2013. Dash indicates no samples.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | *n* | range | mean | se | *n* | range | mean | se | *n* | range | mean | se |
| Upper | Length | 8 | 197-282 | 233 | 11 | 2 | 221-247 | 234 | 13 | 11 | 196-305 | 252 | 11 |
| Chatham | Weight | 8 | 96.1-286.3 | 170.7 | 24.3 | 2 | 133.4-194.1 | 163.8 | 30.4 | 11 | 86.7-376 | 221.0 | 28.4 |
| Strait | Condition | 8 | 1.2-1.4 | 1.3 | 0.0 | 2 | 1.2-1.3 | 1.3 | 0.0 | 11 | 1.2-1.4 | 1.3 | 0.0 |
| | CR | 8 | -0.08-0.08 | -0.01 | 0.02 | 2 | -0.04--0.03 | -0.04 | 0.00 | 11 | -0.12-0.11 | -0.03 | 0.02 |
| Icy | Length | 6 | 175-251 | 211 | 11 | 4 | 194-260 | 228 | 14 | 5 | 228-318 | 274 | 15 |
| Strait | Weight | 6 | 59.2-224.1 | 123.2 | 24.3 | 4 | 109.2-172.7 | 143.8 | 13.5 | 3 | 148.6-331.2 | 235.6 | 52.9 |
| | Condition | 6 | 1.1-1.4 | 1.2 | 0.0 | 4 | 1.0-1.5 | 1.2 | 0.1 | 3 | 1.3-1.4 | 1.3 | 0.0 |
| | CR | 6 | -0.09-0.06 | -0.04 | 0.02 | 4 | -0.32-0.19 | -0.07 | 0.11 | 3 | -0.04-0.02 | -0.02 | 0.02 |
| Icy | Length | 7 | 190-290 | 253 | 13 | 4 | 218-230 | 222 | 3 | — | — | — | — |
| Point | Weight | 7 | 89.9-312.2 | 217.7 | 28.3 | 4 | 135.4-146.8 | 142.6 | 2.5 | — | — | — | — |
| | Condition | 7 | 1.2-1.4 | 1.3 | 0.0 | 4 | 1.2-1.4 | 1.3 | 0.0 | — | — | — | — |
| | CR | 7 | -0.12-0.06 | -0.03 | 0.02 | 4 | -0.08-0.07 | 0.01 | 0.03 | — | — | — | — |
| Total | Length | 21 | 175-290 | 233 | 7 | 10 | 194-260 | 227 | 6 | 16 | 196-318 | 259 | 9 |
| | Weight | 21 | 59.2-312.2 | 172.8 | 16.4 | 10 | 109.2-194.1 | 147.3 | 7.3 | 14 | 86.7-376 | 224.1 | 24.1 |
| | Condition | 21 | 1.1-1.4 | 1.3 | 0.0 | 10 | 1.0-1.5 | 1.3 | 0.0 | 14 | 1.2-1.4 | 1.3 | 0.0 |
| | CR | 21 | -0.12-0.08 | -0.03 | 0.01 | 10 | -0.32-0.19 | -0.03 | 0.04 | 14 | -0.12-0.11 | -0.03 | 0.02 |

Table 16.—Release and recovery information decoded from coded-wire tags (CWT) recovered from coho and Chinook salmon lacking an adipose fin. Fish were captured in the marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2013. Station code acronyms and coordinates are shown in Table 1.

| | | Release information | | | | | | Recovery information | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | CWT code | Brood year | Agency[1] | Locality | Date | FL (mm) | W (g) | Locality | Station code | 2013 Date | FL (mm) | W (g) | Age | Days[2] since release | Distance traveled (km) |
| | | | | | | | **June** | | | | | | | | |
| Chinook | 041991 | 2009 | ADFG | Chilkat River (Wild) | 9/19/10 | 68 | — | Icy Strait | ISC | 6/23 | 510 | 1700 | 1.2 | 1008 | 145 |
| Chinook | 041991 | 2009 | ADFG | Chilkat River (Wild) | 9/19/10 | 68 | — | Icy Strait | ISB | 6/24 | 530 | 2400 | 1.2 | 1009 | 145 |
| Chinook | 042399 | 2010 | ADFG | Chilkat River (Wild) | 9/26/11 | — | 3.9 | Icy Strait | ISA | 6/25 | 393 | 750 | 1.1 | 638 | 150 |
| Chinook | 042466 | 2010 | DIPAC | Pullen Creek | 6/20/12 | — | 27.0 | Icy Strait | ISB | 6/24 | 315 | 450 | 1.1 | 369 | |
| Chinook | 042772 | 2010 | NSRAA | Kasnyku Bay | 5/10/12 | — | 59.3 | Icy Strait | ISB | 6/25 | 450 | 1500 | 1.1 | 411 | 135 |
| Chinook | 042969 | 2010 | DIPAC | Gastineau Channel | 6/18/12 | — | 31.7 | Chatham Str. | UCA | 6/27 | 308 | 300 | 1.1 | 374 | 76 |
| Chinook | 042969 | 2010 | DIPAC | Gastineau Channel | 6/18/12 | — | 31.7 | Chatham Str. | UCA | 6/28 | 330 | 450 | 1.1 | 375 | 76 |
| Chinook | 042970 | 2010 | DIPAC | Fish Creek | 6/18/12 | — | 25.8 | Icy Strait | ISB | 6/25 | 370 | 850 | 1.1 | 372 | 80 |
| Chinook | 042970 | 2010 | DIPAC | Fish Creek | 6/18/12 | — | 25.8 | Chatham Str. | UCB | 6/27 | 334 | 450 | 1.1 | 374 | 65 |
| Chinook | 042994 | 2011 | NSRAA | Bear Cove, AK | 5/3/13 | — | 58.6 | Icy Point | IPA | 6/26 | 227 | 151 | 1.0 | 54 | 200 |
| Chinook | 090678 | 2011 | ODFW | McKenzie River | 3/5/13 | — | 44.9 | Icy Point | IPA | 6/26 | 263 | 219 | 1.0 | 113 | 1600 |
| Chinook | no tag | — | — | — | — | — | — | Icy Strait | ISC | 6/23 | 480 | 1800 | — | — | — |
| Chinook | no tag | — | — | — | — | — | — | Icy Strait | ISD | 6/24 | 310 | 400 | — | — | — |
| Chinook | no tag | — | — | — | — | — | — | Icy Point | IPA | 6/26 | 272 | 270 | — | — | — |
| Chinook | no tag | — | — | — | — | — | — | Icy Point | IPA | 6/26 | 258 | 234 | — | — | — |
| Chinook | no tag | — | — | — | — | — | — | Icy Point | IPA | 6/26 | 340 | 450 | — | — | — |
| Chinook | no tag | — | — | — | — | — | — | Icy Point | IPA | 6/26 | 327 | 400 | — | — | — |
| Chinook | no tag | — | — | — | — | — | — | Icy Point | IPA | 6/26 | 330 | 500 | — | — | — |
| Coho | 041552 | 2011 | ADFG | Berners River (Wild) | 6/11/13 | — | — | Chatham Str. | UCD | 6/27 | 159 | 45 | 1.0 | 16 | 75 |
| Coho | 042599 | 2011 | NMFS | Auke Creek (Wild) | 5/17/13 | 115 | 14.17 | Icy Strait | ISD | 6/24 | 189 | 87 | 1.0 | 38 | 70 |
| Coho | 042692 | 2011 | ADFG | Chilkat River (Wild) | 5/14/13 | — | — | Chatham Str. | UCC | 6/27 | 172 | 63 | 1.0 | 44 | 120 |
| Coho | 042780 | 2011 | ADFG | Berners River (Wild) | 6/14/13 | — | — | Chatham Str. | UCD | 6/28 | 142 | 33 | 1.0 | 14 | 75 |
| Coho | 042780 | 2011 | ADFG | Berners River (Wild) | 6/14/13 | — | — | Chatham Str. | UCC | 6/28 | 133 | 28 | 1.0 | 14 | 80 |
| Coho | 042990 | 2011 | AKI | Port Armstrong | 5/29/13 | — | 21.85 | Icy Strait | ISB | 6/25 | 193 | 82 | 1.0 | 27 | 230 |
| Coho | 043035 | 2011 | NSRAA | Kasnyku Bay, AK | 5/23/13 | — | 24.50 | Chatham Str. | UCD | 6/27 | 171 | 55 | 1.0 | 35 | 110 |

Table 16.—cont.

| Species | CWT code | Brood year | Agency[1] | Release Locality | Release Date | Release FL (mm) | Release W (g) | Recovery Locality | Station code | 2013 Date | Recovery FL (mm) | Recovery W (g) | Age | Days[2] since release | Distance traveled (km) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **July** | | | | | | | | | | | | | | | |
| Chinook | 100197 | 2011 | IDFG | Rapid River Hatchery, ID | 4/26/13 | 136 | 25.11 | Icy Point | IPC | 7/27 | 230 | 147 | 1.0 | 92 | 1650 |
| Chinook | 181986 | 2011 | CDFO | Wannock R., B.C. | 6/13/12 | — | 4.40 | Icy Point | IPA | 7/27 | 360 | 500 | 0.1 | 409 | 1600 |
| Chinook | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 220 | 135 | — | — | — |
| Chinook | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 218 | 143 | — | — | — |
| Chinook | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 220 | 145 | — | — | — |
| Coho | 042698 | 2011 | NSRAA | Deer Lake, AK | 7/16/13 | 129 | 19.50 | Icy Strait | ISD | 7/28 | 227 | 125 | 1.0 | 12 | 200 |
| Coho | 043040 | 2011 | NSRAA | Deer Lake, AK | 5/24/13 | 133 | 24.00 | Icy Strait | ISB | 7/25 | 250 | 134 | 1.0 | 62 | 200 |
| Coho | 043071 | 2011 | DIPAC | Gastineau Channel, AK | 6/18/13 | — | 20.71 | Icy Strait | ISC | 7/25 | 170 | 55 | 1.0 | 37 | 89 |
| Coho | 043071 | 2011 | DIPAC | Gastineau Channel, AK | 6/18/13 | — | 20.71 | Icy Strait | ISD | 7/25 | 170 | 57 | 1.0 | 37 | 87 |
| Coho | 043071 | 2011 | DIPAC | Gastineau Channel, AK | 6/18/13 | — | 20.71 | Icy Strait | ISD | 7/25 | 170 | 51 | 1.0 | 37 | 87 |
| Coho | 043071 | 2011 | DIPAC | Gastineau Channel, AK | 6/18/13 | — | 20.71 | Chatham Str. | UCB | 7/29 | 185 | 69 | 1.0 | 41 | 73 |
| Coho | 043071 | 2011 | DIPAC | Gastineau Channel, AK | 6/18/13 | — | 20.71 | Chatham Str. | UCD | 7/30 | 181 | 64 | 1.0 | 42 | 67 |
| Coho | 19 | — | YAKA | — | — | — | — | Icy Point | IPA | 7/27 | 240 | 194 | — | — | — |
| Coho | 636396 | 2011 | WDFW | Fork Creek, WA | 4/1/13 | 136 | 27.65 | Icy Point | IPA | 7/27 | 238 | 187 | 1.0 | 117 | 1600 |
| Coho | 636408 | 2011 | WDFW | Cowlitz River, WA | 5/1/13 | 139 | 30.03 | Icy Point | IPD | 7/27 | 255 | 215 | 1.0 | 87 | 1650 |
| Coho | No tag | — | — | — | — | — | — | Icy Strait | ISA | 7/25 | 215 | 120 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Icy Point | IPD | 7/27 | 265 | 222 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 240 | 162 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 258 | 204 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 254 | 192 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Icy Point | IPA | 7/27 | 241 | 184 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Chatham Str. | UCA | 7/30 | 220 | 120 | — | — | — |
| Coho | No tag | — | — | — | — | — | — | Chatham Str. | UCD | 7/30 | 216 | 112 | — | — | — |
| **August** | | | | | | | | | | | | | | | |
| Chinook | 042993 | 2011 | NSRAA | Kasnyku Bay, AK | 5/7/13 | 174 | 66.20 | Icy Strait | ISB | 8/29 | 310 | 250 | 1.0 | 114 | 135 |
| Chinook | No tag | — | — | — | — | — | — | Chatham Str. | UCA | 8/31 | 283 | 284 | — | — | — |
| Coho | 041552 | 2011 | ADFG | Berners R., AK (Wild) | 6/11/13 | — | — | Chatham Str. | UCA | 8/31 | 240 | 172 | 1.0 | 81 | 85 |
| Coho | 042092 | 2010 | ADFG | Auke Creek, AK (Wild) | 6/20/12 | — | — | Chatham Str. | UCC | 9/1 | 582 | 2100 | 1.1 | 438 | 50 |

Table 16.—cont.

| | | Release information | | | | | | Recovery information | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | CWT code | Brood year | Agency[1] | Locality | Date | FL (mm) | W (g) | Locality | Station code | 2013 Date | FL (mm) | W (g) | Age | Days[2] since release | Distance traveled (km) |
| Coho | 043071 | 2011 | DIPAC | Gastineau Channel, AK | 6/18/13 | | 20.71 | Icy Strait | ISC | 8/27 | 225 | 116 | 1.0 | 70 | 89 |
| Coho | No tag | — | — | — | — | — | — | Icy Point | IPC | 8/28 | 289 | 310 | — | — | — |

[1] ADFG = Alaska Department of Fish and Game; AKI = Armstrong Keta Inc.; CDFO = Canadian Department of Fisheries and Oceans; DIPAC = Douglas Island Pink and Chum Inc.; IDFG = Idaho Department of Fish and Game; KNFC = Kake Non-profit Fisheries Corporation; NMFS = National Marine Fisheries Service; NSRAA = Northern Southeast Regional Aquaculture Association; ODFW = Oregon Department of Fish and Wildlife; PWHA = Prince of Wales Hatchery Association; SSRAA = Southern Southeast Regional Aquaculture Association; WDFW = Washington Department of Fish and Wildlife; YAKA = Yakama Hatchery.

[2] Days since release may potentially include freshwater residence periods, such as for salmon fry marked and released in fall that over-wintered in freshwater and smolted the subsequent year.

