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Annual Survey of Juvenile Salmon, Ecologically-Related Species, and Biophysical Factors in the Marine Waters of Southeastern Alaska, May–August 2012

by

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Annual Survey of Juvenile Salmon, Ecologically-Related Species, and Biophysical Factors in the Marine Waters of Southeastern Alaska, May–August 2012

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 2012. This annual survey, conducted by the Southeast Coastal Monitoring (SECM) project, marks 16 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 typically 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 14 ºC and 16 to 32 PSU across inshore, strait, and coastal habitats for the four months. A total of 46,144 fish and squid, representing 29 taxa, were captured in 96 rope trawl hauls fished from June to August. Juvenile salmon comprised approximately 96% of the total fish catch. Juvenile pink (*O. gorbuscha*), chum (*O. keta*), sockeye (*O. nerka*), and coho (*O. kisutch*) salmon occurred in 73-84% of the hauls by month and habitat, while juvenile Chinook salmon (*O. tshawytscha*) occurred in 20% of the hauls. Abundance of juvenile salmon was high in 2012; peak CPUE occurred in July in strait habitat and in August in coastal habitat. Coded-wire tags were recovered from 27 coho salmon and 6 Chinook salmon, mainly including hatchery and wild stocks originating in SEAK and captured in strait habitat; an additional 18 adipose-clipped individuals without tags (presumably originating from the Pacific Northwest) were recovered mainly in coastal habitat. Alaska enhanced stocks comprised 71%, 30%, and 9% of chum, sockeye, and coho salmon, respectively. Predation on juvenile salmon was observed in 3 of 9 fish species examined. The longterm 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. Longterm 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 salmon and the ocean conditions they experience, 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).

An ecosystem approach to 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). 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; Orsi et al. 2013a).

In 2012, SECM sampling was conducted in the northern region of SEAK for the 16th 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 2012. Subsets of the longterm time series are examined in several recent documents (e.g., Fergusson et al. 2013; Orsi et al. 2013a,b,c; Sturdevant et al. 2013a,b); 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 2012 (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 typically 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. 2012a). 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 nutrient (µM) and 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

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

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

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). 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. Trawl haul durations were sometimes varied if catches were high, marine mammals were sighted, or if a live box was fished attached to the cod end (coastal habitat only). In these instances, salmon catches (but not jellyfish catches) were adjusted to a standard 20 minute haul.

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. However, in the laboratory, all specimens were screened with a magnetic detector and any CWTs detected were excised from the snouts. All tags were decoded and verified to determine the origin of fish.

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 were identified to species and FLs were measured.

Juvenile salmon catch data were adjusted using calibration coefficients between vessels to allow comparisons with the longterm 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 first 15 years of the SECM time series.

In the laboratory, frozen individual juvenile salmon were weighed (0.1 g) within a few weeks of capture. 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 2012 (Figure 1). In total, data were collected from 96 rope trawl hauls, 101 CTD casts, 32 tandem bongo net samples, 101 Norpac net samples, 48 surface water samples, 101 Secchi readings, and 67 ambient light measures during 23 days at-sea (Table 2, Appendix 1).

Oceanography

Overall, station mean SST values ranged from 6.7 to 14.4 ºC from May to August, and averaged 11.4 ºC (Table 3; Appendix 1). Seasonal SST patterns were similar among habitats (Figure 2a), with a peak in July or August. Monthly mean SSTs were lowest in coastal habitat and highest in inshore habitat, differing by as much as ~3.1 ºC among localities (August). The monthly means for 20-m integrated temperatures were colder and more seasonally stable than the SSTs.

Surface salinities ranged from 15.8 to 32.5 PSU from May to August, and averaged 26.0 PSU (Table 3; Appendix 1). Salinities were lowest in inshore habitat and highest in coastal habitat. Seasonal low PSU values occurred in July in strait and inshore 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 14.5 m (average 5.7 m; Appendix 1). Water clarity reached a seasonal low in June-July in all habitats and was lowest in inshore habitat (Figure 3a). The MLD ranged from 6 to 20 m (average 7.6 m; Appendix 1). Seasonal MLD patterns varied by habitat; the deepest values occurred in May in strait habitat (~ 10 m), in August in coastal habitat (~ 14 m), and with minimal change in inshore habitat (~ 5 m; 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. Ambient light measurements ranged from 5 to 749 W/m^2, despite the lack of measurements taken in part of June and all of July (Appendix 1). Chlorophyll concentrations ranged from 0.1 to 7.3 μg/L (mean of 1.7 μg/L), while phaeopigment concentrations ranged from 0.0 to 2.2 μg/L (mean of 0.6 μg/L) across the stations and sampling season (Table 4). Chlorophyll was highest in May in inshore habitat and in June in strait and coastal habitats, but converged to similarly low values in August at all habitats (Figure 4a). Nutrient concentrations (range and mean) were 0.0–1.7 and 0.5 μM for PO_4, 0.2–24.8 and 7.6 μM for $Si(OH)_4$, 0.0–12.2 and 2.1 μM for NO_3, 0.0–0.3 and 0.1 μM for NO_2, and 0.2–4.9 and 1.1 μM for NH_4 (Table 4).

Zooplankton ZSVs from the Norpac net hauls ranged from 1 to 100 ml per station with an overall average of 21.4 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 inshore and strait habitat but were similar across months in coastal habitat (Figure 4b).

Zooplankton standing stock from bongo net hauls ranged from < 0.1 to 3.7 ml/m^3 for 333-μm mesh (mean of 0.5 ml/m^3) and from < 0.1 to 2.2 ml/m^3 for 505-μm mesh (mean of 0.4 ml/m^3; Table 6) from May to August. Mean standing stock was highest in inshore habitat and lowest in coastal habitat for both mesh size fractions. Seasonal patterns were similar across habitats, with peak values in June (Figure 5).

Seasonal total density of zooplankton prey fields (333-μm mesh) at stations in Icy Strait ranged approximately 3-fold overall, from 572 to 2,471 (grand mean of 1,316) $organisms/m^3$ (Table 6). Mean density was lowest in July and station variability was highest in August (Figure 6a). Zooplankton composition was dominated by either large or small calanoid copepods from May to July, other taxa were most diverse in June, and pteropods dominated in August (Figure 6b). Small calanoids were principally comprised of *Pseudocalanus*, with *Centropages* and *Acartia* contributing ~ 10% in June through August. Large calanoids were comprised of 51-87% *Metridia* spp. in each month, with *Neocalanus plumchrus/flemingeri* contributing 12% in May and *Calanus marshallae* increasing from 10% in May to 39% in August. Zooplankton taxa such as euphausiid and decapod larvae, larvaceans, pteropods, and pelagic amphipods are seasonal prey selected by juvenile salmon and other planktivores (Coyle and Paul 1992; Landingham et al. 1998; Sturdevant et al. 2004, 2012b) despite their low percentage composition in these samples.

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 61 L per haul from June to August. Jellyfish monthly biomass increased after June, and species composition varied by month and habitat (Figure 7). In particular, biomass was highest in coastal habitat for *Aequorea* sp. in August and for *C. melanaster* in June and July; conversely, biomass was highest in strait habitat for *A. labiata* and *C. capillata* in August.

In total, 46,144 fish and squid, representing 29 taxa, were captured in 96 rope trawl hauls in strait and coastal habitats (Table 8). Juvenile salmon comprised approximately 96% of the total fish catch (Figure 8) and occurred more frequently in strait habitat than in coastal habitat. Adult salmon were generally most abundant in July, whereas immature Chinook salmon were most abundant in June. Juvenile pink, chum, sockeye, and coho salmon occurred in 73-84% of the trawls, while juvenile Chinook salmon occurred in 20% of the hauls (Table 9). In general, seasonal CPUE of juvenile salmon peaked in July in strait habitat and in August in coastal habitat (Table 10, Figure 9). Non-salmonids in strait habitat included substantial numbers of Pacific herring (June), Walleye pollock (June and July), and capelin (August), whereas the high proportion of non-salmonids in coastal habitat primarily included squid (Gonatidae) in July and Pacific saury (*Cololabis saira*) in August (Table 8).

Size and condition of juvenile salmon differed among the 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 61 to 225 mm for pink; 94 to 235 mm for chum; 74 to 262 mm for sockeye; 134 to 333 mm for coho; and 94 to 307 mm for Chinook salmon (Tables 11–15, Figure 10). Mean weights of juvenile salmon increased monthly from 2 to 126 g for pink; 3 to 154 g for chum; 4 to 189 g for sockeye; 24 to 327 g for coho; and 9 to 406 for Chinook salmon (Tables 11–15, Figure 11). Juvenile coho and Chinook salmon were consistently larger than the other three species, and fish captured in coastal habitat were generally larger than those captured in strait habitat. Mean conditions of juvenile salmon varied in both strait and coastal habitats. However, the CRs were usually positive for most species, habitats, and months (Figure 13), suggesting favorable marine conditions for juvenile salmon growth in 2012.

Stock-specific information was obtained from 33 CWT recoveries from a total of 50 salmon lacking the adipose fin and one with the adipose fin intact. The CWTs included 27 from juvenile coho salmon and six from juvenile and immature Chinook salmon captured primarily in strait habitat (Table 16). All of the tagged coho salmon originated from hatchery and wild stocks in the northern region of SEAK except one that originated from Washington (WA) and whose adipose fin was intact. The tagged Chinook salmon originated from SEAK, British Columbia (BC), Washington, 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. However, they did include fish from SEAK, BC, WA, and OR caught in each month. Conversely, only four juvenile Chinook and two juvenile coho salmon captured in the strait habitat were adipose-clipped and not tagged, indicating that few PNW fish migrated through northern SEAK inside waters. Migration rates of the 31 CWT juvenile salmon ranged from 0.8 to 17.0 km/day and averaged 3.6 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 3,357 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 1,592 fish, representing 18% of those caught (Tables 8 and 17; Figure 14). Of all chum salmon otoliths examined, 1,127 (71%) were marked by hatcheries in SEAK: 543 (34%) were from DIPAC, 288 (18%) were from NSRAA, 192 (12%) were from SSRAA, 31 (2%) were from AKI, and 71 (4%) were from KNFC. The remaining 465 (29%) were unmarked and presumed to be wild. Hatchery chum salmon catch composition declined seasonally from 80% in June to 61% in August, consistent with the pattern observed in previous years. Catches of SSRAA 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 740 fish, representing 57% of those caught (Tables 8 and 18; Figure 15). Of all the sockeye salmon otoliths examined, 225 (30%) were marked and originated from four stock groups: 211 (29%) were from Speel Arm, SEAK, eight (1%) were from Tahltan Lake/Stikine River, British Columbia, five (<1%) were from Sweetheart Lake, SEAK, and one was from Tuya Lake/Stikine River, British Columbia. The remaining 515 (70%) were unmarked and presumably from wild stocks. 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 1,025 fish (with adipose fins intact), representing 77% of those caught (Tables 8 and 19; Figure 16). Of all the coho salmon otoliths examined, 93 (9%) were marked and originated from two stock groups: 90 (9%) were from DIPAC and three (< 1%) were from PWHA. The remaining 932 (91%) were unmarked and presumably from wild stocks.