Table 17.—Stock-specific information on 1,204 juvenile chum salmon released from regional enhancement facility sites and captured in the marine waters of the northern region of southeastern Alaska by rope trawl, June-August 2013. Length (mm, fork), weight (g), Fulton's condition [$(g/mm^3) \cdot (10^5)$], and condition residuals (CR) from length-weight regression analysis are reported for each stock group. Dash indicates no samples. L/L = late large fish releases. See Table 16 for agency acronyms.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | n | range | mean | se | n | range | mean | se | n | range | mean | se |
| | | | | | | **DIPAC** | | | | | | | |
| Upper Chatham Strait | Length | 134 | 80-112 | 94 | 1 | 93 | 109-154 | 129 | 1 | 51 | 116-190 | 165 | 2 |
| | Weight | 134 | 4.5-12.4 | 7.8 | 0.2 | 93 | 12.2-33.7 | 20.6 | 0.5 | 51 | 14.3-69.5 | 45.9 | 1.7 |
| | Condition | 134 | 0.8-1.1 | 0.9 | 0.0 | 93 | 0.8-1.1 | 1.0 | 0.0 | 51 | 0.9-1.1 | 1.0 | 0.0 |
| | CR | 134 | -0.15-0.19 | 0.01 | 0.01 | 93 | -0.17-0.16 | 0.00 | 0.01 | 50 | -0.13-0.12 | 0.01 | 0.01 |
| Icy Strait | Length | 13 | 73-97 | 84 | 2 | 134 | 105-160 | 129 | 1 | 85 | 113-200 | 159 | 1 |
| | Weight | 13 | 3.0-7.7 | 5.1 | 0.5 | 134 | 11.0-35.2 | 21.2 | 0.4 | 85 | 11.6-93.5 | 39.8 | 1.1 |
| | Condition | 13 | 0.8-0.9 | 0.8 | 0.0 | 134 | 0.8-1.1 | 1.0 | 0.0 | 85 | 0.8-1.2 | 1.0 | 0.0 |
| | CR | 13 | -0.16-0.01 | -0.09 | 0.02 | 134 | -0.21-0.13 | 0.01 | 0.00 | 85 | -0.16-0.17 | -0.01 | 0.01 |
| Icy Point | Length | — | — | — | — | 37 | 95-148 | 124 | 2 | 5 | 128-175 | 154 | 8 |
| | Weight | — | — | — | — | 37 | 7.7-33.7 | 18.2 | 0.8 | 5 | 18.5-55.8 | 38.3 | 6.2 |
| | Condition | — | — | — | — | 37 | 0.8-1.0 | 0.9 | 0.0 | 5 | 0.9-1.0 | 1.0 | 0.0 |
| | CR | — | — | — | — | 37 | -0.19-0.07 | -0.03 | 0.01 | 5 | -0.1-0.1 | 0.00 | 0.00 |
| Total | Length | 147 | 73-112 | 93 | 1 | 264 | 95-160 | 128 | 1 | 141 | 113-200 | 161 | 1 |
| | Weight | 147 | 3.0-12.4 | 7.6 | 0.2 | 264 | 7.7-35.2 | 20.6 | 0.3 | 141 | 11.6-93.5 | 42.0 | 1.0 |
| | Condition | 147 | 0.8-1.1 | 0.9 | 0.0 | 264 | 0.8-1.1 | 1.0 | 0.0 | 141 | 0.8-1.2 | 1.0 | 0.0 |
| | CR | 147 | -0.16-0.19 | 0.00 | 0.01 | 264 | -0.21-0.16 | 0.00 | 0.00 | 141 | -0.16-0.17 | 0.00 | 0.00 |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | **NSRAA** | | | | | | |
| | | | | | | | Deep Inlet | | | | | | |
| Icy | Length | — | — | — | — | 2 | 123-162 | 142.5 | 19.5 | — | — | — | — |
| Point | Weight | — | — | — | — | 2 | 19.6-46.5 | 33.1 | 13.5 | — | — | — | — |
| (Total) | Condition | — | — | — | — | 2 | 1.1-1.1 | 1.1 | 0.1 | — | — | — | — |
| | CR | — | — | — | — | 2 | 0.1-0.11 | 0.11 | 0.01 | — | — | — | — |
| | | | | | | | Deep Inlet L/L | | | | | | |
| Icy | Length | — | — | — | — | 3 | 142-148 | 145.0 | 1.8 | — | — | — | — |
| Point | Weight | — | — | — | — | 3 | 28.7-34.7 | 32.2 | 1.8 | — | — | — | — |
| (Total) | Condition | — | — | — | — | 3 | 1.0-1.2 | 1.1 | 0.1 | — | — | — | — |
| | CR | — | — | — | — | 3 | -0.04-0.18 | 0.09 | 0.07 | — | — | — | — |
| | | | | | | | Kasnyku Bay | | | | | | |
| Upper | Length | 10 | 87-111 | 102 | 2 | 2 | 124-163 | 144 | 20 | 1 | | 168 | |
| Chatham | Weight | 10 | 5.8-12.5 | 9.7 | 0.6 | 2 | 20.2-44.4 | 32.3 | 12.1 | 1 | | 44.0 | |
| Strait | Condition | 10 | 0.8-1.0 | 0.9 | 0.0 | 2 | 1.0-1.1 | 1.0 | 0.0 | 1 | | 0.9 | |
| | CR | 10 | -0.14-0.07 | -0.03 | 0.02 | 2 | 0.04-0.10 | 0.07 | 0.03 | 1 | | -0.06 | |
| Icy | Length | 1 | | 81 | | 8 | 114-148 | 133 | 3 | 3 | 152-171 | 163 | 6 |
| Strait | Weight | 1 | | 4.1 | | 8 | 12.8-32.7 | 24.5 | 2.1 | 3 | 33.9-51.4 | 43.2 | 5.1 |
| | Condition | 1 | | 0.8 | | 8 | 0.9-1.2 | 1.0 | 0.0 | 3 | 1.0-1.0 | 1.0 | 0.0 |
| | CR | 1 | | -0.17 | | 8 | -0.09-0.21 | 0.05 | 0.04 | 3 | -0.02-0.04 | 0.01 | 0.02 |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Icy Point | Length | — | — | — | — | 2 | 136-140 | 138 | 2 | 2 | 170-195 | 183 | 13 |
| | Weight | — | — | — | — | 2 | 23.3-28.5 | 25.9 | 2.6 | 2 | 49.4-68.3 | 58.9 | 9.5 |
| | Condition | — | — | — | — | 2 | 0.93-1.04 | 1.0 | 0.1 | 2 | 0.9-1.0 | 1.0 | 0.0 |
| | CR | — | — | — | — | 2 | -0.04-0.07 | 0.01 | 0.06 | 2 | -0.08-0.02 | 0.00 | 0.10 |
| Total | Length | 11 | 81-111 | 100 | 3 | 12 | 114-163 | 136 | 4 | 6 | 152-195 | 170 | 6 |
| | Weight | 11 | 4.1-12.5 | 9.2 | 0.8 | 12 | 12.8-44.4 | 26.0 | 2.2 | 6 | 33.9-68.3 | 48.6 | 4.7 |
| | Condition | 11 | 0.8-1.0 | 0.9 | 0.0 | 12 | 0.9-1.2 | 1.0 | 0.0 | 6 | 0.9-1.0 | 1.0 | 0.0 |
| | CR | 11 | -0.17-0.07 | -0.04 | 0.02 | 12 | -0.09-0.21 | 0.05 | 0.03 | 6 | -0.08-0.04 | -0.02 | 0.02 |
| Kasnyku Bay L/L | | | | | | | | | | | | | |
| Upper Chatham Strait | Length | 4 | 90-103 | 99 | 3 | 3 | 135-149 | 143 | 4 | — | — | — | — |
| | Weight | 4 | 6.8-11.4 | 9.3 | 1.0 | 3 | 23.2-28.9 | 26.4 | 1.7 | — | — | — | — |
| | Condition | 4 | 0.9-1.0 | 1.0 | 0.0 | 3 | 0.9-0.9 | 0.9 | 0.0 | — | — | — | — |
| | CR | 4 | -0.04-0.10 | 0.02 | 0.03 | 3 | -0.11--0.02 | -0.07 | 0.02 | — | — | — | — |
| Icy Strait | Length | 2 | 98-103 | 101 | 3 | 3 | 138-152 | 146 | 4 | 1 | | 175 | |
| | Weight | 2 | 9.0-9.1 | 9.1 | 0.0 | 3 | 25.2-34.6 | 31.4 | 3.1 | 1 | | 46.7 | |
| | Condition | 2 | 0.8-1.0 | 0.9 | 0.1 | 3 | 1.0-1.1 | 1.0 | 0.0 | 1 | | 0.9 | |
| | CR | 2 | -0.13-0.03 | -0.05 | 0.08 | 3 | -0.01-0.09 | 0.03 | 0.03 | 1 | | -0.13 | |
| Icy Point | Length | — | — | — | — | — | — | — | — | — | — | — | — |
| | Weight | — | — | — | — | — | — | — | — | — | — | — | — |
| | Condition | — | — | — | — | — | — | — | — | — | — | — | — |
| | CR | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | Length | 6 | 90-103 | 99 | 2 | 6 | 135-152 | 144 | 3 | 1 | | 175 | |
| | Weight | 6 | 6.8-11.4 | 9.2 | 0.6 | 6 | 23.2-34.6 | 28.9 | 1.9 | 1 | | 46.7 | |
| | Condition | 6 | 0.8-1.0 | 0.9 | 0.0 | 6 | 0.9-1.1 | 1.0 | 0.0 | 1 | | 0.9 | |
| | CR | 6 | -0.13-0.10 | 0.00 | 0.03 | 6 | -0.11-0.09 | -0.02 | 0.03 | 1 | | -0.13 | |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Takatz Bay | | | | | | |
| Upper | Length | 5 | 96-112 | 103 | 3 | 1 | | 126 | | 1 | | 170 | |
| Chatham | Weight | 5 | 7.7-12.6 | 10.2 | 0.9 | 1 | | 19.2 | | 1 | | 51.5 | |
| Strait | Condition | 5 | 0.9-1.0 | 0.9 | 0.0 | 1 | | 1.0 | | 1 | | 1.0 | |
| | CR | 5 | -0.07-0.08 | -0.01 | 0.03 | 1 | | 0.00 | | 1 | | 0.06 | |
| Icy | Length | — | — | — | — | 3 | 132-142 | 137 | 3 | 1 | | 170 | |
| Strait | Weight | — | — | — | — | 3 | 22-29.3 | 25.6 | 2.1 | 1 | | 49.6 | |
| | Condition | — | — | — | — | 3 | 1.0-1.0 | 1.0 | 0.0 | 1 | | 1.0 | |
| | CR | — | — | — | — | 3 | -0.01-0.05 | 0.03 | 0.02 | 1 | | 0.02 | |
| Icy | Length | — | — | — | — | — | — | — | — | — | — | — | — |
| Point | Weight | — | — | — | — | — | — | — | — | — | — | — | — |
| | Condition | — | — | — | — | — | — | — | — | — | — | — | — |
| | CR | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | Length | 5 | 96-112 | 103 | 3 | 4 | 126-142 | 134 | 3 | 2 | 170-170 | 170 | 0 |
| | Weight | 5 | 7.7-12.6 | 10.2 | 0.9 | 4 | 19.2-29.3 | 24.0 | 2.2 | 2 | 49.6-51.5 | 50.6 | 1.0 |
| | Condition | 5 | 0.9-1.0 | 0.9 | 0.0 | 4 | 1.0-1.0 | 1.0 | 0.0 | 2 | 1.0-1.1 | 1.0 | 0.0 |
| | CR | 5 | -0.07-0.08 | -0.01 | 0.03 | 4 | -0.01-0.05 | 0.02 | 0.02 | 2 | 0.02-0.06 | 0.04 | 0.02 |
| | | | | | | | Takatz Bay L/L | | | | | | |
| Upper | Length | 6 | 107-114 | 112 | 1 | 2 | 127-174 | 151 | 24 | — | — | — | — |
| Chatham | Weight | 6 | 11.6-13.8 | 12.8 | 0.4 | 2 | 19.1-50.3 | 34.7 | 15.6 | — | — | — | — |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strait | Condition | 6 | 0.8-1.0 | 0.9 | 0.0 | 2 | 0.9-1.0 | 0.9 | 0.0 | — | — | — | — |
| | CR | 6 | -0.11-0.05 | -0.03 | 0.02 | 2 | -0.03--0.03 | -0.03 | 0.00 | — | — | — | — |
| Icy Strait | Length | — | — | — | — | 8 | 124-165 | 143 | 5 | 2 | 190-191 | 191 | 1 |
| | Weight | — | — | — | — | 8 | 18.3-44.8 | 28.8 | 3.3 | 2 | 66.9-69.9 | 68.4 | 1.5 |
| | Condition | — | — | — | — | 8 | 0.9-1.0 | 1.0 | 0.0 | 2 | 1.0-1.0 | 1.0 | 0.0 |
| | CR | — | — | — | — | 8 | -0.06-0.04 | 0.00 | 0.01 | 2 | -0.02-0.01 | -0.01 | 0.01 |
| Icy Point | Length | — | — | — | — | 1 | | 150 | | — | — | — | — |
| | Weight | — | — | — | — | 1 | | 31.4 | | — | — | — | — |
| | Condition | — | — | — | — | 1 | | 0.9 | | — | — | — | — |
| | CR | — | — | — | — | 1 | | -0.05 | | — | — | — | — |
| Total | Length | 6 | 107-114 | 112 | 1 | 11 | 124-174 | 145 | 5 | 2 | 190-191 | 191 | 1 |
| | Weight | 6 | 11.6-13.8 | 12.8 | 0.4 | 11 | 18.3-50.3 | 30.1 | 3.2 | 2 | 66.9-69.9 | 68.4 | 1.5 |
| | Condition | 6 | 0.8-1.0 | 0.9 | 0.0 | 11 | 0.9-1.0 | 1.0 | 0.0 | 2 | 1.0-1.0 | 1.0 | 0.0 |
| | CR | 6 | -0.11-0.05 | -0.03 | 0.02 | 11 | -0.06-0.04 | -0.01 | 0.01 | 2 | -0.02-0.01 | -0.01 | 0.01 |
| Southeast Cove | | | | | | | | | | | | | |
| Upper Chatham Strait | Length | — | — | — | — | 6 | 129-154 | 145 | 4 | 2 | 170-176 | 173 | 3 |
| | Weight | — | — | — | — | 6 | 21.5-36.7 | 29.3 | 2.5 | 2 | 50.9-55.3 | 53.1 | 2.2 |
| | Condition | — | — | — | — | 6 | 0.8-1.0 | 1.0 | 0.0 | 2 | 1.0-1.0 | 1.0 | 0.0 |
| | CR | — | — | — | — | 6 | -0.14-0.04 | -0.02 | 0.03 | 2 | 0.03-0.05 | 0.04 | 0.01 |
| Icy Strait | Length | — | — | — | — | 20 | 130-167 | 148 | 2 | 20 | 153-193 | 171 | 2 |
| | Weight | — | — | — | — | 20 | 20.1-42.6 | 30.9 | 1.3 | 20 | 31.9-76.7 | 46.5 | 2.3 |
| | Condition | — | — | — | — | 20 | 0.9-1.0 | 0.9 | 0.0 | 20 | 0.8-1.1 | 0.9 | 0.0 |
| | CR | — | — | — | — | 20 | -0.1-0.06 | -0.03 | 0.01 | 20 | -0.19-0.07 | -0.07 | 0.01 |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Icy | Length | — | — | — | — | 6 | 132-165 | 151 | 5 | 1 | | 185 | |
| Point | Weight | — | — | — | — | 6 | 21.0-38.4 | 32.1 | 2.6 | 1 | | 60.6 | |
| | Condition | — | — | — | — | 6 | 0.8-1.0 | 0.9 | 0.0 | 1 | | 1.0 | |
| | CR | — | — | — | — | 6 | -0.18-0.06 | -0.06 | 0.03 | 1 | | -0.04 | |
| Total | Length | — | — | — | — | 32 | 129-167 | 148 | 2 | 23 | 153-193 | 171 | 2 |
| | Weight | — | — | — | — | 32 | 20.1-42.6 | 30.8 | 1.0 | 23 | 31.9-76.7 | 47.7 | 2.1 |
| | Condition | — | — | — | — | 32 | 0.8-1.0 | 0.9 | 0.0 | 23 | 0.8-1.1 | 0.9 | 0.0 |
| | CR | — | — | — | — | 32 | -0.18-0.06 | -0.03 | 0.01 | 23 | -0.19-0.07 | -0.06 | 0.01 |
| **KNFC** | | | | | | | | | | | | | |
| Gunnuk Creek | | | | | | | | | | | | | |
| Upper | Length | — | — | — | — | — | — | — | — | 1 | | 179 | |
| Chatham | Weight | — | — | — | — | — | — | — | — | 1 | | 51.8 | |
| Strait | Condition | — | — | — | — | — | — | — | — | 1 | | 0.9 | |
| | CR | — | — | — | — | — | — | — | — | 1 | | -0.09 | |
| Icy | Length | — | — | — | — | 1 | | 132 | | 3 | 155-185 | 172 | 9 |
| Strait | Weight | — | — | — | — | 1 | | 22.3 | | 3 | 38.1-64.4 | 51.6 | 7.6 |
| | Condition | — | — | — | — | 1 | | 1.0 | | 3 | 1.0-1.0 | 1.0 | 0.0 |
| | CR | — | — | — | — | 1 | | 0.01 | | 3 | -0.03-0.05 | 0.01 | 0.02 |
| Icy | Length | — | — | — | — | — | — | — | — | 1 | | 178 | 0 |
| Point | Weight | — | — | — | — | — | — | — | — | 1 | | 59.4 | 0.0 |
| | Condition | — | — | — | — | — | — | — | — | 1 | | 1.1 | 0.0 |
| | CR | — | — | — | — | — | — | — | — | 1 | | 0.10 | 0.00 |
| Total | Length | — | — | — | — | 1 | | 132 | | 5 | 155-185 | 175 | 5 |
| | Weight | — | — | — | — | 1 | | 22.3 | | 5 | 38.1-64.4 | 53.2 | 4.4 |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Condition | — | — | — | — | 1 | | 1.0 | | 5 | 0.9-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | 1 | | 0.01 | | 5 | -0.09-0.06 | 0.00 | 0.03 |
| **AKI** | | | | | | | | | | | | | |
| Port Armstrong | | | | | | | | | | | | | |
| Icy | Length | — | — | — | — | 2 | 149-155 | 152 | 3 | 2 | 165-172 | 169 | 4 |
| Strait | Weight | — | — | — | — | 2 | 31.7-36.9 | 34.3 | 2.6 | 2 | 39.0-51.5 | 45.3 | 6.3 |
| (Total) | Condition | — | — | — | — | 2 | 1.0-1.0 | 1.0 | 0.0 | 2 | 0.9-1.0 | 0.9 | 0.1 |
| | CR | — | — | — | — | 2 | -0.02-0.01 | 0.00 | 0.01 | 2 | -0.12-0.03 | -0.05 | 0.07 |
| **SSRAA** | | | | | | | | | | | | | |
| Anita Bay | | | | | | | | | | | | | |
| Upper | Length | — | — | — | — | 1 | | 149 | | 4 | 155-185 | 168 | 7 |
| Chatham | Weight | — | — | — | — | 1 | | 31.6 | | 4 | 36.1-66.1 | 49.1 | 6.3 |
| Strait | Condition | — | — | — | — | 1 | | 1.0 | | 4 | 1.0-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | 1 | | -0.02 | | 4 | -0.02-0.12 | 0.03 | 0.03 |
| Icy | Length | — | — | — | — | 1 | | 170 | | 2 | 172-174 | 173 | 1 |
| Strait | Weight | — | — | — | — | 1 | | 46.9 | | 2 | 48.2-50.7 | 49.5 | 1.3 |
| | Condition | — | — | — | — | 1 | | 1.0 | | 2 | 0.9-1.0 | 1.0 | 0.0 |
| | CR | — | — | — | — | 1 | | -0.03 | | 2 | -0.04--0.03 | -0.03 | 0.01 |
| Icy | Length | — | — | — | — | — | — | — | — | — | — | — | — |
| Point | Weight | — | — | — | — | — | — | — | — | — | — | — | — |
| | Condition | — | — | — | — | — | — | — | — | — | — | — | — |

Table 17.—cont.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | n | range | mean | se | n | range | mean | se | n | range | mean | se |
| | CR | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | Length | — | — | — | — | 2 | 149-170 | 160 | 11 | 6 | 155-185 | 170 | 5 |
| | Weight | — | — | — | — | 2 | 31.6-46.9 | 39.3 | 7.6 | 6 | 36.1-66.1 | 49.2 | 4.0 |
| | Condition | — | — | — | — | 2 | 1.0-1.0 | 1.0 | 0.0 | 6 | 0.9-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | 2 | -0.03--0.02 | -0.03 | 0.01 | 6 | -0.04-0.12 | 0.01 | 0.03 |
| Kendrick Bay L/L | | | | | | | | | | | | | |
| Icy Strait (Total) | Length | — | — | — | — | 1 | | 148 | | — | — | — | — |
| | Weight | — | — | — | — | 1 | | 30.9 | | — | — | — | — |
| | Condition | — | — | — | — | 1 | | 1.0 | | — | — | — | — |
| | CR | — | — | — | — | 1 | | -0.02 | | — | — | — | — |
| Neets Bay (summer) | | | | | | | | | | | | | |
| Upper Chatham Strait | Length | — | — | — | — | — | — | — | — | 4 | 189-217 | 198.3 | 6.4 |
| | Weight | — | — | — | — | — | — | — | — | 4 | 67.7-111.5 | 82.6 | 9.8 |
| | Condition | — | — | — | — | — | — | — | — | 4 | 1.0-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | — | — | — | — | 4 | 0.00-0.09 | 0.04 | 0.02 |
| Icy Strait | Length | — | — | — | — | — | — | — | — | 2 | 178-210 | 194.0 | 16.0 |
| | Weight | — | — | — | — | — | — | — | — | 2 | 53.2-87.8 | 70.5 | 17.3 |
| | Condition | — | — | — | — | — | — | — | — | 2 | 0.9-0.9 | 0.9 | 0.0 |
| | CR | — | — | — | — | — | — | — | — | 2 | -0.06--0.05 | -0.05 | 0.01 |
| Icy Point | Length | — | — | — | — | — | — | — | — | — | — | — | — |
| | Weight | — | — | — | — | — | — | — | — | — | — | — | — |
| | Condition | — | — | — | — | — | — | — | — | — | — | — | — |
| | CR | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | Length | — | — | — | — | — | — | — | — | 6 | 178-217 | 196.8 | 5.8 |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weight | — | — | — | — | — | — | — | — | 6 | 53.2-111.5 | 78.6 | 8.1 |
| | Condition | — | — | — | — | — | — | — | — | 6 | 0.9-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | — | — | — | — | 6 | -0.06-0.09 | 0.01 | 0.02 |
| | | | | | | | Neets Bay (fall) | | | | | | |
| Upper | Length | — | — | — | — | — | — | — | — | 1 | | 189 | |
| Chatham | Weight | — | — | — | — | — | — | — | — | 1 | | 69.7 | |
| Strait | Condition | — | — | — | — | — | — | — | — | 1 | | 1.0 | |
| (Total) | CR | — | — | — | — | — | — | — | — | 1 | | 0.04 | |
| | | | | | | | **Unmarked stocks** | | | | | | |
| Upper | Length | 92 | 80-112 | 97 | 1 | 89 | 101-169 | 126 | 1 | 68 | 128-230 | 182 | 3 |
| Chatham | Weight | 92 | 5.2-15.6 | 9.0 | 0.2 | 89 | 10.6-43.5 | 19.8 | 0.6 | 68 | 19.8-125.5 | 66.0 | 3.4 |
| Strait | Condition | 92 | 0.7-1.2 | 1.0 | 0.0 | 89 | 0.9-1.1 | 1.0 | 0.0 | 68 | 0.9-1.2 | 1.0 | 0.0 |
| | CR | 92 | -0.27-0.27 | 0.04 | 0.01 | 89 | -0.12-0.15 | 0.01 | 0.01 | 68 | -0.10-0.18 | 0.04 | 0.01 |
| Icy | Length | 10 | 83-116 | 98 | 4 | 91 | 106-173 | 133 | 1 | 101 | 110-229 | 166 | 2 |
| Strait | Weight | 10 | 4.6-15.1 | 8.6 | 1.1 | 91 | 11.0-46.6 | 23.7 | 0.7 | 101 | 11.8-121.4 | 48.0 | 2.1 |
| | Condition | 10 | 0.8-1.0 | 0.9 | 0.0 | 91 | 0.8-1.1 | 1.0 | 0.0 | 101 | 0.9-1.2 | 1.0 | 0.0 |
| | CR | 10 | -0.13-0.08 | -0.05 | 0.02 | 91 | -0.14-0.12 | 0.02 | 0.01 | 101 | -0.13-0.20 | 0.01 | 0.01 |
| Icy | Length | — | — | — | — | 30 | 89-209 | 131 | 4 | 13 | 132-206 | 172 | 6 |
| Point | Weight | — | — | — | — | 30 | 5.9-91.7 | 23.5 | 2.9 | 13 | 22.6-87.1 | 52.1 | 5.1 |
| | Condition | — | — | — | — | 30 | 0.8-1.1 | 1.0 | 0.0 | 13 | 0.9-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | 30 | -0.23-0.16 | -0.01 | 0.01 | 13 | -0.07-0.11 | 0.00 | 0.00 |

Table 17.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | Length | 102 | 80-116 | 97 | 1 | 210 | 89-209 | 129 | 1 | 182 | 110-230 | 172 | 2 |
| | Weight | 102 | 4.6-15.6 | 8.9 | 0.2 | 210 | 5.9-91.7 | 22.0 | 0.6 | 182 | 11.8-125.5 | 55.0 | 1.9 |
| | Condition | 102 | 0.7-1.2 | 1.0 | 0.0 | 210 | 0.8-1.1 | 1.0 | 0.0 | 182 | 0.9-1.2 | 1.0 | 0.0 |
| | CR | 102 | -0.27-0.27 | 0.03 | 0.01 | 210 | -0.23-0.16 | 0.01 | 0.00 | 182 | -0.13-0.20 | 0.02 | 0.00 |

Table 18.—Stock-specific information on 693 juvenile sockeye salmon released from regional enhancement facility sites and captured in the marine waters of the northern region of southeastern Alaska by rope trawl, June-August 2013. Length (mm, fork), weight (g), Fulton's condition [(g/mm$^3$) · (10$^5$)], and condition residuals (CR) from length-weight regression analysis are reported for each stock group. Dash indicates no samples. See Table 16 for agency acronyms.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | n | range | mean | se | n | range | mean | se | n | range | mean | se |
| **DIPAC** | | | | | | | | | | | | | |
| Speel Arm | | | | | | | | | | | | | |
| Upper | Length | 12 | 97-126 | 113 | 3 | 14 | 129-170 | 149 | 3 | 22 | 167-198 | 184 | 2 |
| Chatham | Weight | 12 | 9.8-23.4 | 15.8 | 1.2 | 14 | 20.8-51.2 | 34.6 | 2.3 | 22 | 49.6-83.7 | 68.3 | 1.7 |
| Strait | Condition | 12 | 1.0-1.2 | 1.1 | 0.0 | 14 | 1.0-1.1 | 1.0 | 0.0 | 22 | 1.0-1.2 | 1.1 | 0.0 |
| | CR | 12 | -0.01-0.18 | 0.08 | 0.02 | 14 | -0.06-0.10 | 0.02 | 0.01 | 22 | -0.05-0.16 | 0.05 | 0.01 |
| Icy | Length | 1 | | 114 | | 54 | 125-176 | 154 | 2 | 12 | 160-199 | 180 | 3 |
| Strait | Weight | 1 | | 14.9 | | 54 | 20.5-57.2 | 39.0 | 1.2 | 12 | 45.7-85.2 | 62.2 | 3.3 |
| | Condition | 1 | | 1.0 | | 54 | 1.0-1.2 | 1.1 | 0.0 | 12 | 1.0-1.1 | 1.1 | 0.0 |
| | CR | 1 | | 0.02 | | 54 | -0.08-0.16 | 0.03 | 0.01 | 12 | -0.05-0.10 | 0.02 | 0.01 |
| Icy | Length | — | — | — | — | 2 | 155-156 | 156 | 1 | — | — | — | — |
| Point | Weight | — | — | — | — | 2 | 40.2-42.4 | 41.3 | 1.1 | — | — | — | — |
| | Condition | — | — | — | — | 2 | 1.1-1.1 | 1.1 | 0.0 | — | — | — | — |
| | CR | — | — | — | — | 2 | 0.05-0.09 | 0.07 | 0.02 | — | — | — | — |
| Total | Length | 13 | 97-126 | 113 | 3 | 70 | 125-176 | 153 | 1 | 34 | 160-199 | 182 | 2 |
| | Weight | 13 | 9.8-23.4 | 15.7 | 1.1 | 70 | 20.5-57.2 | 38.2 | 1.0 | 34 | 45.7-85.2 | 66.1 | 1.7 |
| | Condition | 13 | 1.0-1.2 | 1.1 | 0.0 | 70 | 1.0-1.2 | 1.1 | 0.0 | 34 | 1.0-1.2 | 1.1 | 0.0 |
| | CR | 13 | -0.01-0.18 | 0.08 | 0.02 | 70 | -0.08-0.16 | 0.03 | 0.01 | 34 | -0.05-0.16 | 0.04 | 0.01 |

Table 18.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Sweetheart Lake | | | | | | |
| Icy Strait (Total) | Length | — | — | — | — | 1 | | 152 | | — | — | — | — |
| | Weight | — | — | — | — | 1 | | 37.1 | | — | — | — | — |
| | Condition | — | — | — | — | 1 | | 1.1 | | — | — | — | — |
| | CR | — | — | — | — | 1 | | 0.04 | | — | — | — | — |
| | | | | | | | Tahltan Lake | | | | | | |
| Upper Chatham Strait | Length | — | — | — | — | — | — | — | — | 6 | 175-200 | 189 | 4 |
| | Weight | — | — | — | — | — | — | — | — | 6 | 54.0-88.3 | 72.3 | 5.4 |
| | Condition | — | — | — | — | — | — | — | — | 6 | 1.0-1.1 | 1.1 | 0.0 |
| | CR | — | — | — | — | — | — | — | — | 6 | -0.03-0.06 | 0.01 | 0.02 |
| Icy Strait | Length | — | — | — | — | 7 | 152-176 | 165 | 3 | — | — | — | — |
| | Weight | — | — | — | — | 7 | 36.3-56.9 | 46.0 | 2.8 | — | — | — | — |
| | Condition | — | — | — | — | 7 | 1.0-1.1 | 1.0 | 0.0 | — | — | — | — |
| | CR | — | — | — | — | 7 | -0.07-0.02 | -0.01 | 0.01 | — | — | — | — |
| Icy Point | Length | — | — | — | — | — | — | — | — | — | — | — | — |
| | Weight | — | — | — | — | — | — | — | — | — | — | — | — |
| | Condition | — | — | — | — | — | — | — | — | — | — | — | — |
| | CR | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | Length | — | — | — | — | 7 | 152-176 | 165 | 3 | 6 | 175-200 | 189 | 4 |
| | Weight | — | — | — | — | 7 | 36.3-56.9 | 46.0 | 2.8 | 6 | 54.0-88.3 | 72.3 | 5.4 |
| | Condition | — | — | — | — | 7 | 1.0-1.1 | 1.0 | 0.0 | 6 | 1.0-1.1 | 1.1 | 0.0 |
| | CR | — | — | — | — | 7 | -0.07-0.02 | -0.01 | 0.01 | 6 | -0.03-0.06 | 0.01 | 0.02 |

Table 18.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Tuya Lake** | | | | | | | |
| Upper | Length | — | — | — | — | 1 | | 161 | | 1 | | 175 | |
| Chatham | Weight | — | — | — | — | 1 | | 40.8 | | 1 | | 53.1 | |
| Strait | Condition | — | — | — | — | 1 | | 1.0 | | 1 | | 1.0 | |
| | CR | — | — | — | — | 1 | | -0.05 | | 1 | | -0.05 | |
| Icy | Length | — | — | — | — | — | — | — | — | 1 | | 174 | |
| Strait | Weight | — | — | — | — | — | — | — | — | 1 | | 56.5 | |
| | Condition | — | — | — | — | — | — | — | — | 1 | | 1.1 | |
| | CR | — | — | — | — | — | — | — | — | 1 | | 0.03 | |
| Icy | Length | — | — | — | — | — | — | — | — | — | — | — | — |
| Point | Weight | — | — | — | — | — | — | — | — | — | — | — | — |
| | Condition | — | — | — | — | — | — | — | — | — | — | — | — |
| | CR | — | — | — | — | — | — | — | — | — | — | — | — |
| Total | Length | — | — | — | — | 1 | | 161 | | 2 | 174-175 | 175 | 0 |
| | Weight | — | — | — | — | 1 | | 40.8 | | 2 | 53.1-56.5 | 54.8 | 1.7 |
| | Condition | — | — | — | — | 1 | | 1.0 | | 2 | 1.0-1.1 | 1.0 | 0.0 |
| | CR | — | — | — | — | 1 | | -0.05 | | 2 | -0.05-0.03 | -0.01 | 0.04 |
| | | | | | | **Unmarked stocks** | | | | | | | |
| Upper | Length | 60 | 87-182 | 120 | 3 | 109 | 79-195 | 134 | 2 | 102 | 135-231 | 170 | 2 |
| Chatham | Weight | 60 | 6.4-65.5 | 19.1 | 1.6 | 109 | 4.2-80.1 | 27.0 | 1.2 | 102 | 27.9-135.6 | 54.4 | 1.7 |
| Strait | Condition | 60 | 0.8-1.1 | 1.0 | 0.0 | 109 | 0.8-1.2 | 1.0 | 0.0 | 102 | 0.8-1.2 | 1.1 | 0.0 |
| | CR | 60 | -0.16-0.12 | 0.00 | 0.01 | 109 | -0.19-0.20 | 0.03 | 0.01 | 102 | -0.26-0.19 | 0.04 | 0.01 |

Table 18.—cont.

| Locality | Factor | June n | June range | June mean | June se | July n | July range | July mean | July se | August n | August range | August mean | August se |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Icy Strait | Length | 42 | 97-215 | 155 | 3 | 170 | 107-219 | 146 | 2 | 63 | 102-204 | 164 | 2 |
| | Weight | 42 | 9.5-105.5 | 39.2 | 2.8 | 170 | 12.7-116.8 | 34.5 | 1.4 | 63 | 10.7-87.6 | 48.5 | 1.8 |
| | Condition | 42 | 0.9-1.1 | 1.0 | 0.0 | 170 | 0.8-1.2 | 1.0 | 0.0 | 63 | 1.0-1.2 | 1.1 | 0.0 |
| | CR | 42 | -0.15-0.07 | -0.04 | 0.01 | 170 | -0.32-0.19 | 0.03 | 0.00 | 63 | -0.06-0.18 | 0.03 | 0.01 |
| Icy Point | Length | — | — | — | — | 11 | 140-200 | 166 | 6 | 1 | | 178 | |
| | Weight | — | — | — | — | 11 | 28.6-80.9 | 49.1 | 5.9 | 1 | | 55.1 | |
| | Condition | — | — | — | — | 11 | 0.9-1.2 | 1.0 | 0.0 | 1 | | 1.0 | |
| | CR | — | — | — | — | 11 | -0.09-0.15 | -0.01 | 0.02 | 1 | | -0.06 | |
| Total | Length | 102 | 87-215 | 134 | 3 | 290 | 79-219 | 142 | 1 | 166 | 102-231 | 168 | 1 |
| | Weight | 102 | 6.4-105.5 | 27.4 | 1.8 | 290 | 4.2-116.8 | 32.3 | 1.0 | 166 | 10.7-135.6 | 52.1 | 1.3 |
| | Condition | 102 | 0.8-1.1 | 1.0 | 0.0 | 290 | 0.8-1.2 | 1.0 | 0.0 | 166 | 0.8-1.2 | 1.1 | 0.0 |
| | CR | 102 | -0.16-0.12 | -0.01 | 0.01 | 290 | -0.32-0.20 | 0.03 | 0.00 | 166 | -0.26-0.19 | 0.03 | 0.00 |

Table 19.—Stock-specific information on 1025 juvenile coho salmon released from regional enhancement facility sites and captured in the marine waters of the northern region of southeastern Alaska by rope trawl, June-August 2012. Length (mm, fork), weight (g), Fulton's condition [(g/mm$^3$) · (10$^5$)], and condition residuals (CR) from length-weight regression analysis are reported for each stock group. Dash indicates no samples. See Table 16 for agency acronyms.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Locality | Factor | n | range | mean | se | n | range | mean | se | n | range | mean | se |
| **PWHA** | | | | | | | | | | | | | |
| Klawock | | | | | | | | | | | | | |
| Icy | Length | 1 | | 198 | | 1 | | 236.0 | | 1 | | 254.0 | |
| Point | Weight | 1 | | 91.5 | | 1 | | 150.3 | | 1 | | 161.8 | |
| (Total) | Condition | 1 | | 1.2 | | 1 | | 1.1 | | 1 | | 1.0 | |
| | CR | 1 | | 0.02 | | 1 | | -0.03 | | 1 | | -0.2 | |
| **Unmarked stocks** | | | | | | | | | | | | | |
| Upper | Length | 66 | 120-244 | 176.2 | 2.9 | 52 | 152-260 | 198.9 | 3.5 | 46 | 200-285 | 234.7 | 3.4 |
| Chatham | Weight | 66 | 20.5-171.7 | 67.6 | 3.4 | 52 | 36.0-204.6 | 96.0 | 5.1 | 46 | 93.4-267.0 | 154.8 | 7.3 |
| Strait | Condition | 66 | 1.0-1.4 | 1.2 | 0.0 | 52 | 1.0-1.3 | 1.2 | 0.0 | 46 | 1.0-1.4 | 1.2 | 0.0 |
| | CR | 66 | -0.09-0.22 | 0.03 | 0.01 | 52 | -0.08-0.17 | 0.01 | 0.01 | 46 | -0.12-0.16 | -0.01 | 0.01 |
| Icy | Length | 91 | 96-242 | 172.6 | 2.7 | 84 | 146-238 | 192.3 | 2.3 | 33 | 196-275 | 238.3 | 3.5 |
| Strait | Weight | 91 | 10.0-160.6 | 63.5 | 3.0 | 84 | 33.3-147.0 | 84.4 | 2.8 | 33 | 85.4-246.3 | 153.5 | 7.5 |
| | Condition | 91 | 1.0-1.3 | 1.2 | 0.0 | 84 | 1.0-1.3 | 1.2 | 0.0 | 33 | 0.9-1.3 | 1.1 | 0.0 |
| | CR | 91 | -0.13-0.18 | 0.02 | 0.01 | 84 | -0.20-0.16 | 0.00 | 0.01 | 33 | -0.26-0.07 | -0.06 | 0.01 |
| Icy | Length | 16 | 179.0-281.0 | 231.2 | 6.8 | 47 | 170-289 | 235.0 | 3.3 | 12 | 227-305 | 264.3 | 7.6 |
| Point | Weight | 16 | 64.9-310.7 | 159.2 | 15.9 | 47 | 55.0-297.2 | 161.6 | 6.8 | 12 | 128.0-402.2 | 220.8 | 22.4 |
| | Condition | 16 | 1.1-1.4 | 1.2 | 0.0 | 47 | 1.0-1.4 | 1.2 | 0.0 | 12 | 1.0-1.4 | 1.2 | 0.0 |
| | CR | 16 | -0.06-0.15 | 0.04 | 0.02 | 47 | -0.12-0.23 | 0.03 | 0.01 | 12 | -0.18-0.16 | -0.03 | 0.03 |

Table 19.—cont.

| Locality | Factor | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | n | range | mean | se | n | range | mean | se | n | range | mean | se |
| Total | Length | 173 | 96-281 | 179.4 | 2.3 | 183 | 146-289 | 205.2 | 2.1 | 91 | 196-305 | 239.9 | 2.5 |
| | Weight | 173 | 10.0-310.7 | 73.9 | 3.2 | 183 | 33.3-297.2 | 107.5 | 3.5 | 91 | 85.4-402.2 | 163.0 | 5.9 |
| | Condition | 173 | 1.0-1.4 | 1.2 | 0.0 | 183 | 1.0-1.4 | 1.2 | 0.0 | 91 | 0.9-1.4 | 1.1 | 0.0 |
| | CR | 173 | -0.13-0.22 | 0.03 | 0.01 | 183 | -0.20-0.23 | 0.01 | 0.01 | 91 | -0.26-0.16 | -0.03 | 0.01 |

Table 20.—Number examined, length (mm, fork), wet weight (g), stomach content as percent body weight (%BW), and feeding intensity (0-100% volume fullness) of 453 potential predators of juvenile salmon captured in marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2013. Dash indicates no samples. For scientific names, see Table 8. For additional feeding data, see Table 21 and Figure 18.

| | | June | | | | July | | | | August | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | Factor | *n* | range | mean | sd | *n* | range | mean | sd | *n* | range | mean | sd |
| Pink salmon[1] | Length | 73 | 445-930 | 525 | 7 | 78 | 361-560 | 480 | 3 | 28 | 441-542 | 498 | 5 |
| | Weight | 73 | 205-3,400 | 1,961 | 71 | 78 | 700-2,900 | 1,367 | 58 | 28 | 700-1,700 | 1,196 | 47 |
| | %BW | 73 | 0.0-2.9 | 0.5 | 0.1 | 78 | 0.0-3.2 | 0.3 | 0.1 | 28 | 0.0-2.0 | 0.2 | 0.1 |
| | Fullness | 73 | 0-110 | 49 | 4 | 78 | 0-110 | 39 | 4 | 28 | 0-100 | 26 | 8 |
| Chinook salmon[1] | Length | 105 | 240-465 | 343 | 4 | 8 | 305-393 | 349 | 10 | 14 | 310-437 | 373 | 8 |
| | Weight | 105 | 160-1,900 | 658 | 29 | 8 | 200-700 | 465 | 52 | 14 | 250-1,100 | 546 | 56 |
| | %BW | 105 | 0.0-5.3 | 1.5 | 0.1 | 8 | 0.0-6.2 | 3.1 | 0.8 | 14 | 0.0-6.5 | 1.1 | 0.5 |
| | Fullness | 105 | 10-110 | 80 | 3 | 8 | 0-110 | 80 | 16 | 14 | 0-110 | 46 | 13 |
| Chinook salmon[2] | Length | 21 | 410-640 | 513 | 12 | 1 | | 451 | | — | — | — | — |
| | Weight | 21 | 1,200-3,410 | 2,203 | 139 | 1 | | 1,050 | | — | — | — | — |
| | %BW | 21 | 0.0-4.1 | 1.3 | 0.2 | 1 | | 0.0 | | — | — | — | — |
| | Fullness | 21 | 0-110 | 83 | 8 | 1 | | 0 | | — | — | — | — |
| Chum salmon[1] | Length | 43 | 560-740 | 636 | 7 | 5 | 560-742 | 636 | 32 | 6 | 585-757 | 678 | 26 |
| | Weight | 43 | 700-5,800 | 3,531 | 147 | 5 | 1,950-5,300 | 3,240 | 608 | 6 | 2,100-5,700 | 3,583 | 586 |
| | %BW | 43 | 0.0-1.8 | 0.1 | 0.0 | 5 | 0.0-0.1 | 0.0 | 0.0 | 6 | 0.0-0.3 | 0.1 | 0.0 |
| | Fullness | 43 | 0-75 | 10 | 3 | 5 | 0-10 | 6 | 2 | 6 | 0-25 | 6 | 4 |
| Chum salmon[2] | Length | 1 | | 495 | | — | — | — | — | — | — | — | — |
| | Weight | 1 | | 1,400 | | — | — | — | — | — | — | — | — |
| | %BW | 1 | | 0.0 | | — | — | — | — | — | — | — | — |

Table 20.—cont.

| Species | Factor | June *n* | June range | June mean | June sd | July *n* | July range | July mean | July sd | August *n* | August range | August mean | August sd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fullness | 1 | | 0 | | — | — | — | — | — | — | — | — |
| Coho salmon[2] | Length | 4 | 570-700 | 618 | 29 | 6 | 501-663 | 575 | 23 | 20 | 520-724 | 620 | 14 |
| | Weight | 4 | 2,500-5,500 | 3,463 | 687 | 6 | 1,550-3,800 | 2,567 | 343 | 20 | 900-4,700 | 3,025 | 264 |
| | %BW | 4 | 0.0-1.9 | 0.7 | 0.4 | 6 | 0.0-4.5 | 1.7 | 0.7 | 20 | 0.0-4.0 | 1.1 | 0.3 |
| | Fullness | 4 | 0-110 | 55 | 29 | 6 | 0-110 | 82 | 19 | 20 | 0-110 | 60 | 10 |
| Sockeye salmon[1] | Length | 3 | 580-680 | 633 | 29 | 1 | | 640 | | — | — | — | — |
| | Weight | 3 | 2,750-3,600 | 3,217 | 249 | 1 | | 3,050 | | — | — | — | — |
| | %BW | 3 | 0.0-0.0 | 0.0 | 0.0 | 1 | | 0.0 | | — | — | — | — |
| | Fullness | 3 | 0-0 | 0 | 0 | 1 | | 0 | | — | — | — | — |
| Sockeye salmon[2] | Length | 1 | | 295 | | — | — | — | — | 1 | | 367 | |
| | Weight | 1 | | 350 | | — | — | — | — | 1 | | 400 | |
| | %BW | 1 | | 0.3 | | — | — | — | — | 1 | | 0.1 | |
| | Fullness | 1 | | 50 | | — | — | — | — | 1 | | 50 | |
| Walleye pollock[2] | Length | 13 | 395-690 | 522 | 24 | 1 | | 535 | | — | — | — | — |
| | Weight | 13 | 335-2,500 | 973 | 158 | 1 | | 700 | | — | — | — | — |
| | %BW | 13 | 0.0-4.6 | 0.7 | 0.3 | 1 | | 0.0 | | — | — | — | — |
| | Fullness | 13 | 0-100 | 60 | 12 | 1 | | 0 | | — | — | — | — |
| Dolly varden[2] | Length | 8 | 255-290 | 271 | 6 | — | — | — | — | — | — | — | — |
| | Weight | 8 | 190-300 | 253 | 14 | — | — | — | — | — | — | — | — |
| | %BW | 8 | 0.0-4.3 | 2.2 | 0.6 | — | — | — | — | — | — | — | — |
| | Fullness | 8 | 0-100 | 75 | 13 | — | — | — | — | — | — | — | — |
| Black | Length | 2 | 490-525 | 508 | 18 | 3 | 356-430 | 393 | 21 | — | — | — | — |