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 2012, 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 increased later and approximately tripled from July to August. The limited recovery of marked coho salmon prevented stock-specific size analysis.

Stomachs of 179 potential predators of juvenile salmon were examined onboard from a suite of nine fish species (Table 20) in 2012. Almost 90% of these were immature and adult

Pacific salmon, representing all five species. The others included Walleye pollock (*Theragra chalcogramma*), spiny dogfish (*Squalus acanthias*), and a black rockfish (*Sebastes melanops*). Overall, juvenile salmon were consumed by three predator species: coho salmon, a black rockfish, and spiny dogfish (Table 21; Figure 18). Two adult coho salmon from Upper Chatham Strait (July) and Icy Strait (August) each contained 3-4 unidentified juvenile salmon, for a total of 35% weight contribution to coho salmon diet in 2012. Adult coho salmon predation has been linked to climate, with juvenile salmon being consumed more frequently in cold years such as 2012, and herring consumed more frequently in warm years (Sturdevant et al. 2012b, 2013b). Black rockfish (*Sebastes melanops*) predation on juvenile salmon was reported for the first time in the SECM time series in 2012 (coastal habitat; three pink salmon). A spiny dogfish contained 12 juvenile pink and one juvenile chum salmon, and was presumably net feeding. Most fish examined for diet had been feeding and diet composition varied considerably among the species (Table 21; Figure 18). Piscivorous species ate capelin and fish larvae most frequently, as well as flatfish, herring, quillfish, rockfish, sandlance, and pollock (in addition to juvenile salmon). Planktivorous species most frequently ate euphausiids (all three months), pteropods (June and July), decapod larvae (July), and amphipods (mostly August).

Summary

This document summarizes SECM data collected on juvenile salmon, ecologically-related species, and associated biophysical parameters collected from May to August in 2012 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. 2012b; Wertheimer et al. 2013) and to explore year-class strength relationships for other species (Orsi et al. 2013b; Martinson et al. 2013). Subsets of the 16-year longterm time series are also examined in recent ecosystem documents (Fergusson et al. 2013; Orsi et al. 2013c; Sturdevant et al. 2013a). Comparing annual effects of biophysical parameters to longterm 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. Longterm 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, BC.

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).

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 xx in S. Zador, editor. NOAA Ecosystems Considerations Report for 2013, Stock Assessment and Fishery Evaluation (SAFE) Report. North Pacific Fishery Management Council, xx pages. (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, M. V. Sturdevant, W. R. Heard, and E. V. Farley, Jr. 2012a. Annual survey of juvenile salmon, ecologically-related species, and biophysical factors in the marine waters of southeastern Alaska, May–August 2011. NPAFC Doc.1428, Rev. 1, 102 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. A., E. A. Fergusson, and M. V. Sturdevant. 2012b. 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., M. V. Sturdevant, E. A. Fergusson, S. C. Heinl, S. C. Vulstek, J. M. Maselko, and J. E. Joyce. 2013b. Connecting the "dots" among coastal ocean metrics and Pacific salmon production in Southeast Alaska, 1997-2012. North Pac. Anadr. Fish Comm. Tech. Rep. 9. (Available at http://www.npafc.org).

Orsi, J., E. Fergusson, M. Sturdevant, and A. Wertheimer. 2013c. Forecasting pink salmon harvest in Southeast Alaska. Pages xx 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/).

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 xx 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).

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Table 9.—Frequency of occurrence of monthly salmonid and non-salmonid catches from rope trawl hauls in strait (*n* = 84) and coastal (*n* = 12) marine habitats of the northern region of southeastern Alaska, June–August 2012. The percent frequency of occurrence is shown in parentheses. Dash indicates no samples. See Table 2 for sampling effort by month and habitat.

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 2012: 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). All catches were adjusted to a 20-min trawl haul duration.

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 2012.

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 2012.

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 2012. Dash indicates no samples.

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 2012.

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 2012. Dash indicates no samples.

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 2012. Station code acronyms and coordinates are shown in Table 1.

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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 2012. 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 2012. 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 2012. 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 2012. 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 ($g/mm^3 \cdot 10^5$) 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 2012. 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 2012. Sample sizes are indicated for each month. Note difference in y-axis scales.

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 2012. 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 2012. 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 2012. 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 2012. 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 178 potential predators of juvenile salmon captured in 96 rope trawl hauls in strait and coastal habitats in marine waters of the northern region of Southeast Alaska, June–August 2012. The numbers of fish examined per species are shown above the bars; one coho salmon jack not shown. See Tables 20-21 for additional feeding attributes.

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 2012. Transect and station positions are shown in Figure 1.

			Distance		
Station	Latitude N	Longitude W	Offshore (km)	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 2012.

			Data collection type[1]				
Dates (days)	Vessel	Habitat	Rope trawl	CTD cast	Oblique bongo	20-m Norpac	Chlorophyll & nutrients
22-23 May	R/V *Sashin*	Inshore	0	1	1	1	1
(2 days)		Strait	0	8	4	8	8
		Coastal	0	0	0	0	0
23-29 June	F/V *Northwest*	Inshore	0	1	1	1	1
(7 days)	*Explorer*	Strait	28	25	4	25	8
		Coastal	4	4	4	4	4
25-31 July	F/V *Northwest*	Inshore	0	1	1	1	1
(7 days)	*Explorer*	Strait	28	4	4	28	8
		Coastal	4	28	4	4	4
28 August-	F/V *Northwest*	Inshore	0	1	1	1	1
3 September	*Explorer*	Strait	28	4	4	24	8
(7 days)		Coastal	4	24	4	4	4
Total			**96**	**101**	**32**	**101**	**48**

[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 (°C) and salinity (PSU) data collected monthly at stations in the marine waters of the northern region of southeastern Alaska, May–August 2012. *n* = number of station visits. Station code acronyms are listed in Table 1.

Month	*n*	Temp (°C)	Salinity (PSU)	*n*	Temp (°C)	Salinity (PSU)	*n*	Temp (°C)	Salinity (PSU)	*n*	Temp (°C)	Salinity (PSU)
Auke Bay Monitor												
	ABM											
May	1	8.4	27.8									
June	1	11.2	21.1									
July	1	13.7	15.8									
August	1	12.6	19.0									
Upper Chatham Strait transect												
	UCA			UCB			UCC			UCD		
May	1	7.5	30.3	1	7.5	29.3	1	7.1	29.7	1	7.2	29.6
June	3	9.5	28.7	3	9.8	28.8	3	10.1	28.2	3	10.5	25.7
July	3	13.3	24.0	3	14.0	23.8	3	13.7	23.7	3	14.2	23.4
August	3	8.9	29.6	3	9.9	27.9	3	10.3	25.9	3	10.4	25.6
Icy Strait transect												
	ISA			ISB			ISC			ISD		
May	1	6.7	31.0	1	6.7	31.1	1	7.0	30.3	1	6.9	29.9
June	4	11.3	26.5	4	11.9	24.1	4	12.0	24.2	4	12.3	24.1
July	4	12.8	24.8	4	13.0	23.0	4	13.4	22.1	4	13.6	22.8
August	4	11.5	23.9	4	11.4	24.6	4	11.5	24.0	4	11.5	24.2

Table 3.—cont.

Month	*n*	Temp (°C)	Salinity (PSU)	*n*	Temp (°C)	Salinity (PSU)	*n*	Temp (°C)	Salinity (PSU)	*n*	Temp (°C)	Salinity (PSU)
Icy Point transect												
	IPA			IPB			IPC			IPD		
May	—	—	—	—	—	—	—	—	—	—	—	—
June	1	9.4	31.5	1	9.7	31.6	1	9.6	31.7	1	9.1	32.5
July	1	11.5	31.3	1	12.7	31.6	1	13.1	32.0	1	12.5	32.5
August	1	10.6	31.1	1	13.9	31.4	1	13.7	31.7	1	13.7	31.4

Table 4.—Nutrient (µM) and chlorophyll (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 2012. Station code acronyms are listed in Table 1.

		Nutrients [µM]						
Station	Date	$[PO_4]$	$[Si(OH)_4]$	$[NO_3]$	$[NO_2]$	$[NH_4]$	Chlorophyll (µg/L)	Phaeopigment (µg/L)
ABM	22 May	1.56	17.89	6.90	0.17	2.07	2.28	1.08
	23 June	0.19	2.59	0.14	0.01	0.73	1.55	0.96
	31 July	0.20	4.47	0.02	0.00	0.47	1.85	1.05
	28 August	0.00	0.17	0.04	0.00	0.52	1.36	0.41
IPA	27 June	1.46	16.68	2.67	0.14	0.89	4.72	1.16
	25 July	0.44	13.51	0.35	0.03	0.43	5.34	1.96
	30 August	1.04	24.79	8.18	0.18	0.36	1.86	0.93
IPB	27 June	0.66	8.41	0.61	0.06	0.69	3.36	2.23
	25 July	0.50	7.10	0.13	0.01	1.14	1.14	0.47
	30 August	0.39	10.01	0.31	0.03	0.47	1.04	0.59
IPC	27 June	0.74	8.40	2.16	0.10	0.83	2.98	1.11
	25 July	0.36	3.10	0.08	0.00	0.42	0.84	0.19
	30 August	0.43	10.63	0.16	0.03	0.29	0.79	0.34
IPD	27 June	1.22	17.73	7.99	0.16	0.50	0.41	0.10
	25 July	0.88	8.87	3.66	0.10	0.29	0.50	0.13
	30 August	0.38	12.14	0.11	0.02	0.18	0.91	0.47
ISA	23 May	1.66	17.53	8.93	0.21	2.62	0.34	0.17
	24 June	0.17	1.88	0.18	0.03	0.74	1.57	0.49
	26 July	0.19	5.30	0.26	0.06	0.37	3.62	0.70
	29 August	0.39	10.58	1.92	0.09	0.51	1.58	0.97
ISB	23 May	1.54	21.71	12.23	0.25	2.57	0.54	0.29
	24 June	0.16	1.69	0.13	0.02	0.83	1.14	0.68
	26 July	0.06	2.00	0.08	0.00	0.43	1.47	0.36
	29 August	0.39	3.45	0.00	0.11	1.57	1.47	1.00
ISC	23 May	1.16	11.46	6.06	0.18	3.66	0.16	0.04
	24 June	0.10	1.42	0.05	0.01	0.37	0.25	0.08
	26 July	0.07	3.78	0.04	0.01	0.47	0.76	0.26
	29 August	0.07	1.66	0.07	0.00	0.63	0.98	0.65
ISD	23 May	1.00	10.39	5.48	0.16	3.61	0.23	0.06
	24 June	0.15	0.79	0.07	0.00	0.51	0.15	0.03
	26 July	0.00	1.64	0.04	0.00	0.49	1.13	0.35
	29 August	0.17	5.22	0.34	0.03	0.83	0.94	0.44

Table 4.—cont.

Station	Date	Nutrients [µM] [PO_4]	[$Si(OH)_4$]	[NO_3]	[NO_2]	[NH_4]	Chlorophyll (µg/L)	Phaeopigment (µg/L)
UCA	23 May	1.16	13.77	7.17	0.18	3.51	0.13	0.04
	28 June	0.25	1.99	0.30	0.03	0.69	5.12	2.15
	29 July	0.04	2.42	0.00	0.00	0.62	0.95	0.33
	02 September	0.96	6.61	2.36	0.10	0.93	1.31	0.73
UCB	23 May	0.87	7.35	3.61	0.12	4.89	0.13	0.04
	28 June	0.23	1.09	0.16	0.02	0.80	7.33	1.59
	29 July	0.05	3.48	0.05	0.00	0.18	1.08	0.33
	02 September	0.72	8.47	3.05	0.12	0.92	1.25	0.75
UCC	23 May	0.87	7.96	4.09	0.13	3.29	0.24	0.03
	28 June	0.52	2.33	0.66	0.07	0.37	5.53	0.94
	29 July	0.10	2.59	0.05	0.00	0.21	1.10	0.28
	02 September	0.91	14.34	4.87	0.21	0.43	1.47	0.66
UCD	23 May	0.88	8.67	4.56	0.13	3.27	0.20	0.05
	28 June	0.17	1.26	0.09	0.02	0.25	6.16	1.41
	29 July	0.10	4.80	0.01	0.00	0.25	1.15	0.32
	02 September	0.51	8.73	2.44	0.10	0.59	1.67	0.69

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 2012. 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	7.0	7.0									
June	1	100.0	100.0									
July	1	25.0	25.0									
August	1	5.0	5.0									
Upper Chatham Strait transect												
	UCA			UCB			UCC			UCD		
May	1	17.0	17.0	1	8.0	8.0	1	7.0	7.0	1	25.0	500.0
June	3	20.8	20.8	3	12.8	12.8	2	30.0	30.0	2	40.0	40.0
July	3	8.2	8.2	3	13.3	13.3	3	11.7	11.7	3	8.2	8.2
August	2	4.5	4.5	3	2.8	2.8	2	3.0	3.0	2	1.5	1.5
Icy Strait transect												
	ISA			ISB			ISC			ISD		
May	1	10.0	10.0	1	6.0	6.0	1	15.0	15.0	1	14.0	14.0
June	4	66.3	66.3	4	70.0	70.0	4	58.8	58.8	3	43.3	43.3
July	4	18.0	18.0	4	11.8	11.8	4	8.0	8.0	4	14.0	14.0
August	4	11.1	11.1	4	21.5	21.5	4	23.1	23.1	3	18.3	18.3
Icy Point transect												
	IPA			IPB			IPC			IPD		
May	—	—	—	—	—	—	—	—	—	—	—	—
June	1	5.5	5.5	1	10.0	10.0	1	8.5	8.5	1	30.0	30.0
July	1	13.0	13.0	1	16.0	16.0	1	7.0	7.0	1	14.0	14.0
August	1	20.0	20.0	1	6.5	6.5	1	3.0	3.0	1	2.5	2.5

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 2012. 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					45	15	0.2	—	45	20	0.2	—				
June					32	210	3.7	—	32	125	2.2	—				
July					28	15	0.3	—	28	5	0.1	—				
August					48	45	1.0	—	48	10	0.2	—				
Icy Strait																
333-µm mesh																
	ISA				ISB				ISC				ISD			
May	92	75	0.6	1,632.5	197	190	0.6	1,207.7	230	160	0.6	1,561.6	226	160	0.5	1,442.2
June	91	90	0.9	1,689.7	186	120	0.7	1,190.6	212	230	1.0	1,544.5	194	160	0.6	1,101.0
July	94	80	0.6	1,420.4	151	80	0.4	1,027.9	209	110	0.4	997.3	217	50	0.2	1,199.4
August	61	0	0.0	572.2	172	150	0.7	2,471.4	199	90	0.4	813.8	195	125	0.5	1,566.6
505-µm mesh																
	ISA				ISB				ISC				ISD			
May	92	50	0.4	—	197	175	0.6	—	230	130	0.4	—	226	120	0.3	—
June	91	24	0.2	—	186	144	0.7	—	212	200	0.8	—	194	180	0.6	—
July	94	60	0.5	—	151	60	0.3	—	209	60	0.2	—	217	95	0.3	—
August	61	5	0.1	—	172	140	0.6	—	199	80	0.3	—	195	45	0.2	—

Table 6.—cont.

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
Icy Point																
333-µm mesh																
	IPA				IPB				IPC				IPD			
May	0	0	0.0	—	0	0	0.0	—	0	0	0.0	—	0	0	0	—
June	155	75	0.3	—	103	40	0.2	—	115	45	0.2	—	230	40	0	—
July	141	50	0.2	—	108	40	0.3	—	129	25	0.1	—	235	45	0	—
August	128	30	0.2	—	95	10	0.1	—	105	10	0.1	—	198	15	0	—
505-µm mesh																
	IPA				IPB				IPC				IPD			
May	0	0	0.0	—	0	0	0.0	—	0	0	0.0	—	0	0	0.0	—
June	155	45	0.2	—	103	15	0.1	—	115	25	0.1	—	230	40	0.1	—
July	141	20	0.1	—	108	10	0.1	—	129	10	0.1	—	235	15	0.1	—
August	128	25	0.1	—	95	5	0.0	—	105	5	0.0	—	198	10	0.0	—

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 2012.

	Icy Strait				Upper Chatham Strait				Icy Point			
					Aequorea sp.							
	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	3.0	1.1	3.2	8.8
July	0.1	0.2	0.2	1.3	0.7	0.4	0.7	0.4	0.9	1.8	3.2	3.8
August	0.7	0.6	0.7	0.3	0.9	0.7	1.2	0.8	6.3	16.6	3.0	27.7
					Aurelia labiata							
	ISA	ISB	ISC	ISD	UCA	UCB	UCC	UCD	IPA	IPB	IPC	IPD
June	0.2	0.2	0.3	0.0	0.0	0.0	0.8	2.0	0.0	0.0	0.0	0.0
July	0.6	1.1	1.7	1.1	0.9	5.8	2.1	1.4	0.6	0.1	0.0	0.3
August	2.1	8.6	2.2	16.0	2.2	1.1	3.2	2.0	1.6	3.0	0.0	0.3
					Chrysaora melanaster							
	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	1.9	1.0	4.3	7.1
July	0.5	0.0	0.1	0.3	0.4	0.4	0.3	0.8	5.6	0.3	0.9	8.0
August	0.7	0.6	0.6	0.4	0.0	0.8	1.3	1.0	1.2	0.1	0.8	2.5
					Cyanea capillata							
	ISA	ISB	ISC	ISD	UCA	UCB	UCC	UCD	IPA	IPB	IPC	IPD
June	0.2	0.2	0.2	0.2	0.5	0.7	1.3	2.4	2.0	0.9	0.8	0.0
July	1.5	0.6	0.8	1.1	0.7	0.8	1.6	1.7	2.0	3.8	0.2	0.0
August	3.0	6.1	7.0	4.4	0.9	2.3	3.3	6.3	0.4	0.0	0.3	0.8

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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
July	0.0	1.2	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	0.0	0.0	0.2	0.0	0.0	0.0
					Other[1]							
	ISA	ISB	ISC	ISD	UCA	UCB	UCC	UCD	IPA	IPB	IPC	IPD
June	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.1	2.6	0.3	0.4	0.0
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	2.6	0.7
August	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.7	0.6

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

Table 8.—Salmonid and non-salmonid catches from rope trawl hauls in strait (n = 84) and coastal (n = 12) marine habitats of the northern region of southeastern Alaska, June–August 2012. 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					
Pink salmon[1]	*Oncorhynchus gorbuscha*	6,501	19,229	5,647	—	450	1,000
Chum salmon[1]	*O. keta*	1,823	6,004	893	—	124	36
Coho salmon[1]	*O. kisutch*	375	578	352	2	25	4
Sockeye salmon[1]	*O. nerka*	127	785	270	4	34	76
Pink salmon[3]	*O. gorbuscha*	1	42	—	2	8	—
Chinook salmon[2]	*O. tshawytscha*	21	2	3	1	4	—
Chinook salmon[1]	*O. tshawytscha*	8	4	10	—	16	—
Chum salmon[3]	*O. keta*	6	4	6	—	—	—
Dolly Varden	*Salvelinus malma*	13	—	—	—	—	—
Coho salmon[3]	*O. kisutch*	3	4	4	—	—	—
Chinook salmon[3]	*O. tshawytscha*	3	3	—	1	—	—
Sockeye salmon[3]	*O. nerka*	1	—	—	2	1	—
Salmonid subtotals		8,882	26,655	7,185	12	662	1,116
		Non-salmonids					
Capelin	*Mallotus villosus*	10	—	482	—	—	—
Pacific herring	*Clupea pallasi*	201	6	8	—	—	28
Walleye pollock[3]	*Theragra chalcogramma*	13	191	6	—	—	—
Squid	Gonatidae	—	—	—	17	182	—
Walleye pollock[4]	*Theragra chalcogramma*	106	—	4	3	—	—
Crested sculpin	*Blepsias bilobus*	25	38	32	—	—	—
Pacific saury	*Cololabis saira*	—	—	—	—	—	68
Prowfish	*Zaprora silenus*	15	3	18	—	—	—

Table 8.—cont.

Common Name	Scientific name	Strait June	Strait July	Strait August	Coastal June	Coastal July	Coastal August
Smooth Lumpsucker	*Aptocyclus ventricosus*	28	6	1	—	—	—
Hexagrammidae	*Hexagrammos* sp.	—	—	—	28	—	—
Soft sculpin	*Psychrolutes sigalutes*	21	1	3	—	—	—
Wolf-eel	*Anarrhichthys ocellatus*	2	2	15	—	2	—
Unknown larvae		17	—	—	13	—	—
Spiny Lumpsucker	*Eumicrotremus orbis*	3	2	2	—	—	—
Sablefish	*Anoplopoma fimbria*	—	—	—	—	—	7
Big mouth sculpin	*Hemitripterus bolini*	5	—	—	—	—	—
Pacific sandfish	*Trichodon trichodon*	3	—	1	—	—	—
Spiny dogfish	*Squalus acanthias*	—	—	—	—	4	—
Pacific sandlance	*Ammodytes hexapterus*	—	—	—	3	—	—
Arrowtooth flounder	*Atheresthes stomias*	—	—	—	2	—	—
Rockfish	*Sebastes* sp.	—	—	—	1	—	—
Black rockfish	*Sebastes melanops*	—	—	—	—	1	—
Salmon shark	*Lamna ditropis*	—	1	—	—	—	1
Sturgeon poacher	*Agonus acipenserinus*	—	—	1	—	—	—
Non-salmonid subtotals		499	250	573	67	189	104

[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* = 84) and coastal (*n* = 12) marine habitats of the northern region of southeastern Alaska, June–August 2012. 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									
Pink salmon[1]	*Oncorhynchus gorbuscha*	17	26	24	(80)	—	3	1	(33)
Chum salmon[1]	*O. keta*	17	28	25	(83)	—	3	3	(50)
Coho salmon[1]	*O. kisutch*	21	27	25	(87)	2	4	2	(67)
Sockeye salmon[1]	*O. nerka*	18	27	20	(77)	2	2	1	(42)
Pink salmon[3]	*O. gorbuscha*	1	16	—	(20)	2	2	—	(33)
Chinook salmon[2]	*O. tshawytscha*	8	2	3	(15)	1	2	—	(25)
Chinook salmon[1]	*O. tshawytscha*	5	4	8	(20)	—	2	—	(17)
Chum salmon[3]	*O. keta*	2	3	4	(11)	—	—	—	(0)
Dolly Varden	*Salvelinus malma*	8	—	—	(10)	—	—	—	(0)
Coho salmon[3]	*O. kisutch*	3	3	4	(12)	—	—	—	(0)
Chinook salmon[3]	*O. tshawytscha*	3	3	—	(7)	1	—	—	(8)
Sockeye salmon[3]	*O. nerka*	1	—	—	(1)	2	1	—	(25)
Non-salmonids									
Capelin	*Mallotus villosus*	4	—	5	(11)	—	—	—	(0)
Pacific herring	*Clupea pallasi*	9	4	5	(21)	—	—	2	(17)
Walleye pollock[3]	*Theragra chalcogramma*	7	10	5	(26)	—	—	—	(0)
Squid	Gonatidae	—	—	—	(0)	4	2	—	(50)
Walleye pollock[4]	*Theragra chalcogramma*	15		3	(21)	2	—	—	(17)
Crested sculpin	*Blepsias bilobus*	12	18	15	(54)	—	—	—	(0)
Pacific saury	*Cololabis saira*	—	—	—	(0)	—	—	2	(17)
Prowfish	*Zaprora silenus*	8	3	13	(29)	—	—	—	(0)

Table 9.—cont.