Table 20.—cont.

| Species | Factor | June *n* | June range | June mean | June sd | July *n* | July range | July mean | July sd | August *n* | August range | August mean | August sd |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| rockfish[2] | Weight | 2 | 2,750-3,400 | 3,075 | 325 | 3 | 650-1,550 | 1,133 | 262 | — | — | — | — |
| | %BW | 2 | 0.2-1.1 | 0.7 | 0.4 | 3 | 1.4-5.7 | 3.7 | 1.2 | — | — | — | — |
| | Fullness | 2 | 50-100 | 75 | 25 | 3 | 75-110 | 98 | 12 | — | — | — | — |
| Pacific sandfish[2] | Length | 2 | 230-240 | 235 | 5 | — | — | — | — | — | — | — | — |
| | Weight | 2 | 160-170 | 165 | 5 | — | — | — | — | — | — | — | — |
| | %BW | 2 | 1.1-2.1 | 1.6 | 0.5 | — | — | — | — | — | — | — | — |
| | Fullness | 2 | 75-100 | 88 | 13 | — | — | — | — | — | — | — | — |
| Jack mackeral[2] | Length | 1 | | 295 | | — | — | — | — | — | — | — | — |
| | Weight | 1 | | 475 | | — | — | — | — | — | — | — | — |
| | %BW | 1 | | 1.4 | | — | — | — | — | — | — | — | — |
| | Fullness | 1 | | 100 | | — | — | — | — | — | — | — | — |
| Spiny dogfish[2] | Length | — | — | — | — | 1 | | 935 | | — | — | — | — |
| | Weight | — | — | — | — | 1 | | 5,500 | | — | — | — | — |
| | %BW | — | — | — | — | 1 | | 0.0 | | — | — | — | — |
| | Fullness | — | — | — | — | 1 | | 0 | | — | — | — | — |

[1] Immature
[2] Adult

Table 21.—Feeding intensity of 450 potential predators of juvenile salmon captured in rope trawl hauls in the marine waters of the northern region of southeastern Alaska, June–August 2013. Fish were captured in both strait and coastal habitats. For scientific names, see Table 8. See also Table 20 and Figure 18.

| Predator species | Life history stage | Number examined | Number empty | Percent feeding | Number with salmon | Percent feeders with salmon |
|---|---|---|---|---|---|---|
| Pink salmon | Adult | 179 | 43 | 76 | 1 | 1 |
| Chinook salmon | Immature | 127 | 5 | 68 | 0 | 0 |
| Chinook salmon | Adult | 22 | 3 | 11 | 0 | 0 |
| Chum salmon | Immature | 1 | 1 | 0 | 0 | 0 |
| Chum salmon | Adult | 54 | 26 | 16 | 0 | 0 |
| Coho salmon | Adult | 30 | 7 | 13 | 7 | 30 |
| Sockeye salmon | Immature | 2 | 0 | 1 | 0 | 0 |
| Sockeye salmon | Adult | 4 | 4 | 0 | 0 | 0 |
| Walleye pollock | Adult | 14 | 3 | 6 | 0 | 0 |
| Dolly Varden | Adult | 8 | 1 | 4 | 0 | 0 |
| Black rockfish | Adult | 5 | 0 | 3 | 2 | 40 |
| Pacific sandfish | Adult | 2 | 0 | 1 | 0 | 0 |
| Pacific jack mackerel | Adult | 1 | 0 | 1 | 0 | 0 |
| Spiny dogfish | Adult | 1 | 1 | 0 | 0 | 0 |

Appendix 1.—Temperature (°C), salinity (PSU), ambient light (W/m$^3$), Secchi depth (m), mixed layer depth (MLD, m; see text for definition), zooplankton settled volume (ZSV, ml), and total plankton settled volumes (TSV, ml) by haul number and station sampled in the marine waters of the northern region of southeastern Alaska, May–August 2013. Station code acronyms are listed in Table 1.

| Date | Haul # | Station | Temperature (°C) | Salinity (PSU) | Light level (W/m$^3$) | Secchi (m) | MLD (m) | ZSV (ml) | TSV (ml) |
|---|---|---|---|---|---|---|---|---|---|
| 22 May | 17001 | ABM | 6.50 | 29.50 | 458.00 | 6.00 | 7 | 9.00 | 14.00 |
| 23 May | 17002 | ISA | 7.80 | 30.30 | 337.00 | 5.50 | 9 | 7.00 | 10.00 |
| 23 May | 17003 | ISB | 7.60 | 30.40 | 463.00 | 5.00 | 7 | 5.00 | 10.00 |
| 23 May | 17004 | ISC | 7.10 | 30.60 | 541.00 | 4.00 | 7 | 8.00 | 10.00 |
| 23 May | 17005 | ISD | 6.70 | 29.70 | 766.00 | 4.00 | 13 | 4.00 | 5.00 |
| 23 May | 17006 | UCA | 7.00 | 29.10 | 652.00 | 3.00 | 7 | 11.00 | 16.00 |
| 23 May | 17007 | UCB | 7.20 | 28.90 | 684.00 | 3.00 | 10 | — | — |
| 23 May | 17008 | UCC | 7.00 | 28.40 | 503.00 | 3.00 | 15 | 15.00 | 22.00 |
| 23 May | 17009 | UCD | 7.00 | 28.70 | 503.00 | 3.00 | 6 | 7.00 | 9.00 |
| 23 June | 17014 | ISA | 10.80 | 27.70 | 52.70 | 5.00 | 6 | 7.50 | 15.00 |
| 23 June | 17015 | ISB | 12.40 | 25.90 | 237.00 | 4.00 | 6 | 20.00 | 40.00 |
| 23 June | 17016 | ISC | 11.40 | 27.10 | 470.00 | 4.00 | 6 | 15.00 | 30.00 |
| 23 June | 17017 | ISD | 11.40 | 27.10 | 456.00 | 3.00 | 6 | 7.00 | 14.00 |
| 23 June | 17018 | ISC | 11.60 | 27.10 | | 3.00 | 6 | — | — |
| 23 June | 17019 | ISD | 10.90 | 27.50 | 439.00 | 3.00 | 6 | — | — |
| 24 June | 17020 | ISD | 12.00 | 26.70 | 147.00 | 4.00 | 7 | — | — |
| 24 June | 17021 | ISC | 12.40 | 26.70 | 134.00 | 4.00 | 6 | — | — |
| 24 June | 17022 | ISB | 11.20 | 27.70 | 547.00 | 4.00 | 6 | — | — |
| 24 June | 17023 | ISA | 9.40 | 29.50 | 594.00 | 4.00 | 6 | — | — |
| 24 June | 17024 | ISB | 10.70 | 28.20 | 585.00 | 4.00 | 6 | — | — |
| 24 June | 17025 | ISA | 8.90 | 30.00 | 562.00 | 5.00 | 6 | — | — |
| 25 June | 17026 | ISD | 12.70 | 26.30 | 58.00 | 5.00 | 15 | — | — |
| 25 June | 17027 | ISC | 12.90 | 26.80 | 133.00 | 4.00 | 7 | — | — |

Appendix 1.—cont.

| Date | Haul # | Station | Temperature (°C) | Salinity (PSU) | Light level (W/m$^3$) | Secchi (m) | MLD (m) | ZSV (ml) | TSV (ml) |
|---|---|---|---|---|---|---|---|---|---|
| 25 June | 17028 | ISB | 12.30 | 27.50 | 161.00 | 4.00 | 9 | — | — |
| 25 June | 17029 | ISA | 8.90 | 30.10 | 277.00 | 4.00 | 6 | — | — |
| 26 June | 17030 | IPD | 13.30 | 31.90 | 115.00 | 6.00 | 13 | 17.00 | 17.00 |
| 26 June | 17031 | IPC | 13.30 | 31.90 | 357.00 | 6.00 | 20 | 10.00 | 10.00 |
| 26 June | 17032 | IPB | 12.50 | 32.00 | 152.00 | 3.00 | 18 | 16.00 | 16.00 |
| 26 June | 17033 | IPA | 13.30 | 32.00 | 158.00 | 6.00 | 8 | 11.00 | 11.00 |
| 27 June | 17034 | UCA | 12.20 | 26.80 | 34.00 | 4.00 | 6 | 20.00 | 40.00 |
| 27 June | 17035 | UCB | | | 88.00 | 4.00 | 7 | 15.00 | 30.00 |
| 27 June | 17036 | UCC | 11.70 | 28.00 | 96.00 | 4.00 | 6 | 14.00 | 28.00 |
| 27 June | 17037 | UCD | 12.00 | 26.20 | 237.00 | 4.00 | 6 | 10.00 | 20.00 |
| 27 June | 17038 | UCC | 12.50 | 26.60 | 194.00 | 4.00 | 10 | — | — |
| 27 June | 17039 | UCD | 12.50 | 25.40 | 461.00 | 4.00 | 12 | — | — |
| 28 June | 17040 | UCD | 13.20 | 26.10 | 40.00 | 5.00 | 6 | — | — |
| 28 June | 17041 | UCC | 12.60 | 27.70 | 120.00 | 5.00 | 6 | — | — |
| 28 June | 17042 | UCB | 11.90 | 28.20 | 569.00 | 5.00 | 7 | — | — |
| 28 June | 17043 | UCA | 10.20 | 28.90 | 437.00 | 4.00 | 6 | — | — |
| 28 June | 17044 | UCB | 13.50 | 27.30 | 650.00 | 6.00 | 7 | — | — |
| 28 June | 17045 | UCA | 13.20 | 26.60 | 657.00 | 6.00 | 10 | — | — |
| 29 June | 17046 | ABM | 14.20 | 18.00 | 68.00 | 2.00 | 6 | 15.00 | 15.00 |
| 25 July | 17047 | ISA | 9.10 | 29.90 | 45.00 | 5.00 | 8 | 10.00 | 20.00 |
| 25 July | 17048 | ISB | 13.20 | 25.00 | 160.00 | 6.00 | 6 | 2.00 | 4.00 |
| 25 July | 17049 | ISC | 14.00 | 23.70 | 508.00 | 7.00 | 6 | 3.50 | 6.50 |
| 25 July | 17050 | ISD | 13.20 | 26.70 | 302.00 | 4.00 | 6 | 2.00 | 4.00 |
| 25 July | 17051 | ISC | 12.90 | 26.60 | 140.00 | 5.00 | 7 | — | — |
| 25 July | 17052 | ISD | 13.50 | 25.90 | 176.00 | 5.00 | 10 | — | — |
| 26 July | 17053 | ISD | 13.70 | 25.10 | 68.00 | 5.00 | 6 | — | — |
| 26 July | 17054 | ISC | 13.70 | 23.90 | 125.50 | 5.00 | 8 | — | — |

Appendix 1.—cont.

| Date | Haul # | Station | Temperature (°C) | Salinity (PSU) | Light level (W/m$^3$) | Secchi (m) | MLD (m) | ZSV (ml) | TSV (ml) |
|---|---|---|---|---|---|---|---|---|---|
| 26 July | 17055 | ISB | 11.10 | 27.80 | 201.00 | 3.00 | 7 | — | — |
| 26 July | 17056 | ISA | 9.90 | 29.30 | 299.00 | 4.00 | 11 | — | — |
| 27 July | 17057 | IPD | 16.00 | 32.20 | 47.86 | 7.00 | 22 | 4.00 | 4.00 |
| 27 July | 17058 | IPC | 12.40 | 31.90 | 549.00 | 3.00 | 6 | 15.00 | 15.00 |
| 27 July | 17059 | IPB | 14.00 | 31.90 | 627.00 | 5.00 | 14 | 5.00 | 5.00 |
| 27 July | 17060 | IPA | 15.50 | 32.00 | 391.00 | 6.00 | 12 | 13.00 | 13.00 |
| 28 July | 17061 | ISD | 13.40 | 25.90 | 42.00 | 5.00 | 6 | — | — |
| 28 July | 17062 | ISC | 13.40 | 26.20 | 261.40 | 5.00 | 6 | — | — |
| 28 July | 17063 | ISB | 14.20 | 24.10 | 231.00 | 7.00 | 9 | — | — |
| 28 July | 17064 | ISA | 14.10 | 24.40 | 522.40 | 5.00 | 9 | — | — |
| 28 July | 17065 | ISB | 14.80 | 24.20 | 532.00 | 7.00 | 16 | — | — |
| 28 July | 17066 | ISA | 13.40 | 26.20 | 374.00 | 5.00 | 6 | — | — |
| 29 July | 17067 | UCD | 13.70 | 23.00 | 213.50 | | 8 | 1.00 | 2.00 |
| 29 July | 17068 | UCC | 13.00 | 25.10 | 346.00 | 5.00 | 6 | 0.50 | 1.00 |
| 29 July | 17069 | UCB | 13.30 | 21.80 | 430.00 | 5.00 | 7 | 0.50 | 1.00 |
| 29 July | 17070 | UCA | 15.30 | 16.30 | 579.00 | 4.00 | 6 | 0.50 | 1.00 |
| 29 July | 17071 | UCB | 15.80 | 14.10 | 534.00 | 5.00 | 6 | — | — |
| 29 July | 17072 | UCA | 15.40 | 17.20 | 606.70 | 6.00 | 6 | — | — |
| 30 July | 17073 | UCA | 14.20 | 22.80 | 101.00 | 7.00 | 13 | — | — |
| 30 July | 17074 | UCB | 13.90 | 23.50 | 200.00 | 5.00 | 15 | — | — |
| 30 July | 17075 | UCC | 12.90 | 26.50 | 418.00 | 5.00 | 17 | — | — |
| 30 July | 17076 | UCD | 12.80 | 25.20 | 454.00 | 4.00 | 6 | — | — |
| 30 July | 17077 | UCC | 13.30 | 24.70 | 599.00 | 6.00 | 6 | — | — |
| 30 July | 17078 | UCD | 12.90 | 23.80 | 622.00 | 5.00 | 6 | — | — |
| 31 July | 17079 | ABM | 15.10 | 18.00 | 195.40 | 3.00 | 7 | 2.00 | 4.00 |
| 27 August | 17080 | ISD | 13.00 | 21.10 | 31.09 | 5.00 | 6 | — | — |
| 27 August | 17081 | ISC | 13.00 | 21.40 | 142.00 | 5.00 | 6 | 13.00 | 13.00 |

Appendix 1.—cont.

| Date | Haul # | Station | Temperature (°C) | Salinity (PSU) | Light level (W/m$^3$) | Secchi (m) | MLD (m) | ZSV (ml) | TSV (ml) |
|---|---|---|---|---|---|---|---|---|---|
| 27 August | 17082 | ISB | 12.20 | 24.00 | 394.60 | 5.00 | 7 | 20.00 | 20.00 |
| 27 August | 17083 | ISA | 10.70 | 27.70 | 631.00 | 6.00 | 7 | 12.00 | 12.00 |
| 28 August | 17084 | IPD | 14.90 | 32.20 | 15.98 | 6.00 | 16 | 5.00 | 5.00 |
| 28 August | 17085 | IPC | 14.00 | 31.50 | 115.00 | 6.00 | 24 | 5.00 | 5.00 |
| 28 August | 17086 | IPB | 13.90 | 31.50 | 138.00 | 5.00 | 18 | 2.50 | 2.50 |
| 28 August | 17087 | IPA | 14.20 | 31.70 | 134.72 | 5.00 | 10 | 8.00 | 8.00 |
| 29 August | 17088 | ISD | 13.40 | 21.20 | 42.90 | 5.00 | 6 | 9.50 | 9.50 |
| 29 August | 17089 | ISC | 13.40 | 21.00 | 361.00 | 6.00 | 6 | — | — |
| 29 August | 17090 | ISB | 13.80 | 20.00 | 267.00 | 5.00 | 7 | — | — |
| 29 August | 17091 | ISA | 13.50 | 20.70 | 223.00 | 6.00 | 6 | — | — |
| 29 August | 17092 | ISB | 13.80 | 20.00 | 267.00 | 5.00 | — | — | — |
| 29 August | 17093 | ISA | 13.50 | 20.70 | 223.00 | 6.00 | — | — | — |
| 29 August | 17094 | ISD | 13.40 | 21.20 | 42.90 | 5.00 | — | — | — |
| 29 August | 17095 | ISC | 13.40 | 21.00 | 361.00 | 6.00 | — | — | — |
| 30 August | 17096 | ISA | 11.50 | 26.20 | 37.95 | 5.00 | 8 | — | — |
| 30 August | 17097 | ISB | 13.80 | 20.40 | 78.40 | 6.00 | 6 | — | — |
| 30 August | 17098 | ISC | 14.10 | 15.00 | | 6.00 | 6 | — | — |
| 30 August | 17099 | ISD | 14.20 | 18.50 | 156.00 | 6.00 | 6 | — | — |
| 30 August | 17100 | ISA | 11.50 | 26.20 | 37.95 | 5.00 | — | — | — |
| 30 August | 17101 | ISB | 13.80 | 20.40 | 78.40 | 6.00 | — | — | — |
| 31 August | 17102 | UCA | 12.50 | 23.10 | 14.50 | 5.00 | 6 | 3.00 | 3.00 |
| 31 August | 17103 | UCA | 12.50 | 23.10 | 14.50 | 5.00 | — | — | — |
| 31 August | 17104 | UCB | 13.20 | 16.30 | 45.00 | 5.00 | 6 | 2.00 | 2.00 |
| 31 August | 17105 | UCB | 13.20 | 16.30 | 45.00 | 5.00 | — | — | — |
| 31 August | 17106 | UCC | 13.40 | 17.70 | 169.40 | 5.00 | 6 | 3.50 | 3.50 |
| 31 August | 17107 | UCD | 12.00 | 26.60 | 158.00 | 4.00 | 8 | 4.00 | 4.00 |
| 01 September | 17108 | UCD | 11.20 | 27.90 | 13.00 | 4.00 | 10 | — | — |
| 01 September | 17109 | UCD | 11.20 | 27.90 | 13.00 | 4.00 | — | — | — |

Appendix 1.—cont.

| Date | Haul # | Station | Temperature (°C) | Salinity (PSU) | Light level ($W/m^3$) | Secchi (m) | MLD (m) | ZSV (ml) | TSV (ml) |
|---|---|---|---|---|---|---|---|---|---|
| 01 September | 17110 | UCC | 12.00 | 26.00 | 142.40 | 4.00 | 6 | — | — |
| 01 September | 17111 | UCC | 12.00 | 26.00 | 142.40 | 4.00 | — | — | — |
| 01 September | 17112 | UCB | 10.10 | 26.70 | 125.00 | 5.00 | 6 | — | — |
| 01 September | 17113 | UCA | 10.80 | 28.30 | 144.00 | 4.00 | 6 | — | — |
| 02 September | 17114 | ABM | 13.20 | 19.70 | 13.00 | 6.00 | 6 | 8.00 | 8.00 |