Common name	Scientific name	Strait June	Strait July	Strait August	Strait (%)	Coastal June	Coastal July	Coastal August	Coastal (%)
Smooth Lumpsucker	*Aptocyclus ventricosus*	15	6	1	(26)	—	—	—	(0)
Hexagrammidae	*Hexagrammos* sp.	—	—	—	(0)	3	—	—	(25)
Soft sculpin	*Psychrolutes sigalutes*	12	1	2	(18)	—	—	—	(0)
Wolf-eel	*Anarrhichthys ocellatus*	2	2	12	(19)	—	2	—	(17)
Unknown larvae		7	—	—	(8)	3	—	—	(25)
Spiny Lumpsucker	*Eumicrotremus orbis*	3	2	2	(8)	—	—	—	(0)
Sablefish	*Anoplopoma fimbria*	—	—	—	(0)	—	—	2	(17)
Big mouth sculpin	*Hemitripterus bolini*	4	—	—	(5)	—	—	—	(0)
Pacific sandfish	*Trichodon trichodon*	3	—	1	(5)	—	—	—	(0)
Spiny dogfish	*Squalus acanthias*	—	—	—	(0)	—	2	—	(17)
Pacific sandlance	*Ammodytes hexapterus*	—	—	—	(0)	1	—	—	(8)
Arrowtooth flounder	*Atheresthes stomias*	—	—	—	(0)	1	—	—	(8)
Rockfish	*Sebastes* sp.	—	—	—	(0)	1	—	—	(8)
Black rockfish	*Sebastes melanops*	—	—	—	(0)	—	1	—	(8)
Salmon shark	*Lamna ditropis*	—	1	—	(1)	—	—	1	(8)
Sturgeon poacher	*Agonus acipenserinus*	—	—	1	(1)	—	—	—	(0)

[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 2012: 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). All catches were adjusted to a 20-min trawl haul duration.

		NWE		Calibration	"Cobb units"	
Species	Month	CPUE	Ln(CPUE+1)	Factor	Ln(CPUE+1)	CPUE
Pink	June	232.2	2.36	0.659	1.55	18.6
	July	884.4	4.78		3.15	66.4
	August	279.8	4.30		2.83	32.7
Chum	June	65.1	1.78	0.705	1.26	10.6
	July	239.6	4.26		3.01	37.6
	August	38.7	2.73		1.93	10.4
Sockeye	June	4.5	0.99	0.848	0.85	2.9
	July	31.7	2.71		2.30	16.5
	August	13.8	1.69		1.43	7.7
Coho	June	13.4	1.51	0.803	1.23	6.1
	July	23.4	2.92		2.35	11.6
	August	14.5	2.27		1.82	7.5

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 2012.

		June				July				August			
Locality	Factor	*n*	range	mean	se	*n*	range	mean	se	*n*	range	mean	se
Upper Chatham Strait	Length	193	66-135	89	1	263	80-185	134	1	263	125-225	165	1
	Weight	193	2.2-22.6	6.7	0.3	214	6.3-64.4	25.6	10.3	175	16.4-107.6	48.4	1.8
	Condition	193	0.6-1.1	0.9	0.0	214	0.7-1.2	0.9	0.0	175	0.8-1.2	1.0	0.0
	CR	193	-0.33-0.27	0.02	0.01	214	-0.38-0.22	0.02	0.00	175	-0.20-0.21	0.03	0.00
Icy Strait	Length	704	61-127	92	1	995	90-182	120	0	984	109-223	157	1
	Weight	395	2.5-18.5	7.7	0.2	493	5.9-54.7	17.5	5.4	499	12.6-126.3	42.3	0.9
	Condition	395	0.6-1.7	0.9	0.0	493	0.5-2.1	0.9	0.0	499	0.8-1.2	1.0	0.0
	CR	395	-0.43-0.70	0.05	0.00	493	-0.58-0.89	0.00	0.00	499	-0.23-0.27	0.03	0.00
Icy Point	Length	—	—	—	—	226	79-182	114	1	100	111-186	149	1
	Weight	—	—	—	—	136	5.0-61.2	16.2	9.3	50	12.4-61.1	31.2	1.1
	Condition	—	—	—	—	136	0.7-1.1	0.9	0.0	50	0.8-1.0	0.9	0.0
	CR	—	—	—	—	136	-0.25-0.27	0.00	0.01	50	-0.19-0.06	-0.04	0.01
Total	Length	897	61-135	91	1	1484	79-185	122	0	1347	109-225	158	1
	Weight	588	2.2-22.6	7.4	0.1	843	5.0-64.4	19.4	0.3	724	12.4-126.3	43.0	0.6
	Condition	588	0.6-1.7	0.9	0.0	843	0.5-2.1	0.9	0.0	724	0.8-1.2	1.0	0.0
	CR	588	-0.43-0.70	0.04	0.00	843	-0.58-0.89	0.00	0.00	724	-0.23-0.27	0.03	0.00

Table 12.—Length (mm, fork), weight (g), Fulton's condition [(g/mm^3)·(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 2012.

		June				July				August			
Locality	Factor	*n*	range	mean	se	*n*	range	mean	se	*n*	range	mean	se
Upper	Length	56	77-131	98	2	325	94-196	147	1	109	139-231	186	2
Chatham	Weight	50	4.3-14.7	9.1	0.4	249	12.1-85.4	36.8	1.0	108	26.8-130.6	70.6	2.4
Strait	Condition	50	0.6-1.4	0.9	0.0	249	0.8-1.5	1.0	0.0	108	0.9-1.2	1.1	0.0
	CR	50	-0.42-0.41	-0.02	0.02	249	-0.23-0.46	0.02	0.00	108	-0.06-0.16	0.05	0.00
Icy	Length	404	69-121	93	0	887	95-190	131	1	454	100-235	176	1
Strait	Weight	291	3.0-16.5	7.7	0.1	508	7.9-68.4	24.6	0.4	314	8.4-153.9	56.3	1.4
	Condition	291	0.8-1.3	0.9	0.0	508	0.7-1.3	1.0	0.0	314	0.4-1.3	1.0	0.0
	CR	291	-0.17-0.38	0.00	0.00	508	-0.29-0.27	0.01	0.00	314	-0.93-0.29	0.04	0.01
Icy	Length	—	—	—	—	124	101-176	128	1	36	128-217	170	4
Point	Weight	—	—	—	—	104	8.5-61.0	22.5	0.9	36	18.1-113.8	53.5	4.0
	Condition	—	—	—	—	104	0.8-1.2	1.0	0.0	36	0.9-1.1	1.0	0.0
	CR	—	—	—	—	104	-0.15-0.21	0.02	0.01	36	-0.11-0.14	0.02	0.01
Total	Length	460	69-131	94	0	1340	94-196	135	1	600	100-235	177	1
	Weight	341	3.0-16.5	7.9	0.1	861	7.9-85.4	27.9	0.4	458	8.4-153.9	59.4	1.2
	Condition	341	0.6-1.4	0.9	0.0	861	0.7-1.5	1.0	0.0	458	0.4-1.3	1.0	0.0
	CR	341	-0.42-0.41	0.00	0.00	861	-0.29-0.46	0.01	0.00	458	-0.93-0.29	0.04	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 2012. 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	12	74-158	119	10	74	98-200	155	2	25	129-204	171	5
	Weight	12	3.8-43.5	20.6	4.6	74	9.1-93.7	42.2	1.9	25	23.3-99.3	58.7	4.7
	Condition	12	0.5-1.2	1.0	0.0	74	0.6-1.2	1.1	0.0	25	1.0-1.2	1.1	0.0
	CR	12	-0.66-0.18	-0.05	0.06	74	-0.55-0.12	0.05	0.01	25	0.00-0.16	0.08	0.01
Icy Strait	Length	101	81-194	121	3	417	83-192	136	1	189	105-262	162	2
	Weight	101	4.9-82.6	20.2	1.5	352	6.4-70.0	27.8	0.6	189	11.9-188.6	50.3	1.8
	Condition	101	0.8-1.1	1.0	0.0	352	0.7-1.7	1.0	0.0	189	0.9-1.3	1.1	0.0
	CR	101	-0.26-0.13	0.00	0.01	352	-0.33-0.56	0.04	0.00	189	-0.09-0.23	0.08	0.00
Icy Point	Length	4	136-172	153	9	34	83-187	145	3	76	98-182	159	1
	Weight	4	24.9-51.2	38.2	6.8	34	4.6-60.1	33.7	1.9	49	7.5-64.1	42.9	1.3
	Condition	4	1.0-1.1	1.0	0.0	34	0.7-1.2	1.0	0.0	49	0.8-1.1	1.0	0.0
	CR	4	-0.08-0.09	0.01	0.04	34	-0.38-0.21	0.03	0.02	49	-0.20-0.11	-0.01	0.01
Total	Length	117	74-194	122	3	525	83-200	139	1	290	98-262	162	1
	Weight	117	3.8-82.6	20.9	1.4	460	4.6-93.7	30.5	0.6	263	7.5-188.6	49.7	1.4
	Condition	117	0.5-1.2	1.0	0.0	460	0.6-1.7	1.1	0.0	263	0.8-1.3	1.1	0.0
	CR	117	-0.66-0.18	-0.01	0.01	460	-0.55-0.56	0.04	0.00	263	-0.20-0.23	0.06	0.00

Table 14.—Length (mm, fork), weight (g), Fulton's condition [(g/mm^3)·(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 2012.