Appendix 2.—Catch and life history stage of salmonids captured in 98 surface rope trawl hauls from the marine waters of the northern region of southeastern Alaska, June–August 2013. Trawl duration (minutes) is indicated for each haul. Station code acronyms are listed in Table 1.

| | | | Trawl | Juvenile salmon | | | | | Immature and adult salmon | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Haul # | Station | time | Pink | Chum | Sockeye | Coho | Chinook | Pink | Chum | Sockeye | Coho | Chinook |
| 23 June | 17014 | ISA | 20 | 0 | 0 | 8 | 9 | 1 | 2 | 1 | 0 | 0 | 3 |
| 23 June | 17015 | ISB | 20 | 0 | 0 | 9 | 18 | 0 | 0 | 1 | 0 | 0 | 2 |
| 23 June | 17016 | ISC | 20 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23 June | 17017 | ISD | 20 | 0 | 0 | 4 | 0 | 0 | 1 | 5 | 1 | 1 | 1 |
| 23 June | 17018 | ISC | 20 | 0 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 2 |
| 23 June | 17019 | ISD | 20 | 0 | 3 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| 24 June | 17020 | ISD | 20 | 0 | 0 | 0 | 44 | 0 | 3 | 1 | 0 | 0 | 14 |
| 24 June | 17021 | ISC | 20 | 6 | 18 | 2 | 10 | 1 | 4 | 0 | 0 | 0 | 12 |
| 24 June | 17022 | ISB | 20 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 20 |
| 24 June | 17023 | ISA | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 24 June | 17024 | ISB | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 17 |
| 24 June | 17025 | ISA | 20 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 |
| 25 June | 17026 | ISD | 20 | 0 | 0 | 3 | 37 | 0 | 0 | 1 | 0 | 0 | 4 |
| 25 June | 17027 | ISC | 20 | 1 | 5 | 0 | 22 | 0 | 5 | 0 | 0 | 0 | 1 |
| 25 June | 17028 | ISB | 20 | 0 | 0 | 3 | 12 | 0 | 2 | 0 | 0 | 0 | 4 |
| 25 June | 17029 | ISA | 20 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 2 |
| 26 June | 17030 | IPD | 30 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 0 |
| 26 June | 17031 | IPC | 30 | 0 | 0 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 1 |
| 26 June | 17032 | IPB | 30 | 0 | 0 | 0 | 8 | 1 | 1 | 0 | 0 | 0 | 1 |
| 26 June | 17033 | IPA | 30 | 0 | 0 | 0 | 9 | 6 | 19 | 3 | 0 | 0 | 7 |
| 27 June | 17034 | UCA | 20 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 3 |
| 27 June | 17035 | UCB | 20 | 0 | 0 | 0 | 8 | 1 | 6 | 3 | 0 | 0 | 1 |
| 27 June | 17036 | UCC | 20 | 14 | 49 | 5 | 41 | 2 | 1 | 1 | 0 | 0 | 5 |
| 27 June | 17037 | UCD | 20 | 4 | 12 | 2 | 10 | 0 | 2 | 1 | 0 | 0 | 2 |
| 27 June | 17038 | UCC | 20 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 2 |

Appendix 2.—cont.

| Date | Haul # | Station | Trawl time | Juvenile salmon | | | | | Immature and adult salmon | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pink | Chum | Sockeye | Coho | Chinook | Pink | Chum | Sockeye | Coho | Chinook |
| 27 June | 17039 | UCD | 20 | 3 | 39 | 19 | 47 | 1 | 5 | 9 | 0 | 2 | 0 |
| 28 June | 17040 | UCD | 20 | 102 | 400 | 22 | 70 | 1 | 2 | 0 | 0 | 0 | 2 |
| 28 June | 17041 | UCC | 20 | 0 | 30 | 11 | 5 | 0 | 2 | 7 | 0 | 0 | 3 |
| 28 June | 17042 | UCB | 20 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 |
| 28 June | 17043 | UCA | 20 | 32 | 59 | 9 | 1 | 0 | 1 | 1 | 1 | 0 | 2 |
| 28 June | 17044 | UCB | 20 | 23 | 193 | 5 | 3 | 1 | 4 | 0 | 0 | 0 | 0 |
| 28 June | 17045 | UCA | 20 | 0 | 1 | 0 | 14 | 1 | 3 | 1 | 0 | 0 | 1 |
| 25 July | 17047 | ISA | 20 | 0 | 34 | 4 | 23 | 0 | 22 | 0 | 0 | 0 | 0 |
| 25 July | 17048 | ISB | 20 | 23 | 89 | 14 | 34 | 1 | 6 | 1 | 0 | 0 | 1 |
| 25 July | 17049 | ISC | 20 | 258 | 355 | 86 | 22 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 July | 17050 | ISD | 20 | 1 | 27 | 7 | 6 | 0 | 4 | 0 | 0 | 0 | 0 |
| 25 July | 17051 | ISC | 20 | 125 | 247 | 40 | 19 | 1 | 4 | 0 | 0 | 0 | 1 |
| 25 July | 17052 | ISD | 20 | 70 | 75 | 46 | 39 | 0 | 1 | 0 | 0 | 1 | 0 |
| 26 July | 17053 | ISD | 20 | 162 | 474 | 20 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 July | 17054 | ISC | 20 | 170 | 175 | 65 | 20 | 0 | 1 | 0 | 0 | 1 | 0 |
| 26 July | 17055 | ISB | 20 | 20 | 16 | 10 | 17 | 0 | 4 | 0 | 0 | 0 | 0 |
| 26 July | 17056 | ISA | 20 | 3 | 1 | 5 | 14 | 0 | 20 | 0 | 0 | 1 | 0 |
| 27 July | 17057 | IPD | 30 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 July | 17058 | IPC | 30 | 17 | 20 | 2 | 2 | 1 | 1 | 1 | 0 | 0 | 0 |
| 27 July | 17059 | IPB | 30 | 38 | 46 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 27 July | 17060 | IPA | 30 | 7 | 17 | 1 | 43 | 3 | 0 | 1 | 0 | 0 | 2 |
| 28 July | 17061 | ISD | 20 | 97 | 365 | 69 | 10 | 0 | 4 | 2 | 0 | 0 | 0 |
| 28 July | 17062 | ISC | 20 | 241 | 1479 | 67 | 4 | 1 | 2 | 0 | 0 | 0 | 0 |
| 28 July | 17063 | ISB | 20 | 897 | 1640 | 56 | 6 | 0 | 1 | 0 | 0 | 0 | 0 |
| 28 July | 17064 | ISA | 20 | 93 | 260 | 12 | 10 | 1 | 1 | 0 | 0 | 0 | 1 |
| 28 July | 17065 | ISB | 20 | 406 | 865 | 83 | 9 | 0 | 12 | 0 | 0 | 2 | 1 |
| 28 July | 17066 | ISA | 20 | 145 | 225 | 39 | 39 | 0 | 2 | 0 | 0 | 0 | 1 |
| 29 July | 17067 | UCD | 20 | 3 | 40 | 5 | 5 | 0 | 1 | 0 | 0 | 0 | 0 |

Appendix 2.—cont.

| Date | Haul # | Station | Trawl time | Juvenile salmon | | | | | Immature and adult salmon | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pink | Chum | Sockeye | Coho | Chinook | Pink | Chum | Sockeye | Coho | Chinook |
| 29 July | 17068 | UCC | 20 | 11 | 130 | 39 | 3 | 1 | 2 | 0 | 0 | 0 | 0 |
| 29 July | 17069 | UCB | 20 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 July | 17070 | UCA | 20 | 24 | 265 | 48 | 6 | 0 | 4 | 0 | 0 | 0 | 0 |
| 29 July | 17071 | UCB | 20 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 July | 17072 | UCA | 20 | 49 | 376 | 42 | 7 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 July | 17073 | UCA | 20 | 14 | 145 | 28 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| 30 July | 17074 | UCB | 20 | 0 | 28 | 10 | 9 | 0 | 3 | 0 | 0 | 0 | 0 |
| 30 July | 17075 | UCC | 20 | 3 | 11 | 16 | 9 | 0 | 1 | 0 | 0 | 0 | 0 |
| 30 July | 17076 | UCD | 20 | 1 | 5 | 3 | 8 | 0 | 1 | 0 | 0 | 0 | 0 |
| 30 July | 17077 | UCC | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 July | 17078 | UCD | 20 | 0 | 6 | 2 | 25 | 1 | 3 | 0 | 0 | 1 | 1 |
| 27 August | 17080 | ISD | 20 | 30 | 66 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 August | 17081 | ISC | 20 | 17 | 76 | 13 | 3 | 0 | 1 | 1 | 0 | 1 | 1 |
| 27 August | 17082 | ISB | 20 | 8 | 12 | 3 | 3 | 0 | 0 | 2 | 0 | 1 | 0 |
| 27 August | 17083 | ISA | 20 | 125 | 164 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 August | 17084 | IPD | 30 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 August | 17085 | IPC | 30 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 August | 17086 | IPB | 30 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 August | 17087 | IPA | 30 | 15 | 19 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 0 |
| 29 August | 17088 | ISD | 20 | 1 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 August | 17089 | ISC | 20 | 26 | 35 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 August | 17090 | ISB | 20 | 6 | 6 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 3 |
| 29 August | 17091 | ISA | 20 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 August | 17092 | ISB | 20 | 10 | 30 | 7 | 2 | 2 | 1 | 0 | 0 | 0 | 0 |
| 29 August | 17093 | ISA | 20 | 0 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 August | 17094 | ISD | 20 | 0 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 29 August | 17095 | ISC | 20 | 4 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 August | 17096 | ISA | 20 | 2 | 3 | 1 | 4 | 2 | 2 | 1 | 0 | 0 | 0 |

Appendix 2.—cont.

| Date | Haul # | Station | Trawl time | Juvenile salmon | | | | | Immature and adult salmon | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Pink | Chum | Sockeye | Coho | Chinook | Pink | Chum | Sockeye | Coho | Chinook |
| 30 August | 17097 | ISB | 20 | 4 | 9 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 August | 17098 | ISC | 20 | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 August | 17099 | ISD | 20 | 0 | 1 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |
| 30 August | 17100 | ISA | 20 | 0 | 16 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 August | 17101 | ISB | 20 | 7 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 31 August | 17102 | UCA | 20 | 11 | 31 | 22 | 5 | 1 | 0 | 0 | 0 | 4 | 0 |
| 31 August | 17103 | UCA | 20 | 7 | 7 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 August | 17104 | UCB | 20 | 7 | 8 | 17 | 3 | 0 | 0 | 0 | 0 | 1 | 1 |
| 31 August | 17105 | UCB | 20 | 3 | 2 | 9 | 5 | 1 | 0 | 0 | 0 | 1 | 1 |
| 31 August | 17106 | UCC | 20 | 7 | 6 | 11 | 4 | 4 | 0 | 0 | 0 | 2 | 0 |
| 31 August | 17107 | UCD | 20 | 30 | 57 | 26 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| 01 Sept | 17108 | UCD | 20 | 13 | 25 | 7 | 11 | 1 | 2 | 0 | 1 | 2 | 3 |
| 01 Sept | 17109 | UCD | 20 | 10 | 26 | 27 | 2 | 0 | 3 | 0 | 0 | 0 | 1 |
| 01 Sept | 17110 | UCC | 20 | 0 | 1 | 4 | 6 | 1 | 1 | 0 | 0 | 3 | 0 |
| 01 Sept | 17111 | UCC | 20 | 9 | 10 | 4 | 4 | 1 | 1 | 1 | 0 | 1 | 1 |
| 01 Sept | 17112 | UCB | 20 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 1 | 0 |
| 01 Sept | 17113 | UCA | 20 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 2 | 0 |

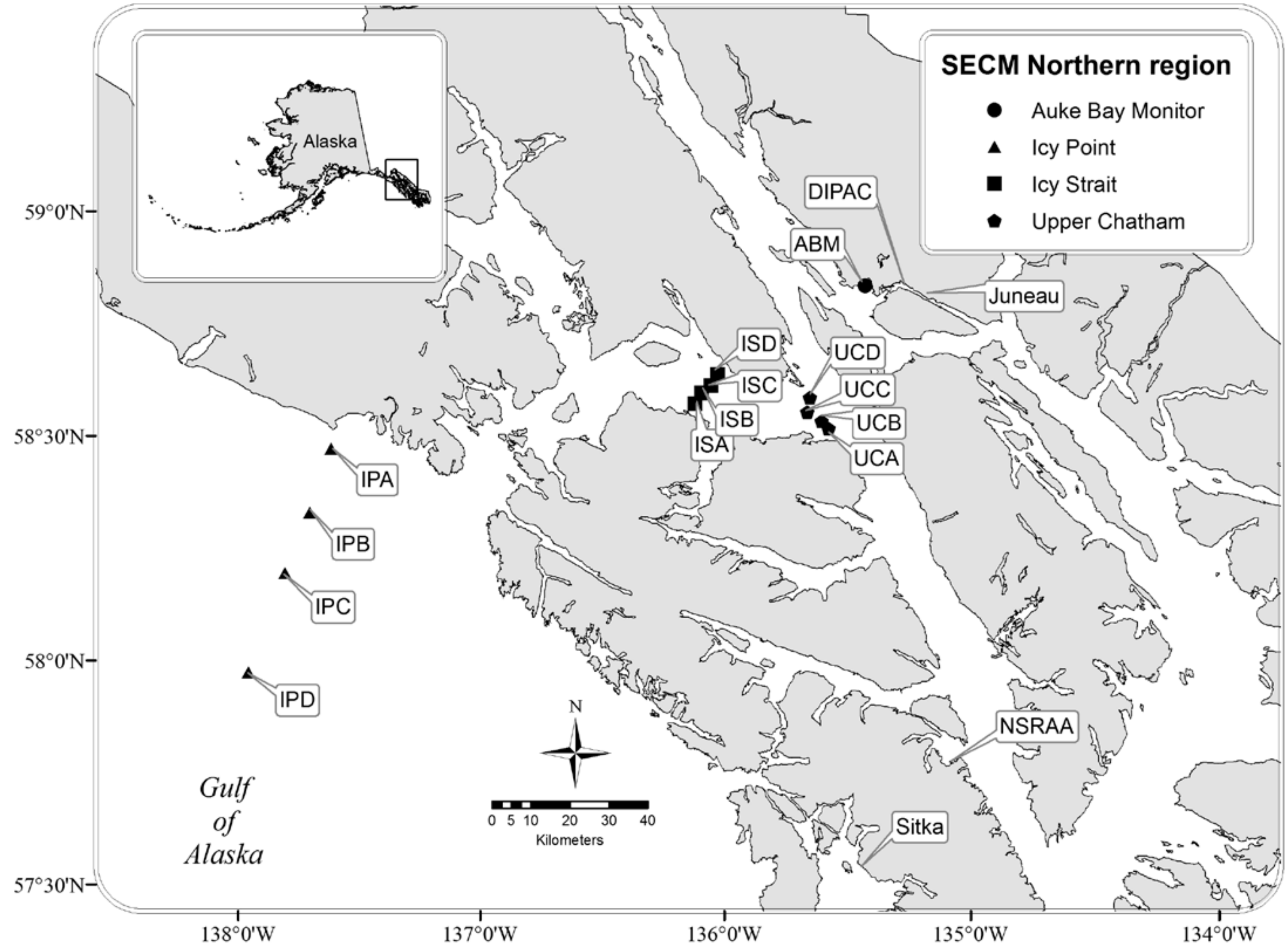


Figure 1.—Stations sampled at inshore, strait, and coastal habitats in the marine waters of the northern region of southeastern Alaska, May–August 2013 by the Southeast Coastal Monitoring (SECM) project. Transect and station coordinates and station code

acronyms are shown in Table 1.

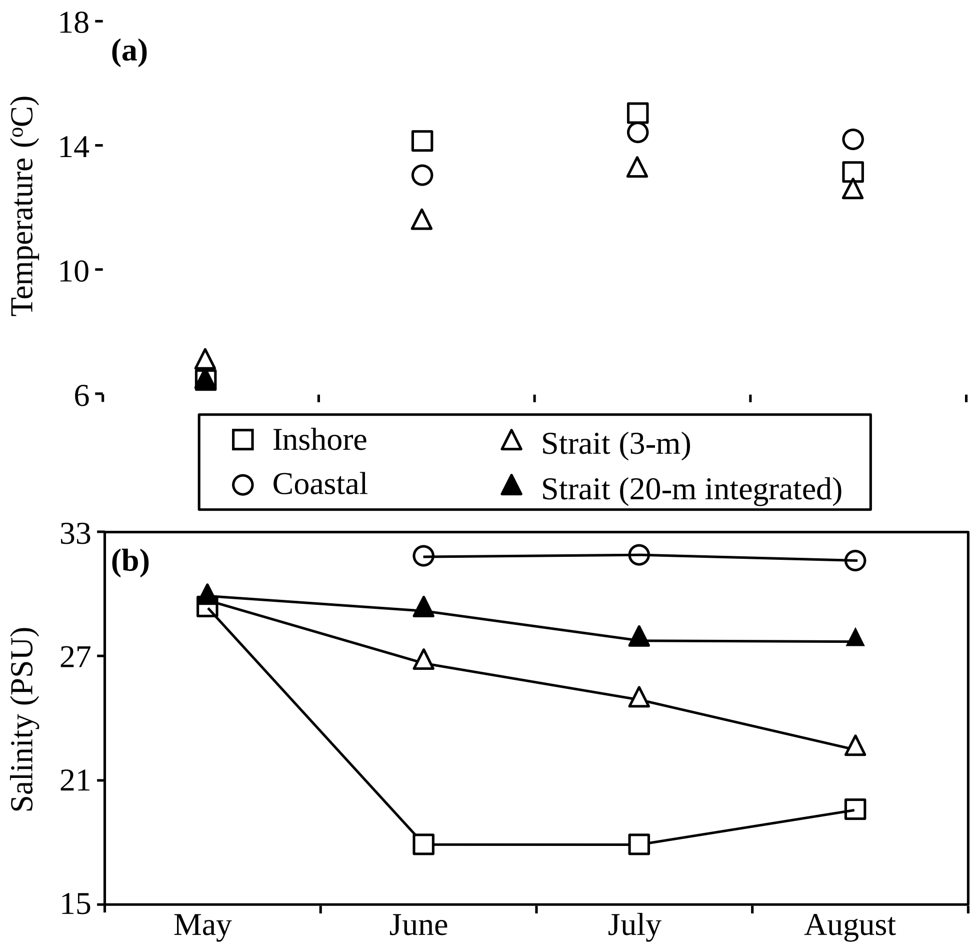


Figure 2.—Mean surface (3-m) and 20-m integrated temperature (a; ˚C) and salinity (b; PSU) for the marine waters of the northern region of southeastern Alaska, May–August 2013. The 3-m measures represent the most active segment of the water column, while the 20-m integrated measures represent more stable waters also sampled by the trawl (see also Figure 3). See Table 2 for monthly sample sizes and Appendix 1 for data values.