		June				July				August			
Locality	Factor	*n*	range	mean	se	*n*	range	mean	se	*n*	range	mean	se
Upper	Length	69	108-241	180	3	320	141-297	211	1	154	183-333	254	2
Chatham	Weight	69	13.2-167.2	71.7	3.8	272	44.7-229.3	111.4	1.9	142	75.0-327.2	208.8	4.1
Strait	Condition	69	1.0-1.2	1.1	0.0	272	0.3-1.7	1.2	0.0	142	1.1-1.5	1.2	0.0
	CR	69	-0.16-0.13	0.00	0.01	272	-1.30-0.39	0.00	0.01	142	-0.11-0.21	0.03	0.00
Icy	Length	306	107-239	172	1	257	134-254	205	1	198	181-297	248	1
Strait	Weight	167	13.3-129.8	56.6	1.8	257	24.3-195.2	100.6	1.7	146	65.4-324.3	188.8	3.6
	Condition	167	1.0-1.3	1.1	0.0	257	1.0-1.5	1.1	0.0	146	1.0-1.4	1.2	0.0
	CR	167	-0.16-0.15	0.00	0.01	257	-0.18-0.28	-0.01	0.00	146	-0.15-0.17	0.03	0.01
Icy	Length	2	140-240	190	50	25	187-275	237	4	4	216-282	261	15
Point	Weight	2	31.3-183.7	107.5	76.2	24	71.4-249.6	160.0	8.4	4	128.5-259.2	220.4	30.9
	Condition	2	1.1-1.3	1.23	0.09	24	1.1-1.4	1.2	0.0	4	1.2-1.3	1.2	0.0
	CR	2	0.04-0.12	0.08	0.04	24	-0.07-0.15	0.01	0.01	4	-0.05-0.09	0.01	0.03
Total	Length	377	107-241	174	1	602	134-297	209	1	356	181-333	251	1
	Weight	238	13.2-183.7	61.4	1.8	553	24.3-249.6	108.5	1.4	292	65.4-327.2	199.0	2.8
	Condition	238	1.0-1.3	1.1	0.0	553	0.3-1.7	1.2	0.0	292	1.0-1.5	1.2	0.0
	CR	238	-0.16-0.15	0.00	0.00	553	-1.30-0.39	-0.01	0.00	292	-0.15-0.21	0.03	0.00

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 2012. Dash indicates no samples.

		June				July				August			
Locality	Factor	*n*	range	mean	se	*n*	range	mean	se	*n*	range	mean	se
Upper	Length	5	94-240	175	31	3	183-278	244	31	6	238-307	286	11
Chatham	Weight	5	9.2-186.6	97.6	36.4	3	95.9-260.4	205.6	54.8	6	172.0-406.0	324.4	37.6
Strait	Condition	5	1.1-1.4	1.3	0.1	3	1.2-1.6	1.4	0.1	6	1.3-1.4	1.3	0.0
	CR	5	-0.04-0.12	0.06	0.03	3	-0.13-0.25	0.02	0.12	6	-0.08-0.01	-0.03	0.01
Icy	Length	3	122-215	153	31	1	155	155		4	146-220	199	18
Strait	Weight	3	21.6-121.2	54.8	33.2	1	43.1	43.1		4	37.9-133.4	105.5	22.6
	Condition	3	1.2-1.2	1.2	0.0	1	1.2	1.2		4	1.2-1.3	1.3	0.0
	CR	3	-0.05-0.10	0.04	0.05	1	0.00	0.00		4	-0.03-0.07	0.01	0.02
Icy	Length					16	206-268	234	5				
Point	Weight					16	114.9-253.9	181.5	10.9				
	Condition					16	1.3-1.5	1.4	0.0				
	CR					16	-0.06-0.19	0.06	0.02				
Total	Length	8	94-240	167	22	20	155-278	231	7	10	146-307	251	17
	Weight	8	9.2-186.6	81.6	25.5	20	43.1-260.4	178.2	13.3	10	37.9-406.0	236.9	42.6
	Condition	8	1.1-1.4	1.2	0.0	20	1.2-1.6	1.4	0.0	10	1.2-1.4	1.3	0.0
	CR	8	-0.05-0.12	0.05	0.02	20	-0.13-0.25	0.05	0.02	10	-0.08-0.07	-0.02	0.01

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 2012. 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	2012 date	FL (mm)	W (g)	Age	Days[2] since release	Distance traveled (km)
							June								
Chinook	090442	2009	ODFW	Morgan Creek, OR	6/28/11	—	8.62	Icy Point	IPB	6/27	377	750	1.1	365	1,650
Chinook	No tag	—	—	—	—	—	—	Chatham Str.	UCA	6/28	259	500	—	—	—
Coho	0401031401	2010	NSRAA	Kasnyku Bay, AK	5/14/12	—	18.86	Chatham Str.	UCC	6/29	194	88	1.0	46	110
Coho	042092	2010	ADFG	Auke Creek, AK	6/20/12	—	—	Icy Strait	ISC	6/26	174	56	1.0	6	70
Coho	042092	2010	ADFG	Auke Creek, AK	6/20/12	—	—	Icy Strait	ISD	6/26	190	86	1.0	6	70
Coho	042468	2010	DIPAC	Gastineau Channel, AK	6/13/12	—	31.48	Chatham Str.	UCD	6/29	170	56	1.0	16	67
Coho	042696	2010	NSRAA	Kasnyku Bay, AK	5/5/12	—	22.53	Icy Strait	ISC	6/26	186	77	1.0	52	130
Coho	042696	2010	NSRAA	Kasnyku Bay, AK	5/5/12	—	22.53	Icy Strait	ISD	6/26	202	96	1.0	52	130
Coho	042696	2010	NSRAA	Kasnyku Bay, AK	5/5/12	—	22.53	Chatham Str.	UCC	6/29	189	71	1.0	55	110
Coho	No tag	—	—	—	—	—	—	Icy Point	IPA	6/27	240	184	—	—	—
Coho	No tag	—	—	—	—	—	—	Icy Strait	ISD	6/26	194	79	—	—	—
							July								
Chinook	042282	2008	DIPAC	Pullen Creek, AK	6/8/10		21.10	Icy Strait	ISA	7/27	610	3200	1.2	780	140
Chinook	090480	2010	ODFW	Hood R., OR	4/19/12		31.20	Icy Point	IPC	7/25	248	227	1.0	97	1,650
Chinook	181397	2010	CDFO	Cowichan R., BC	5/17/11	88	7.09	Icy Point	IPA	7/25	454	1400	0.1	435	1,300
Chinook	635978	2010	YAKA	Klickitat Hatchery, WA	6/9/11	76	5.15	Icy Point	IPA	7/25	407	950	0.1	402	1,600
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPB	7/25	213	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPB	7/25	237	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPB	7/25	226	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	229	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	253	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	251	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	217	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	242	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	268	—	—	—	—

Table 16.—cont.

		Release information						Recovery information							
Species	CWT code	Brood year	Agency[1]	Locality	Date	FL (mm)	W (g)	Locality	Station code	2012 date	FL (mm)	W (g)	Age	Days[2] since release	Distance traveled (km)
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	222	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Icy Point	IPC	7/25	258	—	—	—	—
Chinook	No tag	—	—	—	—	—	—	Chatham Str.	UCC	7/30	272	—	—	—	—
Coho	041526	2010	ADFG	Taku River, AK (Wild)	5/29/12	—	—	Icy Strait	ISB	7/28	206	105	1.0	60	120
Coho	041526	2010	ADFG	Taku River, AK (Wild)	5/29/12	—	—	Chatham Str.	UCA	7/30	187	78	1.0	62	100
Coho	042381	2010	NSRAA	Kasnyku Bay, AK	5/15/12	—	22.15	Chatham Str.	UCB	7/29	268	229	1.0	75	100
Coho	042468	2010	DIPAC	Gastineau Channel, AK	6/13/12	—	31.48	Chatham Str.	UCA	7/30	210	103	1.0	47	76
Coho	042590	2010	ADFG	Berners R., AK (Wild)	6/12/12	100	—	Icy Strait	ISB	7/28	203	98	1.0	46	90
Coho	042685	2010	ADFG	Chilkat R., AK (Wild)	5/29/12	—	—	Icy Strait	ISA	7/26	134	24	1.0	58	150
Coho	042685	2010	ADFG	Chilkat R., AK (Wild)	5/29/12	—	—	Icy Strait	ISC	7/28	190	80	1.0	60	145
Coho	042685	2010	ADFG	Chilkat R., AK (Wild)	5/29/12	—	—	Chatham Str.	UCD	7/30	187	79	1.0	62	120
Coho	042686	2010	ADFG	Chilkat R., AK (Wild)	5/29/12	—	—	Icy Strait	ISB	7/26	190	76	1.0	58	145
Coho	042686	2010	ADFG	Chilkat R., AK (Wild)	5/29/12	—	—	Icy Strait	ISD	7/28	210	104	1.0	60	140
Coho	042686	2010	ADFG	Chilkat R., AK (Wild)	5/29/12	—	—	Chatham Str.	UCD	7/30	219	128	1.0	62	120
Coho	042696	2010	NSRAA	Kasnyku Bay, AK	5/5/12		22.53	Icy Strait	ISA	7/27	216	105	1.0	83	135
Coho	No tag	—	—	—	—	—	—	Icy Strait	ISD	7/26	220	119	—	—	—
Coho	No tag	—	—	—	—	—	—	Chatham Str.	UCA	7/30	230	—	—	—	—
							August								
Chinook	042772	2010	NSRAA	Kasnyku Bay, AK	5/10/12	—	59.28	Icy Strait	ISA	9/1	322	600	1.0	114	135
Chinook	No tag	—	—	—	—	—	—	Chatham Str.	UCA	9/2	297	356	—	—	—
Coho	042086	2010	NSRAA	Deer Lake, AK	5/25/12	127	19.20	Chatham Str.	UCA	9/2	283	293	1.0	100	200
Coho	042468	2010	DIPAC	Gastineau Channel, AK	6/13/12	—	31.48	Icy Strait	ISC	8/29	278	250	1.0	77	89
Coho	042468	2010	DIPAC	Gastineau Channel, AK	6/13/12	—	31.48	Chatham Str.	UCB	9/1	258	221	1.0	80	73
Coho	042468	2010	DIPAC	Gastineau Channel, AK	6/13/12	—	31.48	Chatham Str.	UCD	9/1	277	243	1.0	80	67
Coho	042590	2010	ADFG	Berners R., AK (Wild)	6/12/12	100	—	Icy Strait	ISA	8/29	273	243	1.0	78	95
Coho	042590	2010	ADFG	Berners R., AK (Wild)	6/12/12	100	—	Chatham Str.	UCD	9/1	254	205	1.0	81	75
Coho	055467	2010	MNFH	Makah Nat. Fish Hat., WA	4/16/12	—	—	Icy Point	IPB	8/30	272	241	1.0	136	1,600
Coho	470170	2010	MIC	Tamgas Creek, AK	5/25/12	—	23.10	Icy Point	IPA	8/30	282	259	1.0	97	600

[1] ADFG = Alaska Department of Fish and Game; CDFO = Canadian Department of Fisheries and Oceans; DIPAC = Douglas Island Pink and Chum Inc.; KNFC = Kake Non-profit Fisheries Corporation; MIC = Metlakatla Indian Community; MNFH = Makah National Fish Hatchery; NMFS = National Marine Fisheries

Table 16.—cont.

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 1,592 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 2012. 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	Length	30	77-114	94	2	43	130-165	142	1	9	165-186	176	3
Chatham	Weight	30	4.3-12.7	7.8	0.4	43	20.0-42.5	28.5	0.8	9	47.5-70.1	57.4	2.8
Strait	Condition	30	0.6-1.4	0.9	0.0	43	0.8-1.2	1.0	0.0	9	1.0-1.1	1.1	0.0
	CR	30	-0.42-0.41	-0.02	0.03	43	-0.22-0.20	0.03	0.01	9	-0.03-0.13	0.06	0.02
Icy	Length	230	75-112	93	1	154	109-155	131	1	36	122-205	163	3
Strait	Weight	230	4.0-13.2	7.6	0.1	154	9.4-41.1	23.0	0.5	36	18.4-91.4	48.0	2.9
	Condition	230	0.8-1.3	0.9	0.0	154	0.7-1.2	1.0	0.0	36	0.9-1.3	1.1	0.0
	CR	230	-0.17-0.38	0.00	0.00	154	-0.26-0.19	0.03	0.01	36	-0.08-0.29	0.07	0.01
Icy	Length	—	—	—	—	43	112-156	127	2	—	—	—	—
Point	Weight	—	—	—	—	43	12.2-41.6	20.5	0.9	—	—	—	—
	Condition	—	—	—	—	43	0.8-1.2	1.0	0.0	—	—	—	—
	CR	—	—	—	—	43	-0.15-0.21	0.0	0.0	—	—	—	—
Total	Length	260	75-114	93	1	238	109-165	133	1	45	122-205	166	3
	Weight	260	4.0-13.2	7.6	0.1	238	9.4-42.5	23.5	0.4	45	18.4-91.4	49.9	2.5
	Condition	260	0.6-1.4	0.9	0.0	238	0.7-1.2	1.0	0.0	45	0.9-1.3	1.1	0.0
	CR	260	-0.42-0.41	0.00	0.00	240	-0.26-0.21	0.03	0.00	45	-0.08-0.29	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
NSRAA													
Bear Cove													
Upper Chatham Strait	Length	—	—	—	—	—	—	—	—	1	204	204	
	Weight	—	—	—	—	—	—	—	—	1	92.3	92.3	
	Condition	—	—	—	—	—	—	—	—	1	1.1	1.1	
	CR	—	—	—	—	—	—	—	—	1	0.08	0.08	
Icy Strait	Length	—	—	—	—	—	—	—	—	1	151	151	
	Weight	—	—	—	—	—	—	—	—	1	30.1	30.1	
	Condition	—	—	—	—	—	—	—	—	1	0.9	0.9	
	CR	—	—	—	—	—	—	—	—	1	-0.11	-0.11	
Icy Point	Length	—	—	—	—	2	119-121	120	1	—	—	—	—
	Weight	—	—	—	—	2	14.8-17.5	16.2	1.4	—	—	—	—
	Condition	—	—	—	—	2	0.9-1.0	0.9	0.1	—	—	—	—
	CR	—	—	—	—	2	-0.08-0.04	-0.02	0.06	—	—	—	—
Total	Length	—	—	—	—	2	119-121	120	1	2	151-204	178	27
	Weight	—	—	—	—	2	14.8-17.5	16.2	1.4	2	30.1-92.3	61.2	31.1
	Condition	—	—	—	—	2	0.9-1.0	0.9	0.1	2	0.9-1.1	1.0	0.1
	CR	—	—	—	—	2	-0.08-0.04	-0.02	0.06	2	-0.11-0.08	-0.01	0.09
Bear Cove L/L													
Icy Point (Total)	Length	—	—	—	—	1	148	148		—	—	—	—
	Weight	—	—	—	—	1	34.3	34.3		—	—	—	—
	Condition	—	—	—	—	1	1.1	1.1		—	—	—	—
	CR	—	—	—	—	1	0.08	0.08		—	—	—	—

Table 17.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
						Deep Inlet							
Icy	Length	—	—	—	—	26	111-138	127	2	—	—	—	—
Point	Weight	—	—	—	—	26	11.7-27.6	20.6	0.8	—	—	—	—
(Total)	Condition	—	—	—	—	26	0.9-1.2	1.0	0.1	—	—	—	—
	CR	—	—	—	—	26	-0.11-0.17	0.04	0.02	—	—	—	—
						Kasnyku Bay							
Upper	Length	2	105-111	108	3	23	116-166	145	3	3	186-201	195	5
Chatham	Weight	2	11.8-12.3	12.1	0.3	23	13.9-43.4	30.4	1.6	3	68.7-82.2	74.7	4.0
Strait	Condition	2	0.9-1.0	1.0	0.1	23	0.9-1.1	1.0	0.0	3	1.0-1.1	1.0	0.0
	CR	2	-0.05-0.08	0.01	0.07	23	-0.07-0.13	0.01	0.01	3	-0.04-0.07	0.01	0.03
Icy	Length	—	—	—	—	56	105-155	135	2	13	132-198	173	5
Strait	Weight	—	—	—	—	56	10.9-36.2	24.3	0.8	13	21.7-88.0	54.6	4.9
	Condition	—	—	—	—	56	0.8-1.3	1.0	0.0	13	0.9-1.1	1.0	0.0
	CR	—	—	—	—	56	-0.25-0.27	0.00	0.01	13	-0.04-0.13	0.02	0.01
Icy	Length	—	—	—	—	—	—	—	—	—	—	—	—
Point	Weight	—	—	—	—	—	—	—	—	—	—	—	—
	Condition	—	—	—	—	—	—	—	—	—	—	—	—
	CR	—	—	—	—	—	—	—	—	—	—	—	—
Total	Length	2	105-111	108	3	79	105-166	138	1	16	132-201	177	5
	Weight	2	11.8-12.3	12.1	0.3	79	10.9-43.4	26.1	0.8	16	21.7-88.0	58.4	4.4
	Condition	2	0.9-1.0	1.0	0.1	79	0.8-1.3	1.0	0.0	16	0.9-1.1	1.0	0.0
	CR	2	-0.05-0.08	0.01	0.07	79	-0.25-0.27	0.00	0.01	16	-0.04-0.13	0.02	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
						Kasnyku Bay L/L							
Upper	Length	1	131	131		5	119-160	138	8	2	168-195	182	14
Chatham	Weight	1	14.7	14.7		5	15.4-39.5	25.6	4.6	2	50.5-78.3	64.4	13.9
Strait	Condition	1	0.7	0.7		5	0.9-1.0	0.9	0.0	2	1.1-1.1	1.1	0.0
	CR	1	-0.39	-0.39		5	-0.10--0.01	-0.04	0.02	2	0.06-0.08	0.07	0.01
Icy	Length	—	—	—	—	15	123-158	144	3	2	179-180	180	1
Strait	Weight	—	—	—	—	15	17.8-39.3	29.2	1.7	2	55.8-58.8	57.3	1.5
	Condition	—	—	—	—	15	0.9-1.0	1.0	0.0	2	1.0-1.0	1.0	0.0
	CR	—	—	—	—	15	-0.12-0.04	-0.01	0.01	2	-0.02-0.02	0.00	0.02
Icy	Length	—	—	—	—	—	—	—	—	—	—	—	—
Point	Weight	—	—	—	—	—	—	—	—	—	—	—	—
	Condition	—	—	—	—	—	—	—	—	—	—	—	—
	CR	—	—	—	—	—	—	—	—	—	—	—	—
Total	Length	1	131	131		20	119-160	143	3	4	168-195	181	6
	Weight	1	14.7	14.7		20	15.4-39.5	28.3	1.7	4	50.5-78.3	60.9	6.1
	Condition	1	0.7	0.7		20	0.9-1.0	1.0	0.0	4	1.0-1.1	1.0	0.0
	CR	1	-0.39	-0.39		20	-0.12-0.04	-0.02	0.01	4	-0.02-0.08	0.03	0.02
						Takatz Bay							
Upper	Length	—	—	—	—	11	110-157	136	5	1	169	169	
Chatham	Weight	—	—	—	—	11	13.2-36.5	26.0	2.1	1	49.1	49.1	
Strait	Condition	—	—	—	—	11	0.9-1.5	1.0	0.1	1	1.0	1.0	
	CR	—	—	—	—	11	-0.11-0.47	0.05	0.05	1	0.03	0.03	

Table 17.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
Icy Strait	Length	—	—	—	—	32	100-171	133	3	9	132-184	161	6
	Weight	—	—	—	—	32	9.5-50.3	22.9	1.4	9	22.0-59.1	42.6	4.9
	Condition	—	—	—	—	32	0.8-1.1	0.9	0.0	9	0.9-1.1	1.0	0.0
	CR	—	—	—	—	32	-0.20-0.12	-0.02	0.01	9	-0.12-0.10	0.00	0.02
Icy Point	Length	—	—	—	—	—	—	—	—	1	133	133	
	Weight	—	—	—	—	—	—	—	—	1	23.8	23.8	
	Condition	—	—	—	—	—	—	—	—	1	1.0	1.0	
	CR	—	—	—	—	—	—	—	—	1	0.05	0.05	
Total	Length	—	—	—	—	43	100-171	134	2	11	132-184	159	6
	Weight	—	—	—	—	43	9.5-50.3	23.7	1.2	11	22.0-59.1	41.5	4.4
	Condition	—	—	—	—	43	0.8-1.5	1.0	0.0	11	0.9-1.1	1.0	0.0
	CR	—	—	—	—	43	-0.20-0.47	0.00	0.02	11	-0.12-0.10	0.01	0.02
Takatz Bay L/L													
Upper Chatham Strait	Length	1	107	107		15	109-158	137	4	1	155	155	
	Weight	1	12.0	12.0		15	12.1-37.7	26.1	2.1	1	38.3	38.3	
	Condition	1	1.0	1.0		15	0.9-1.2	1.0	0.0	1	1.0	1.0	
	CR	1	0.04	0.04		15	-0.08-0.20	0.01	0.02	1	0.05	0.05	
Icy Strait	Length	—	—	—	—	52	110-156	130	2	11	132-189	167	5
	Weight	—	—	—	—	52	12.7-38.1	21.3	0.8	11	22.0-68.8	47.1	4.5
	Condition	—	—	—	—	52	0.7-1.1	0.9	0.0	11	0.9-1.1	1.0	0.0
	CR	—	—	—	—	52	-0.29-0.11	-0.02	0.01	11	-0.10-0.09	0.00	0.02
Icy Point	Length	—	—	—	—	1	139	139		—	—	—	—
	Weight	—	—	—	—	1	26.5	26.5		—	—	—	—
	Condition	—	—	—	—	1	1.0	1.0		—	—	—	—
	CR	—	—	—	—	1	0.0	0.0		—	—	—	—