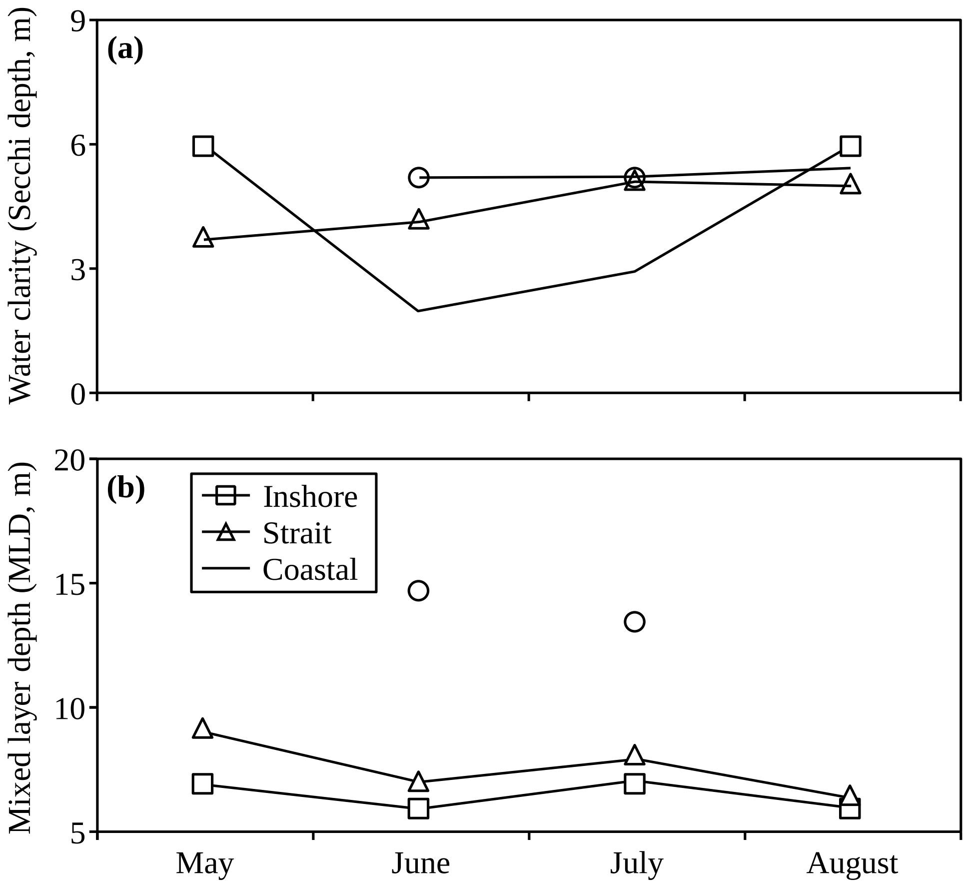


Figure 3.—Water clarity as mean depth (a; m) of Secchi disappearance and mixed layer depth (b; MLD, m; see text for definition) calculated from CTD profiles from the marine water column in the northern region of southeastern Alaska, May–August 2013. See Table 2 for monthly sample sizes and Appendix 1 for data values.

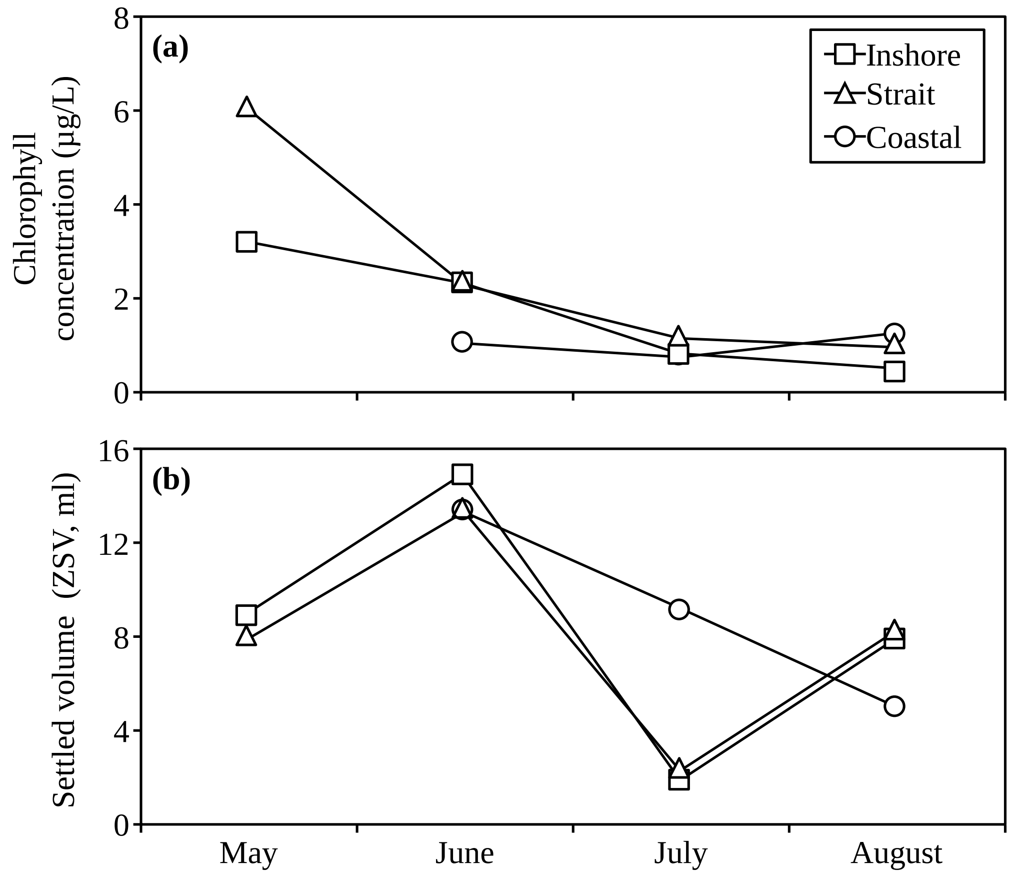


Figure 4.—Mean chlorophyll-a concentration (a; µg/L) from surface water samples and zooplankton settled volumes (b; ZSV, ml) from 20-m Norpac net hauls in the marine waters of the northern region of southeastern Alaska, May–August 2013. Chlorophyll was estimated from single monthly samples per station, while mean ZSV was estimated from all replicate hauls at each station. See Table 2 for monthly sample sizes and Appendix 1 for data values. Zooplankton standing stock (ml/$m^3$) can be computed by dividing ZSV by the water volume filtered, a constant factor of 3.9 $m^3$ for these samples.

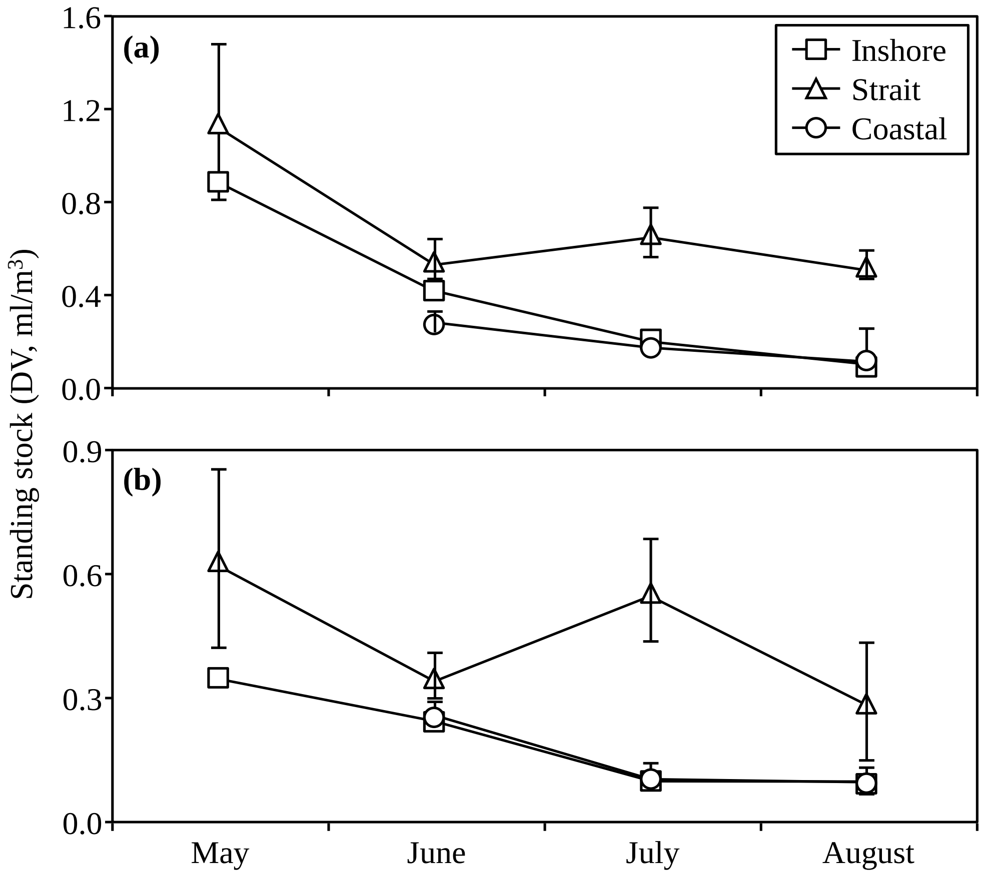


Figure 5.—Monthly zooplankton standing stock (mean ml/m$^3$, ± 1 standard error) from (a) 333-µm, and (b) 505-µm mesh double oblique bongo net samples hauled from ≤ 200 m depths during daylight in strait habitat in marine waters of the northern region of southeastern Alaska, May–August 2013.

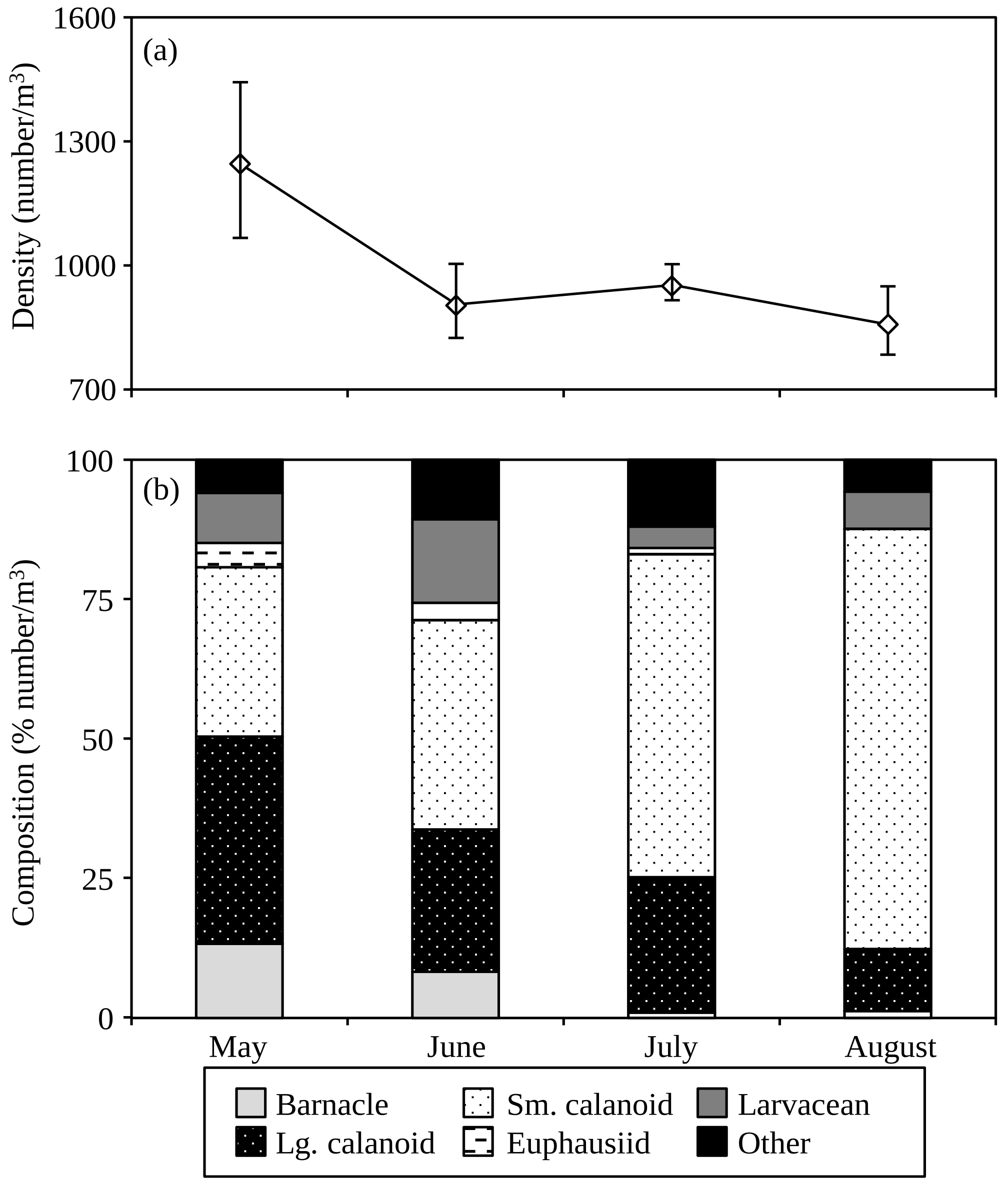


Figure 6.—Monthly “deep” (≤ 200 m depth) zooplankton collected in strait habitat in marine waters of the northern region of southeastern Alaska, May–August 2013. Data include (a) mean total density of organisms (thousands/$m^3$) ± 1 standard error, and (b) taxonomic composition (mean percent/$m^3$). Samples were collected in daylight using a 333-µm mesh bongo net (double oblique tow) at 4 stations in Icy Strait each month.

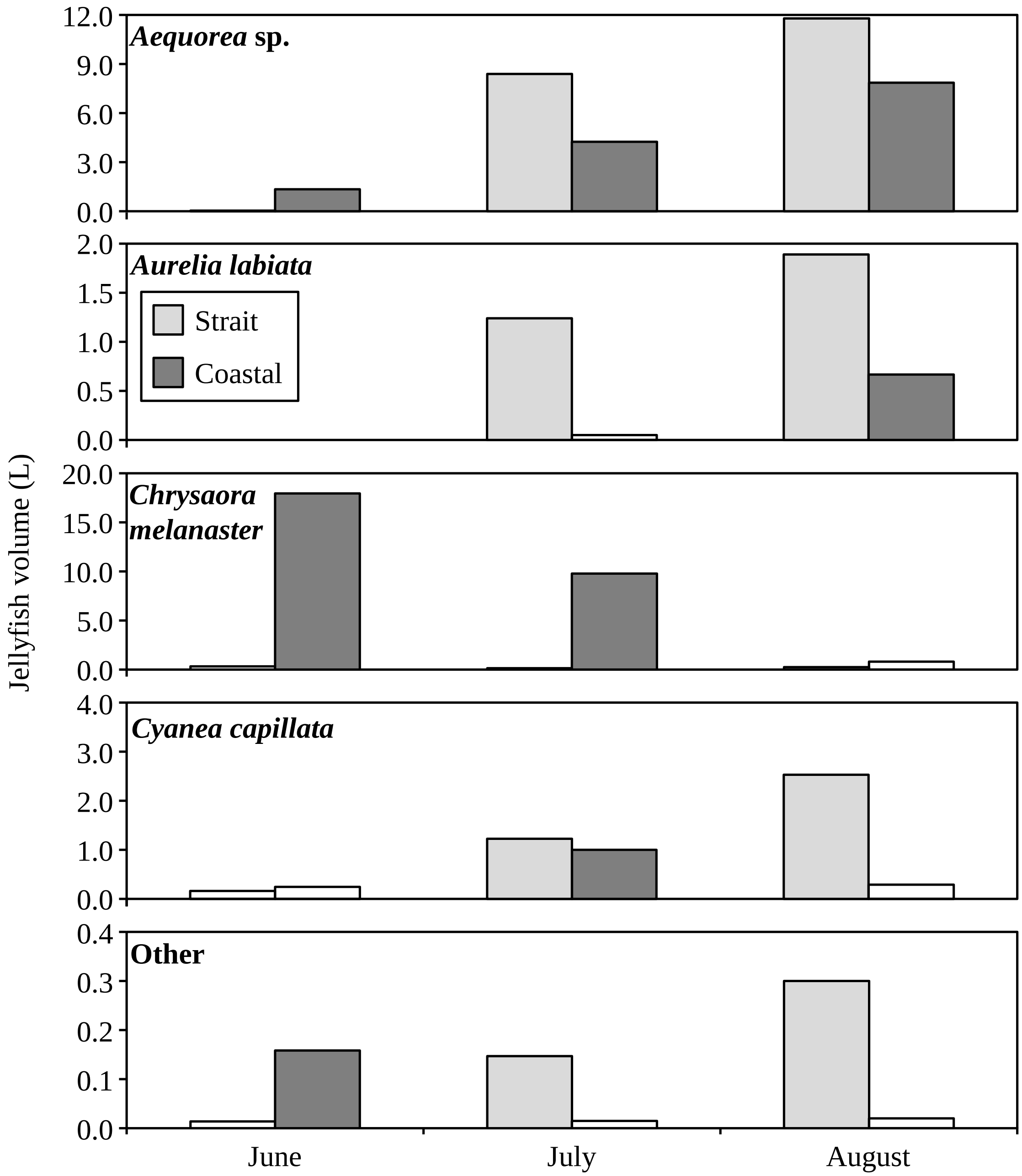


Figure 7.—Mean volume (L) of jellyfish captured in strait and coastal habitats in marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2013. See Table 2 for monthly sample sizes. Other = ctenophores, *Staurophora* sp., *Phacellophora* sp. and unknown species. Note difference in y-axis scales.

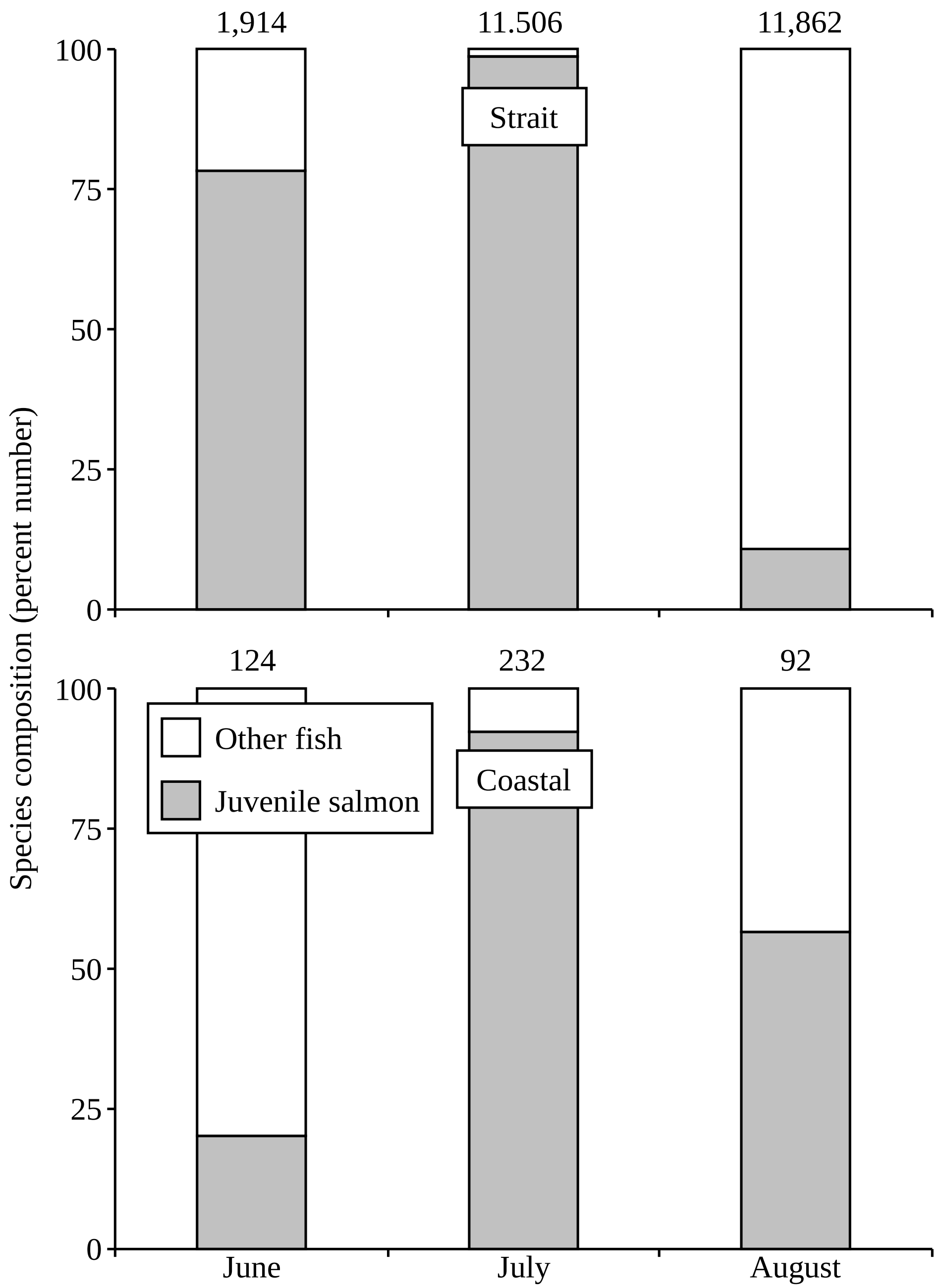


Figure 8.—Fish categories (percent number) in catch from rope trawls by month in strait and coastal marine habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Total number of fish is indicated above each bar. See Tables 2 and 8 for monthly sample sizes by species.

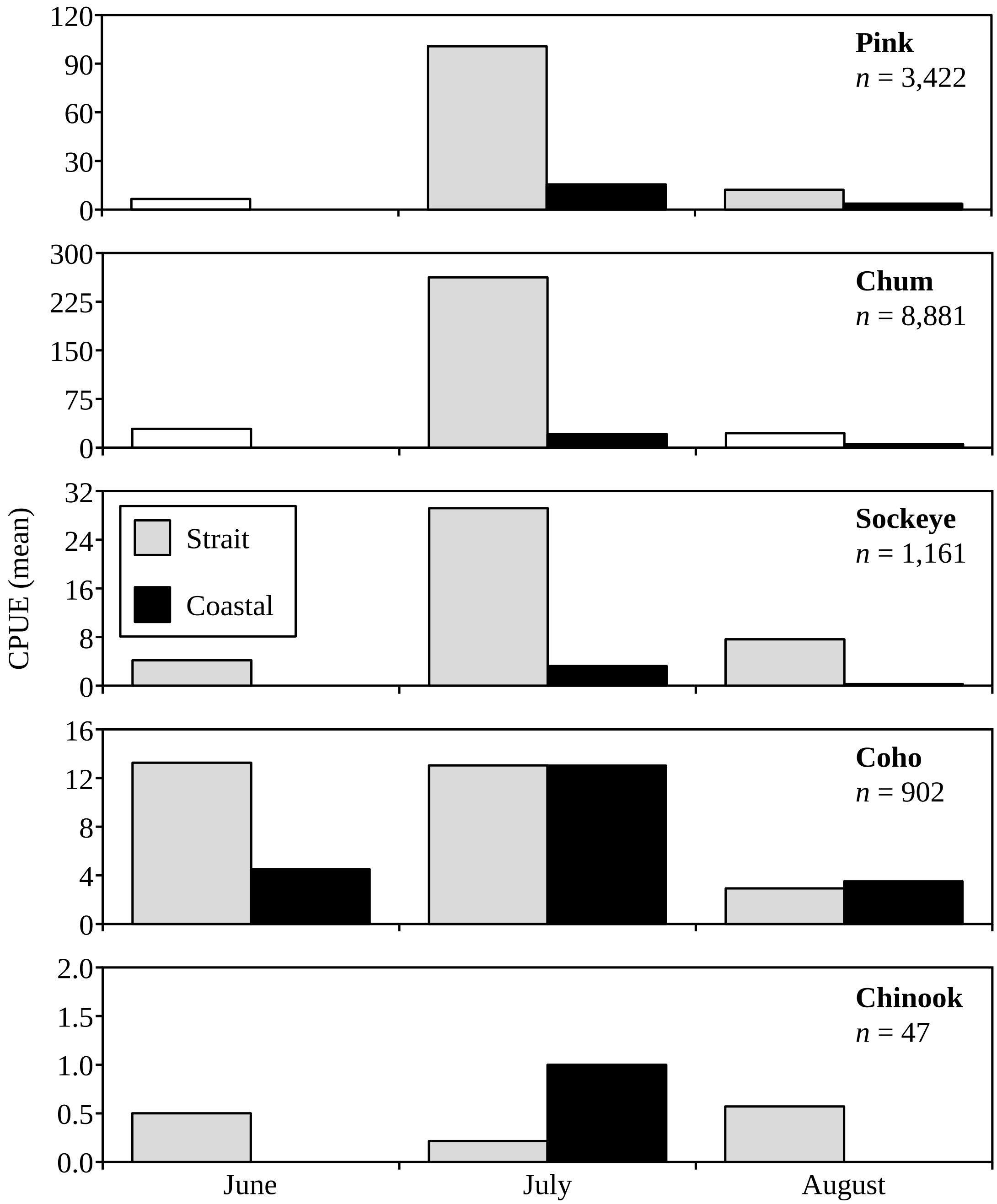


Figure 9.—Catch-per-unit-effort (CPUE, mean catch per trawl haul) for juvenile salmon captured in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Total seasonal CPUE is indicated for each species. See Table 2 for the number of trawl samples per month. Note difference in y-axis scales.

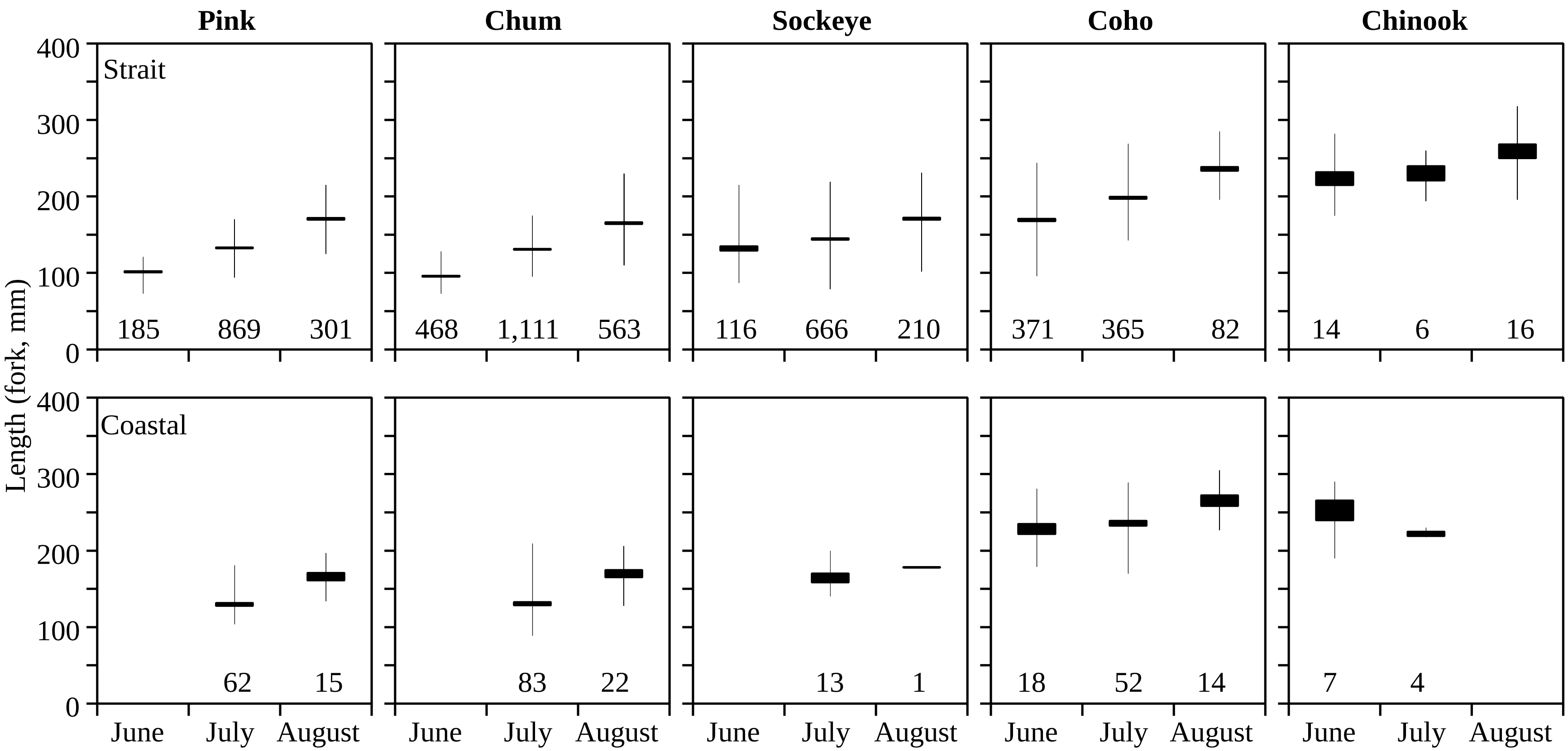


Figure 10.—Length (mm, fork) of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Monthly range in length is represented by the vertical bars; boxes within the range are one standard error on either side of the mean. Sample sizes are indicated for each month.

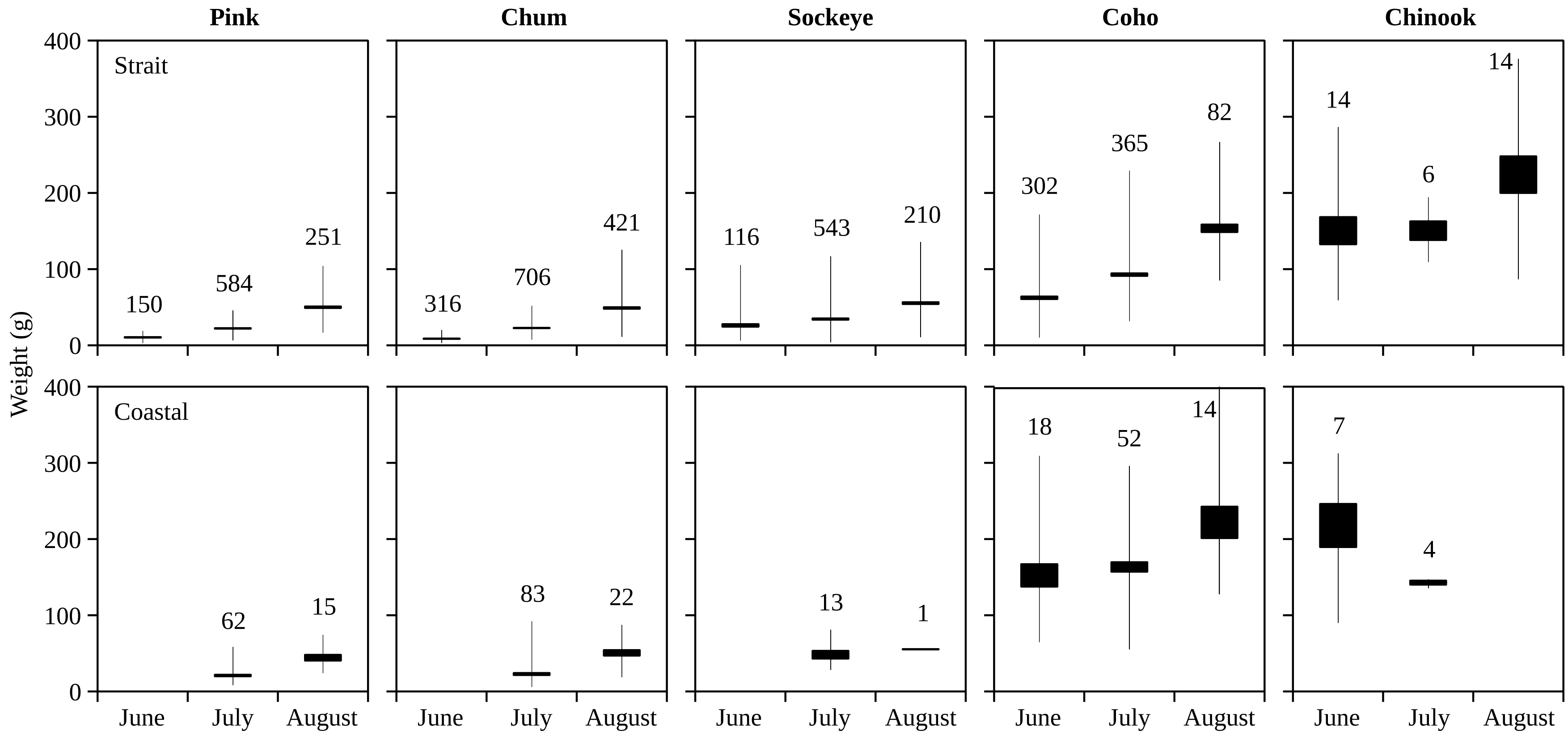


Figure 11.—Weight (g) of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Monthly range in length is represented by the vertical bars; bars within the range are one standard error on either side of the mean. Sample sizes are indicated for each month.

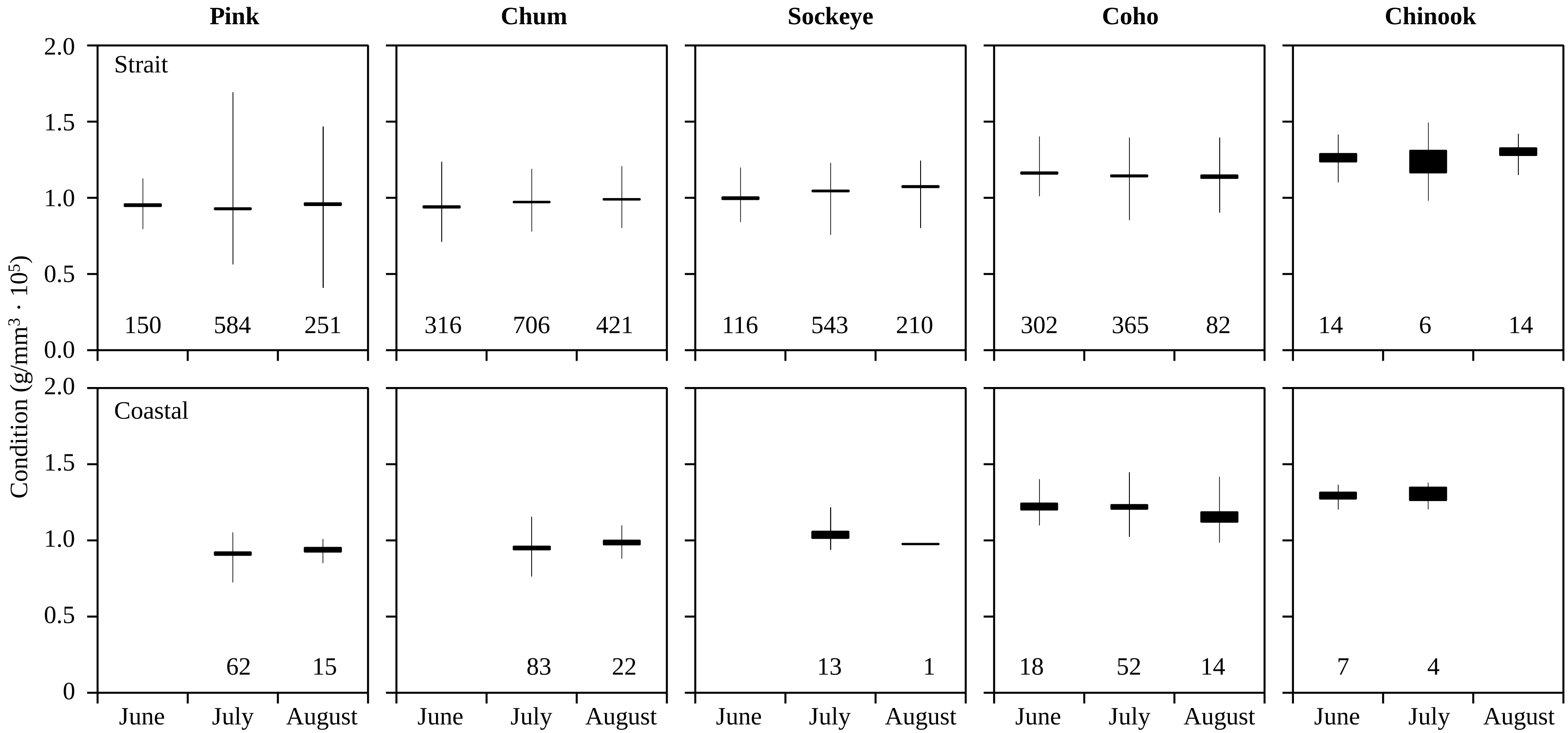


Figure 12.—Fulton's condition (g/mm$^3$ · $10^5$) of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Monthly range in length is represented by the vertical bars; bars within the range are one standard error on either side of the mean. Sample sizes are indicated for each month. Note difference in y-axis scales.

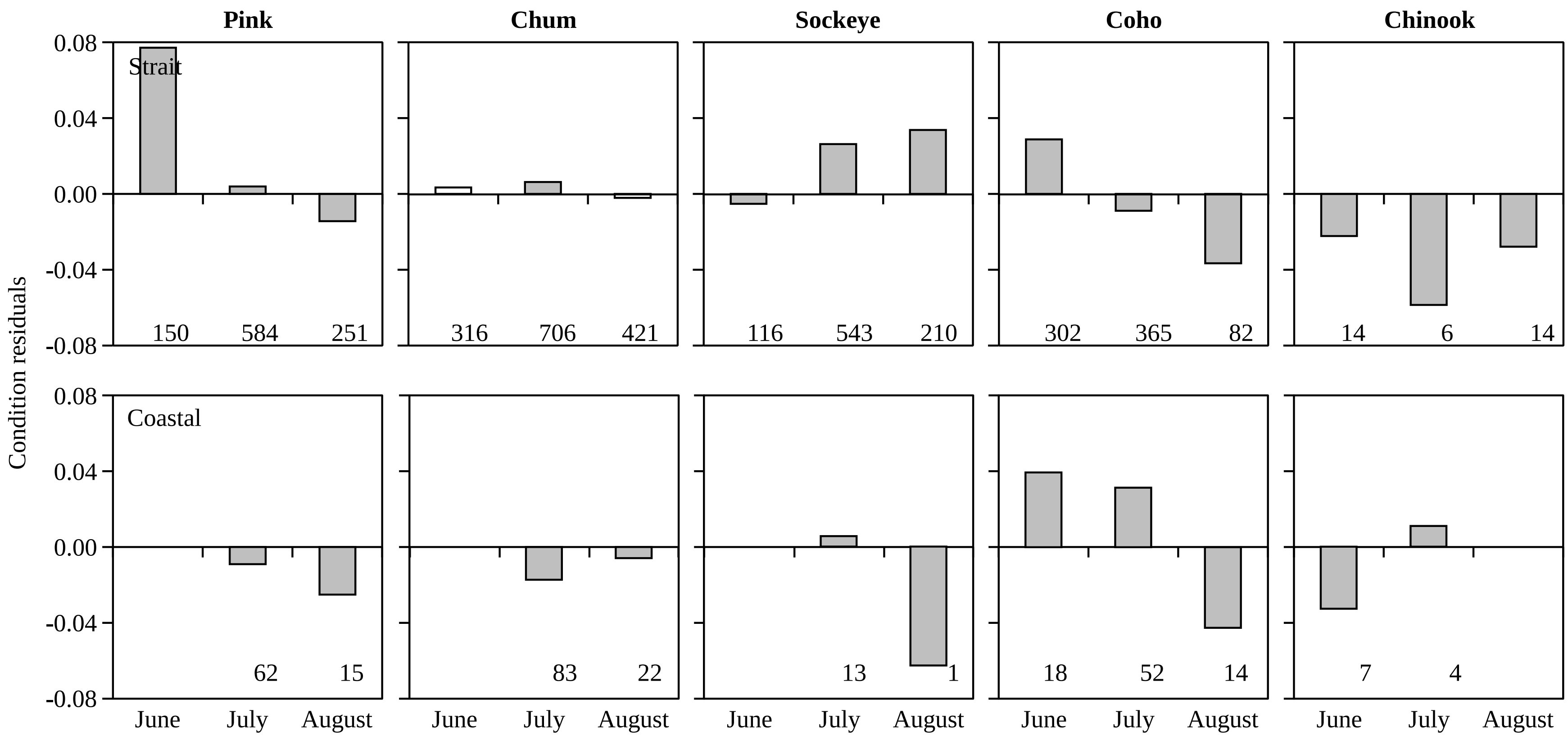


Figure 13.—Condition residuals from length-weight regression analysis of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Sample sizes are indicated for each month.