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	1	107	107		68	109-158	132	2	12	132-189	166	5
	Weight	1	12.0	12.0		68	12.1-38.1	22.5	0.8	12	22.0-68.8	46.4	4.2
	Condition	1	1.0	1.0		68	0.7-1.2	1.0	0.0	12	0.9-1.1	1.0	0.0
	CR	1	0.04	0.04		68	-0.29-0.20	-0.01	0.01	12	-0.10-0.09	0.00	0.02
KNFC													
Gunnuk Creek													
Upper Chatham Strait	Length	—	—	—	—	13	120-151	140	3	13	156-185	169	3
	Weight	—	—	—	—	13	18.2-33.8	27.2	1.6	13	38.4-71.2	50.2	3.0
	Condition	—	—	—	—	13	0.9-1.1	1.0	0.0	13	1.0-1.1	1.0	0.0
	CR	—	—	—	—	13	-0.08-0.14	0.01	0.02	13	-0.02-0.13	0.05	0.02
Icy Strait	Length	2	96-96	96	0	7	120-151	136	6	33	128-192	167	3
	Weight	2	8.4-9.1	8.8	0.4	7	15.8-35.6	24.9	3.1	33	21.2-75.9	48.9	2.3
	Condition	2	0.9-1.0	1.0	0.0	7	0.9-1.0	1.0	0.0	33	0.9-1.3	1.0	0.0
	CR	2	0.02-0.10	0.06	0.04	7	-0.09-0.06	-0.02	0.02	33	-0.08-0.29	0.04	0.01
Icy Point	Length	—	—	—	—	—	—	—	—	3	128-153	144	8
	Weight	—	—	—	—	—	—	—	—	3	18.1-33.5	27.2	4.7
	Condition	—	—	—	—	—	—	—	—	3	0.9-0.9	0.9	0.0
	CR	—	—	—	—	—	—	—	—	3	-0.10-0.00	-0.1	0.0
Total	Length	2	96-96	96	0	20	120-151	139	3	49	128-192	166	2
	Weight	2	8.4-9.1	8.8	0.4	20	15.8-35.6	26.4	1.5	49	18.1-75.9	47.9	1.9
	Condition	2	0.9-1.0	1.0	0.0	20	0.9-1.1	1.0	0.0	49	0.9-1.3	1.0	0.0
	CR	2	0.02-0.10	0.06	0.04	20	-0.09-0.14	0.00	0.01	49	-0.11-0.29	0.03	0.01

Table 17.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
SSRAA													
Anita Bay													
Upper	Length	—	—	—	—	20	135-192	164	4	14	172-214	192	3
Chatham	Weight	—	—	—	—	20	26.0-70.8	46.8	2.8	14	50.4-110.0	76.6	4.5
Strait	Condition	—	—	—	—	20	0.9-1.2	1.0	0.0	14	1.0-1.1	1.1	0.0
	CR	—	—	—	—	20	-0.04-0.25	0.06	0.01	14	0.00-0.12	0.06	0.01
Icy	Length	—	—	—	—	9	141-175	156	4	32	165-221	191	3
Strait	Weight	—	—	—	—	9	27.1-53.9	38.7	2.8	32	47.6-112.9	75.6	3.2
	Condition	—	—	—	—	9	0.9-1.1	1.0	0.0	32	1.0-1.3	1.1	0.0
	CR	—	—	—	—	9	-0.03-0.13	0.03	0.01	32	-0.03-0.24	0.08	0.01
Icy	Length	—	—	—	—	—	—	—	—	—	—	—	—
Point	Weight	—	—	—	—	—	—	—	—	—	—	—	—
	Condition	—	—	—	—	—	—	—	—	—	—	—	—
	CR	—	—	—	—	—	—	—	—	—	—	—	—
Total	Length	—	—	—	—	29	135-192	161	3	46	165-221	191	2
	Weight	—	—	—	—	29	26.0-70.8	44.3	2.2	46	47.6-112.9	75.9	2.6
	Condition	—	—	—	—	29	0.9-1.2	1.0	0.0	46	1.0-1.3	1.1	0.0
	CR	—	—	—	—	29	-0.04-0.25	0.05	0.01	46	-0.03-0.24	0.07	0.01
Kendrick Bay													
Upper	Length	—	—	—	—	1	195	195		2	183-183	183	0
Chatham	Weight	—	—	—	—	1	77.2	77.2		2	58.0-63.0	60.5	2.5
Strait	Condition	—	—	—	—	1	1.0	1.0		2	0.9-1.0	1.0	0.0
	CR	—	—	—	—	1	0.04	0.04		2	-0.05-0.04	-0.01	0.04

Table 17.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
Icy Strait	Length	—	—	—	—	—	—	—	—	5	180-192	185	3
	Weight	—	—	—	—	—	—	—	—	5	56.3-74.6	65.3	3.5
	Condition	—	—	—	—	—	—	—	—	5	1.0-1.1	1.0	0.0
	CR	—	—	—	—	—	—	—	—	5	-0.03-0.09	0.03	0.02
Icy Point	Length	—	—	—	—	—	—	—	—	3	170-176	172	2
	Weight	—	—	—	—	—	—	—	—	3	54.4-56.0	55.3	0.5
	Condition	—	—	—	—	—	—	—	—	3	0.0-0.1	0.1	0.0
	CR	—	—	—	—	—	—	—	—	3	0.03-0.15	0.10	0.03
Total	Length	—	—	—	—	1	195	195		10	170-192	181	2
	Weight	—	—	—	—	1	77.2	77.2		10	54.4-74.6	61.3	2.2
	Condition	—	—	—	—	1	1.0	1.0		10	0.9-1.1	1.0	0.0
	CR	—	—	—	—	1	0.04	0.04		10	-0.05-0.15	0.04	0.02
Neets Bay (summer)													
Upper Chatham Strait	Length	—	—	—	—	33	155-196	181	2	13	200-231	217	2
	Weight	—	—	—	—	33	38.8-85.4	63.3	1.9	13	87.3-130.6	111.0	3.3
	Condition	—	—	—	—	33	0.9-1.1	1.1	0.0	13	1.0-1.2	1.1	0.0
	CR	—	—	—	—	33	-0.06-0.13	0.06	0.01	13	0.04-0.14	0.07	0.01
Icy Strait	Length	—	—	—	—	12	156-190	178	3	30	187-235	209	2
	Weight	—	—	—	—	12	37.5-68.4	56.7	2.6	30	67.9-153.9	100.3	3.6
	Condition	—	—	—	—	12	0.9-1.1	1.0	0.0	30	1.0-1.2	1.1	0.0
	CR	—	—	—	—	12	-0.05-0.08	0.00	0.01	30	-0.03-0.22	0.08	0.01
Icy Point	Length	—	—	—	—	4	154-171	164	4	3	174-212	190	12
	Weight	—	—	—	—	4	37.4-59.1	49.5	4.9	3	51.2-105.7	75.1	16.1
	Condition	—	—	—	—	4	1.0-1.2	1.1	0.0	3	1.0-1.1	1.1	0.0
	CR	—	—	—	—	4	0.05-0.18	0.1	0.0	3	0.00-0.10	0.1	0.0

Table 17.—cont.

		June				July				August			
Locality	Factor	n	range	mean	se	n	range	mean	se	n	range	mean	se
Total	Length	—	—	—	—	49	154-196	179	2	46	174-235	210	2
	Weight	—	—	—	—	49	37.4-85.4	60.6	1.6	46	51.2-153.9	101.7	2.9
	Condition	—	—	—	—	49	0.9-1.2	1.0	0.0	46	1.0-1.2	1.1	0.0
	CR	—	—	—	—	49	-0.06-0.18	0.05	0.01	46	-0.03-0.22	0.08	0.01
Neets Bay (fall)													
Upper Chatham Strait	Length	—	—	—	—	1	171	171		4	205-210	208	1
	Weight	—	—	—	—	1	51.9	51.9		4	91.2-101.1	95.7	2.4
	Condition	—	—	—	—	1	1.0	1.0		4	1.0-1.1	1.1	0.0
	CR	—	—	—	—	1	0.05	0.05		4	0.03-0.08	0.06	0.01
Icy Strait	Length	—	—	—	—	—	—	—	—	4	195-231	207	8
	Weight	—	—	—	—	—	—	—	—	4	79.8-143.1	100.8	14.3
	Condition	—	—	—	—	—	—	—	—	4	1.1-1.2	1.1	0.0
	CR	—	—	—	—	—	—	—	—	4	0.08-0.15	0.11	0.02
Icy Point	Length	—	—	—	—	1	163	163		1	184	184	
	Weight	—	—	—	—	1	43.0	43.0		1	64.3	64.3	
	Condition	—	—	—	—	1	1.0	1.0		1	1.0	1.0	
	CR	—	—	—	—	1	0.0	0.0		1	0.0	0.0	
Total	Length	—	—	—	—	2	163-171	167	4	9	184-231	205	4
	Weight	—	—	—	—	2	43.0-51.9	47.5	4.4	9	64.3-143.1	94.5	7.1
	Condition	—	—	—	—	2	1.0-1.0	1.0	0.0	9	1.0-1.2	1.1	0.0
	CR	—	—	—	—	2	0.01-0.05	0.03	0.02	9	0.03-0.15	0.08	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
							AKI						
							Port Armstrong						
Upper	Length	—	—	—	—	12	149-170	159	2	5	185-205	199	4
Chatham	Weight	—	—	—	—	12	30.6-49.6	39.8	1.6	5	65.6-93.3	84.1	4.8
Strait	Condition	—	—	—	—	12	0.9-1.2	1.0	0.0	5	1.0-1.1	1.1	0.0
	CR	—	—	—	—	12	-0.13-0.17	0.00	0.02	5	-0.01-0.09	0.05	0.02
Icy	Length	—	—	—	—	9	141-174	157	4	3	190-198	193	3
Strait	Weight	—	—	—	—	9	26.1-51.6	37.7	3.1	3	78.0-86.5	81.2	2.7
	Condition	—	—	—	—	9	0.9-1.1	1.0	0.0	3	1.1-1.2	1.1	0.0
	CR	—	—	—	—	9	-0.08-0.07	-0.01	0.01	3	0.11-0.15	0.12	0.01
Icy	Length	—	—	—	—	2	143-151	147	4	—	—	—	—
Point	Weight	—	—	—	—	2	27.3-34.8	31.1	3.8	—	—	—	—
	Condition	—	—	—	—	2	0.9-1.0	1.0	0.0	—	—	—	—
	CR	—	—	—	—	2	-0.04-0.04	0.0	0.0	—	—	—	—
Total	Length	—	—	—	—	23	141-174	157	2	8	185-205	197	3
	Weight	—	—	—	—	23	26.1-51.6	38.2	1.5	8	65.6-93.3	83.0	3.1
	Condition	—	—	—	—	23	0.9-1.2	1.0	0.0	8	1.0-1.2	1.1	0.0
	CR	—	—	—	—	23	-0.13-0.17	0.00	0.01	8	-0.01-0.15	0.08	0.02
							Unmarked stocks						
Upper	Length	13	93-115	106	2	68	107-190	148	2	31	139-208	178	4
Chatham	Weight	13	8.1-14.4	11.0	0.5	68	12.3-74.9	33.5	1.4	31	26.8-96.3	63.5	4.3
Strait	Condition	13	0.8-1.0	0.9	0.0	68	0.9-1.1	1.0	0.0	31	0.9-1.2	1.1	0.0
	CR	13	-0.14-0.10	-0.02	0.02	68	-0.12-0.16	0.02	0.01	31	-0.06-0.17	0.07	0.01