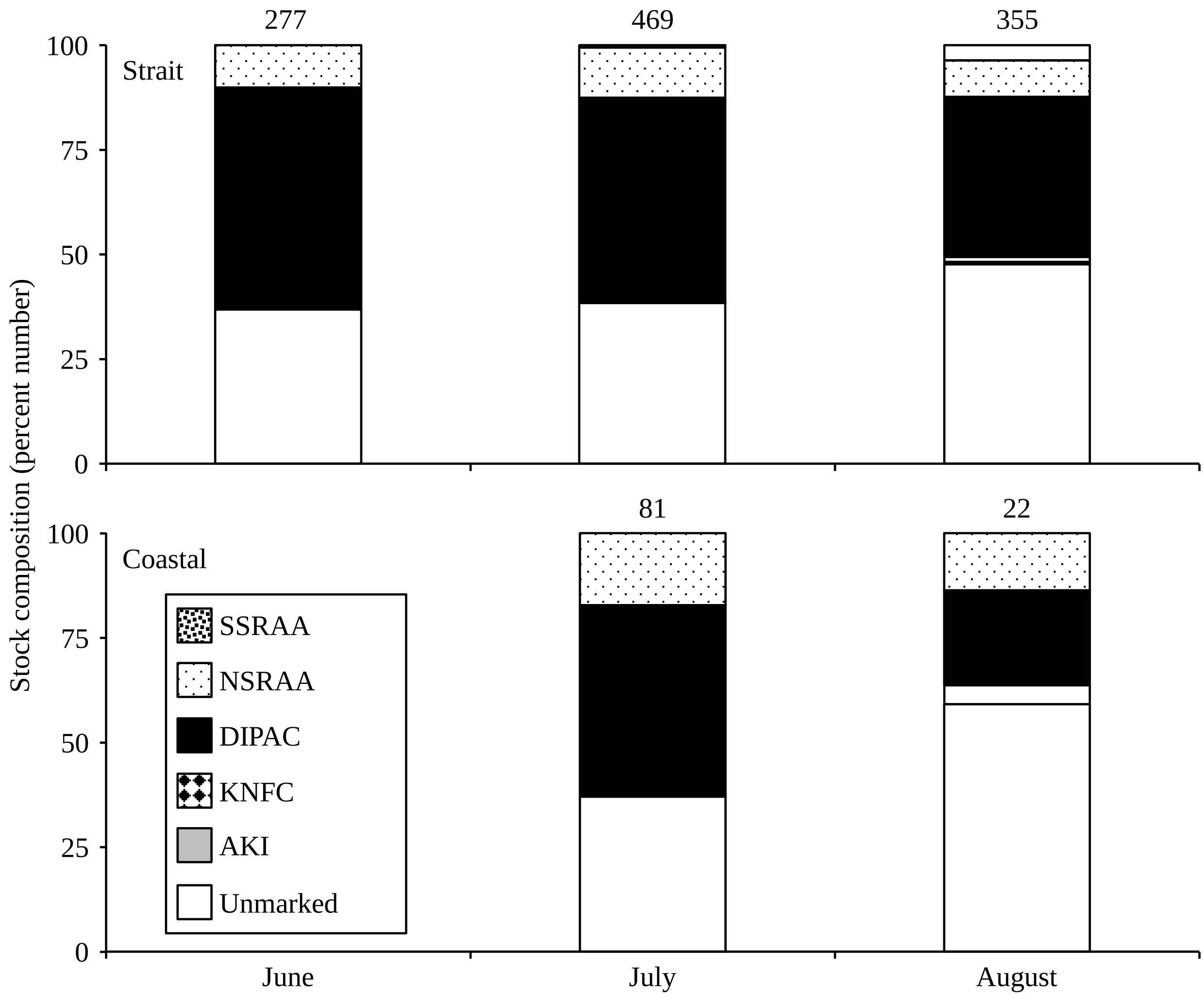


Figure 14.—Monthly stock composition (based on otolith thermal marks) of juvenile chum salmon captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Number of salmon sampled per month is indicated above each bar.

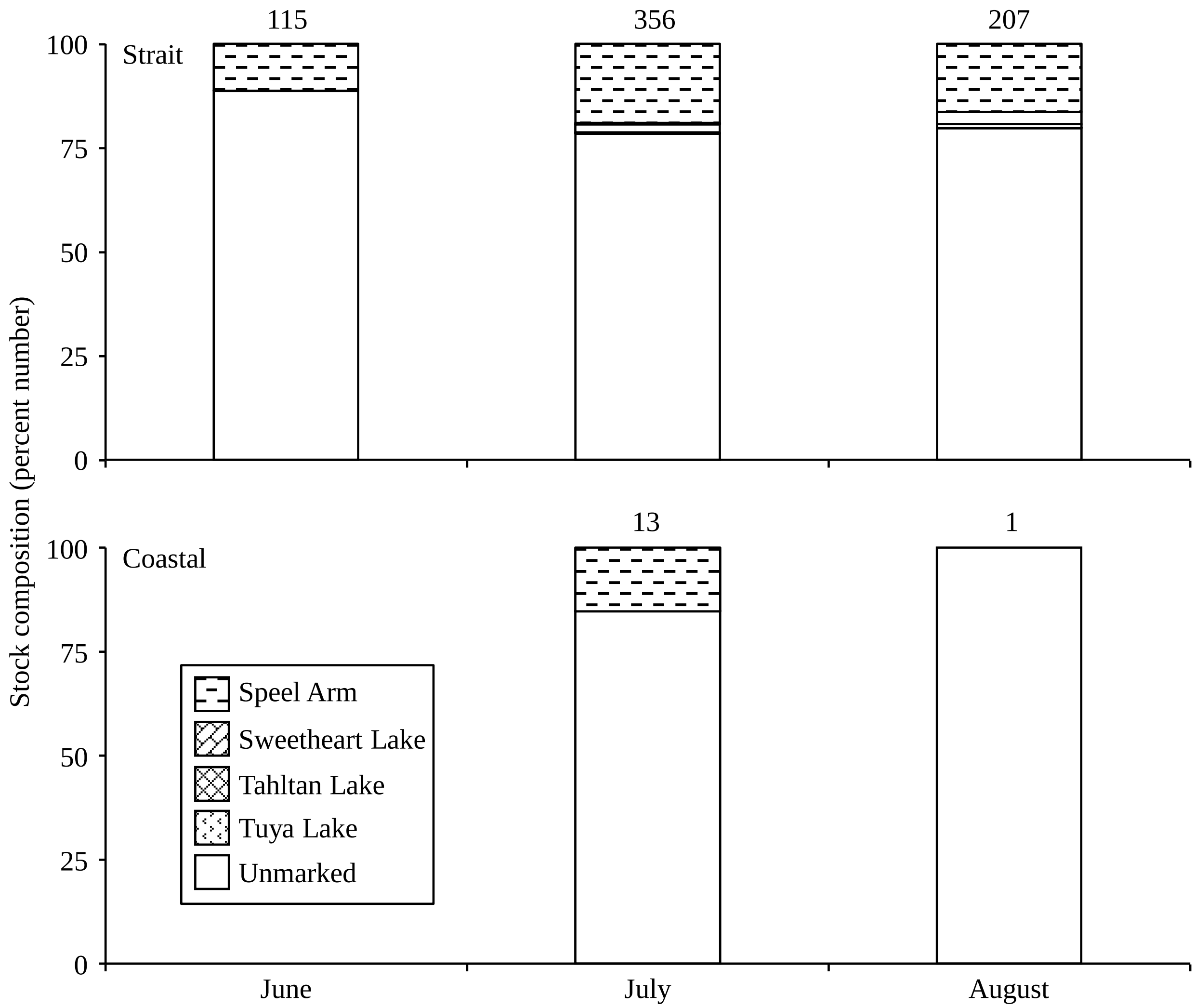


Figure 15.—Monthly stock composition (based on otolith thermal marks) of juvenile sockeye salmon captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Number of salmon sampled per month is indicated above each bar. No sockeye salmon were caught in June in the coastal habitat.

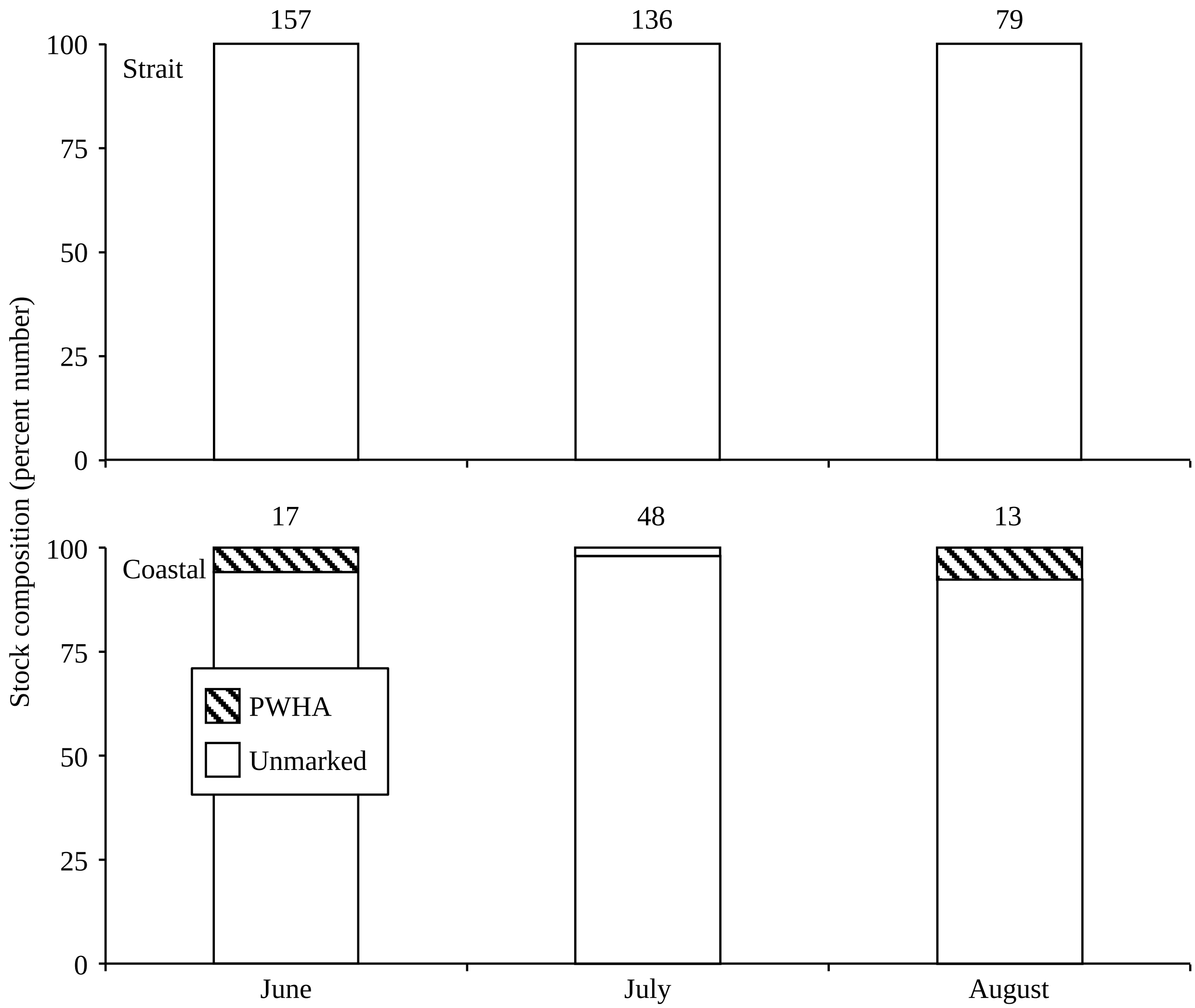


Figure 16.—Monthly stock composition (based on otolith thermal marks) of juvenile coho salmon captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2013. Number of salmon sampled per month is indicated above each bar.

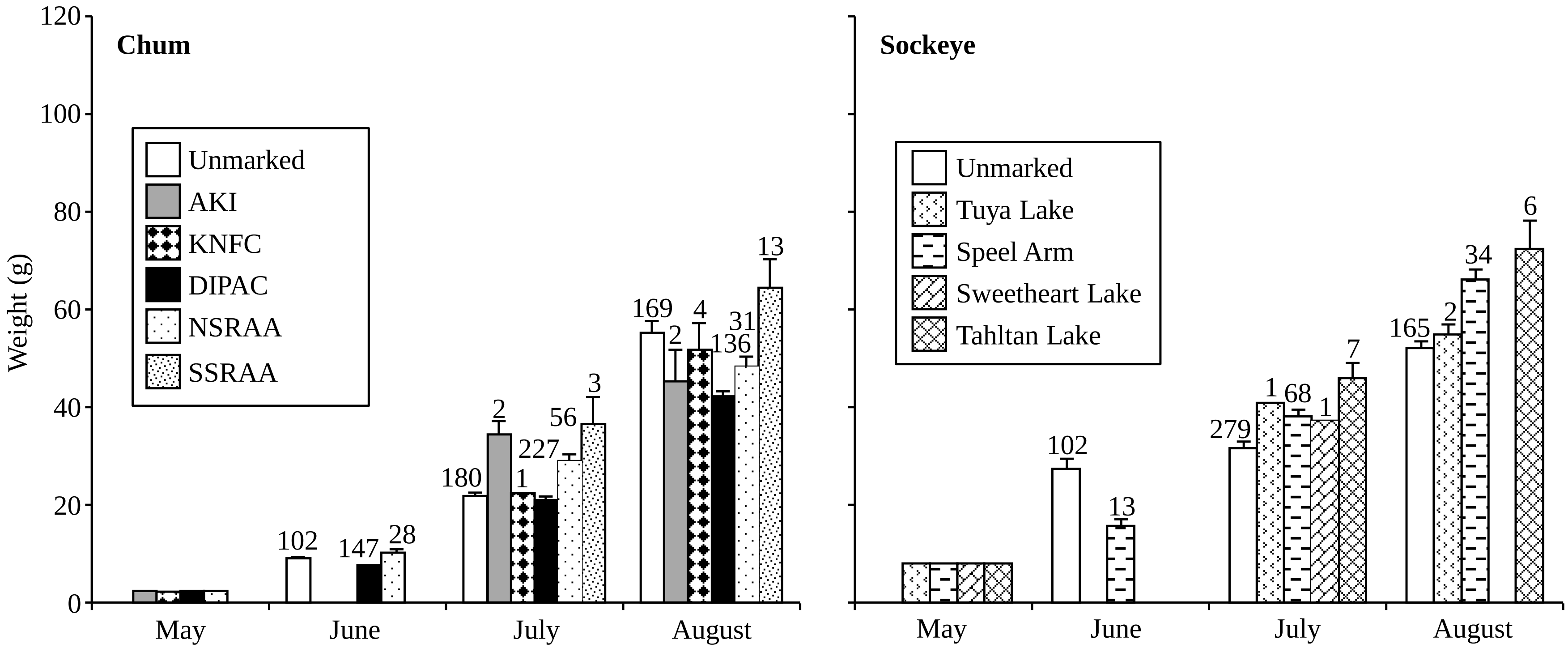


Figure 17.—Stock-specific growth trajectories of juvenile chum and sockeye salmon (mean weight, g, ± 1 standard error) captured by rope trawl in strait habitat in marine waters of the northern region of southeastern Alaska, June–August 2013. Weights of May fish are mean values at time of hatchery release. The sample sizes are indicated above each bar.

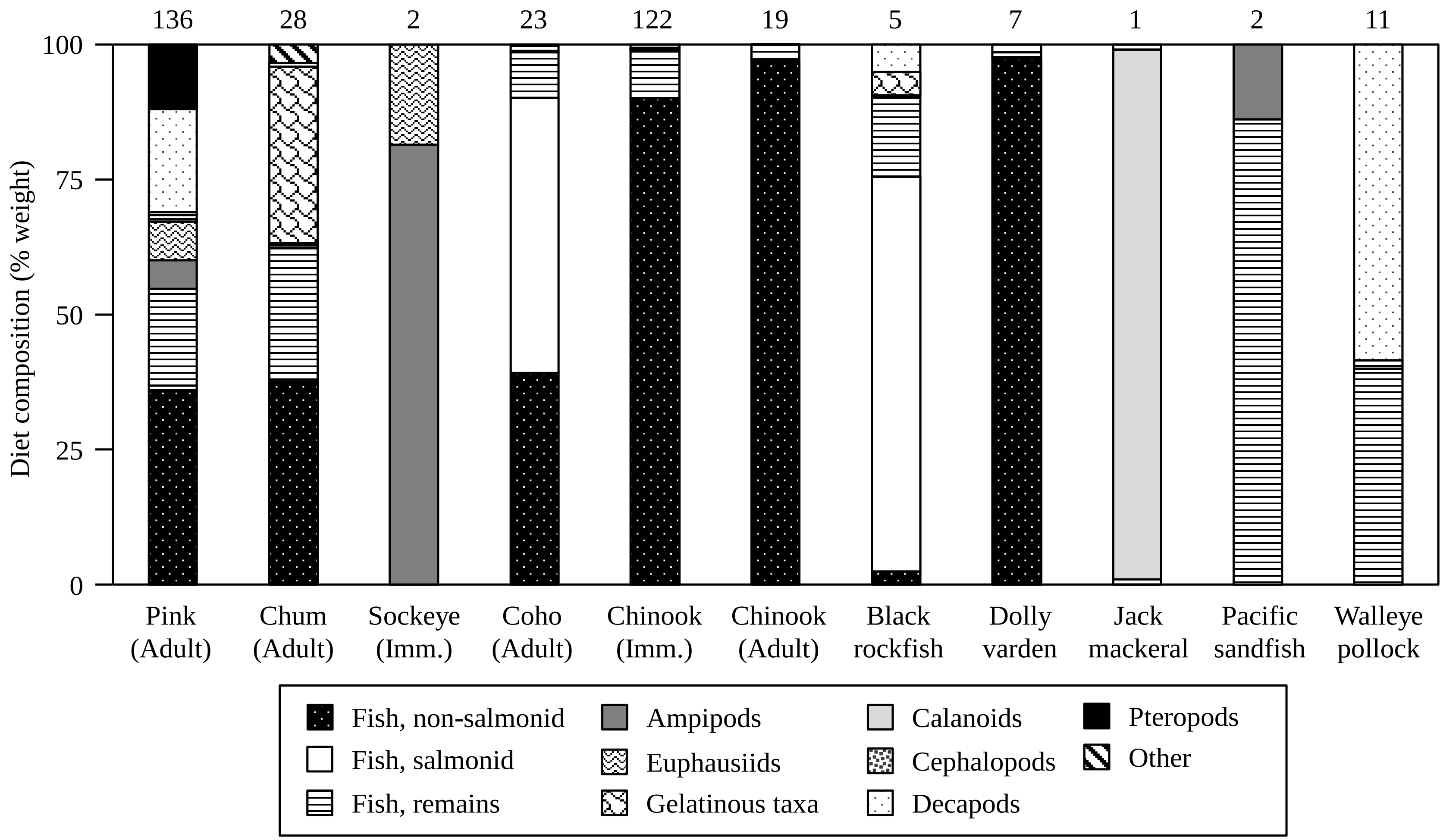


Figure 18.—Prey composition of 450 feeding potential predators of juvenile salmon captured in 98 rope trawl hauls in strait and coastal habitats in marine waters of the northern region of Southeast Alaska, June–August 2013. The numbers of fish examined per species are shown above the bars. The potential predators with empty stomachs (*n* = 94) were not included in this analysis. See Tables 20-21 for additional feeding attributes.