Table 17.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
Icy Strait	Length	53	69-121	93	2	139	95-180	131	1	115	100-205	161	2
	Weight	53	3.0-16.5	7.9	0.4	139	7.9-63.2	23.1	0.7	115	8.4-85.6	45.1	1.6
	Condition	53	0.8-1.1	0.9	0.0	139	0.8-1.2	1.0	0.0	115	0.4-1.2	1.0	0.0
	CR	53	-0.13-0.14	0.02	0.01	139	-0.17-0.18	0.03	0.01	115	-0.92-0.19	0.03	0.01
Icy Point	Length	—	—	—	—	24	101-176	127	4	22	134-217	172	5
	Weight	—	—	—	—	24	8.5-61.0	21.8	2.4	22	20.8-113.8	55.7	5.3
	Condition	—	—	—	—	24	0.8-1.2	1.0	0.0	22	0.9-1.1	1.00	0.00
	CR	—	—	—	—	24	-0.15-0.19	0.02	0.02	22	-0.11-0.14	0.03	0.00
Total	Length	66	69-121	96	1	231	95-190	136	1	168	100-217	166	2
	Weight	66	3.0-16.5	8.5	0.3	231	7.9-74.9	26.1	0.7	168	8.4-113.8	49.9	1.6
	Condition	66	0.8-1.1	0.9	0.0	231	0.8-1.2	1.0	0.0	168	0.4-1.2	1.0	0.0
	CR	66	-0.14-0.14	0.01	0.01	231	-0.17-0.19	0.03	0.00	168	-0.92-0.19	0.04	0.01

Table 18.—Stock-specific information on 740 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 2012. 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. 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	—	—	—	—	34	135-173	153	2	4	195-204	201	2
Chatham	Weight	—	—	—	—	34	27.3-54.8	39.1	1.3	4	87.9-97.7	94.2	2.3
Strait	Condition	—	—	—	—	34	1.0-1.2	1.1	0.0	4	1.1-1.2	1.2	0.0
	CR	—	—	—	—	34	-0.03-0.12	0.07	0.01	4	0.09-0.13	0.10	0.01
Icy	Length	19	86-129	104	2	121	105-166	142	1	31	157-230	183	3
Strait	Weight	19	6.4-20.7	12.1	0.8	121	16.1-47.3	31.0	0.6	31	36.1-135.1	72.2	3.7
	Condition	19	1.0-1.1	1.0	0.0	121	1.0-1.4	1.1	0.0	31	0.9-1.3	1.1	0.0
	CR	19	-0.03-0.14	0.07	0.01	121	-0.06-0.36	0.07	0.00	31	-0.09-0.22	0.10	0.01
Icy	Length	—	—	—	—	1	152	152		1	178	178	
Point	Weight	—	—	—	—	1	36.3	36.3		1	64.1	64.1	
	Condition	—	—	—	—	1	1.0	1.0		1	1.1	1.1	
	CR	—	—	—	—	1	0.02	0.02		1	0.1	0.1	
Total	Length	19	86-129	104	2	156	105-173	144	1	36	157-230	185	3
	Weight	19	6.4-20.7	12.1	0.8	156	16.1-54.8	32.8	0.6	36	36.1-135.1	74.4	3.4
	Condition	19	1.0-1.1	1.0	0.0	156	1.0-1.4	1.1	0.0	36	0.9-1.3	1.1	0.0
	CR	19	-0.03-0.14	0.07	0.01	156	-0.06-0.36	0.07	0.00	36	-0.09-0.22	0.10	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								
Upper	Length	—	—	—	—	—	—	—	—	—	—	—	—
Chatham	Weight	—	—	—	—	—	—	—	—	—	—	—	—
Strait	Condition	—	—	—	—	—	—	—	—	—	—	—	—
	CR	—	—	—	—	—	—	—	—	—	—	—	—
Icy	Length	—	—	—	—	3	123-141	135	6	2	157-198	178	21
Strait	Weight	—	—	—	—	3	19.2-29.4	25.6	3.2	2	41.0-88.8	64.9	23.9
	Condition	—	—	—	—	3	1.0-1.0	1.0	0.0	2	1.1-1.1	1.1	0.0
	CR	—	—	—	—	3	0.02-0.04	0.03	0.01	2	0.04-0.09	0.06	0.03
Icy	Length	—	—	—	—	—	—	—	—	—	—	—	—
Point	Weight	—	—	—	—	—	—	—	—	—	—	—	—
	Condition	—	—	—	—	—	—	—	—	—	—	—	—
	CR	—	—	—	—	—	—	—	—	—	—	—	—
Total	Length	—	—	—	—	3	123-141	135	6	2	157-198	178	21
	Weight	—	—	—	—	3	19.2-29.4	25.6	3.2	2	41.0-88.8	64.9	23.9
	Condition	—	—	—	—	3	1.0-1.0	1.0	0.0	2	1.1-1.1	1.1	0.0
	CR	—	—	—	—	3	0.02-0.04	0.03	0.01	2	0.04-0.09	0.06	0.03
					Tahltan Lake								
Upper	Length	—	—	—	—	1	153	153		—	—	—	—
Chatham	Weight	—	—	—	—	1	38.2	38.2		—	—	—	—
Strait	Condition	—	—	—	—	1	1.1	1.1		—	—	—	—
	CR	—	—	—	—	1	0.05	0.05		—	—	—	—

Table 18.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
Icy Strait	Length	—	—	—	—	3	130-155	146	8	4	186-210	199	5
	Weight	—	—	—	—	3	22.2-39.8	32.3	5.2	4	66.2-111.1	88.4	9.3
	Condition	—	—	—	—	3	1.0-1.1	1.0	0.0	4	1.0-1.2	1.1	0.0
	CR	—	—	—	—	3	-0.02-0.05	0.01	0.02	4	-0.01-0.13	0.05	0.03
Icy Point	Length	—	—	—	—	—	—	—	—	—	—	—	—
	Weight	—	—	—	—	—	—	—	—	—	—	—	—
	Condition	—	—	—	—	—	—	—	—	—	—	—	—
	CR	—	—	—	—	—	—	—	—	—	—	—	—
Total	Length	—	—	—	—	4	130-155	148	6	4	186-210	199	5
	Weight	—	—	—	—	4	22.2-39.8	33.8	4.0	4	66.2-111.1	88.4	9.3
	Condition	—	—	—	—	4	1.0-1.1	1.0	0.0	4	1.0-1.2	1.1	0.0
	CR	—	—	—	—	4	-0.02-0.05	0.02	0.02	4	-0.01-0.13	0.05	0.03
Tuya Lake													
Icy Strait (Total)	Length	—	—	—	—	—	—	—	—	1	206	206	
	Weight	—	—	—	—	—	—	—	—	1	100.1	100.1	
	Condition	—	—	—	—	—	—	—	—	1	1.1	1.1	
	CR	—	—	—	—	—	—	—	—	1	0.08	0.08	
Unmarked stocks													
Upper Chatham Strait	Length	—	—	—	—	35	98-200	157	4	21	129-204	165	4
	Weight	—	—	—	—	35	9.1-93.7	44.1	3.4	21	23.3-99.3	51.9	4.2
	Condition	—	—	—	—	35	0.6-1.2	1.1	0.0	21	1.0-1.2	1.1	0.0
	CR	—	—	—	—	35	-0.55-0.12	0.03	0.02	21	0.00-0.16	0.07	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	12	90-137	113	4	219	83-189	133	1	148	105-262	156	2
	Weight	12	7.7-24.5	14.6	1.7	219	6.4-70.0	25.9	0.8	148	11.9-188.6	44.0	1.8
	Condition	12	0.8-1.1	1.0	0.0	219	0.7-1.7	1.0	0.0	148	0.9-1.3	1.1	0.0
	CR	12	-0.17-0.10	-0.02	0.02	219	-0.33-0.56	0.03	0.01	148	-0.08-0.23	0.07	0.00
Icy Point	Length	—	—	—	—	32	83-187	144	4	48	98-177	160	2
	Weight	—	—	—	—	32	4.6-60.1	33.4	2.0	48	7.5-57.2	42.5	1.2
	Condition	—	—	—	—	32	0.7-1.2	1.0	0.0	48	0.8-1.1	1.0	0.0
	CR	—	—	—	—	32	-0.38-0.21	0.03	0.02	48	-0.20-0.11	-0.01	0.01
Total	Length	12	90-137	113	4	286	83-200	137	1	217	98-262	158	1
	Weight	12	7.7-24.5	14.6	1.7	286	4.6-93.7	29.0	0.9	217	7.5-188.6	44.4	1.3
	Condition	12	0.8-1.1	1.0	0.0	286	0.6-1.7	1.0	0.0	217	0.8-1.3	1.1	0.0
	CR	12	-0.17-0.10	-0.02	0.02	286	-0.55-0.56	0.03	0.08	217	-0.20-0.23	0.05	0.07

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
DIPAC													
Gastineau Channel													
Upper	Length	4	152-169	162	4	31	196-238	215	2	10	256-288	272	4
Chatham	Weight	4	37.5-57.6	48.6	4.6	31	83.5-160.2	115.5	3.5	10	211.8-303.9	253.8	9.9
Strait	Condition	4	1.1-1.2	1.1	0.0	31	1.0-1.3	1.2	0.0	10	1.2-1.4	1.3	0.0
	CR	4	-0.04-0.10	0.01	0.03	31	-0.14-0.06	0.00	0.01	10	-0.02-0.17	0.05	0.02
Icy	Length	1	159	159		28	190-248	211	3	15	246-282	266	3
Strait	Weight	1	44.4	44.4		28	190.0-248.0	210.8	2.6	15	161.0-284.9	227.3	9.3
	Condition	1	1.1	1.1		28	1.0-1.3	1.1	0.0	15	1.0-1.3	1.2	0.0
	CR	1	-0.01	-0.01		28	-0.15-0.13	-0.03	0.01	15	-0.14-0.07	0.00	0.01
Icy	Length	—	—	—	—	1	243	243		—	—	—	—
Point	Weight	—	—	—	—	1	167.1	167.1		—	—	—	—
	Condition	—	—	—	—	1	1.2	1.2		—	—	—	—
	CR	—	—	—	—	1	-0.01	-0.01		—	—	—	—
Total	Length	5	152-169	161	3	60	190-248	213	2	25	246-288	268	2
	Weight	5	37.5-57.6	47.7	3.7	60	77.0-179.6	112.5	3.0	25	161.0-303.9	237.9	7.2
	Condition	5	1.1-1.2	1.1	0.0	60	1.0-1.3	1.1	0.0	25	1.0-1.4	1.2	0.0
	CR	5	-0.04-0.10	0.01	0.02	60	-0.15-0.13	-0.02	0.01	25	-0.14-0.17	0.02	0.01

Table 19.—cont.

Locality	Factor	June				July				August			
		n	range	mean	se	n	range	mean	se	n	range	mean	se
						PWHA							
						Klawock							
Icy Point (Total)	Length	—	—	—	—	3	236-248	242	4	—	—	—	—
	Weight	—	—	—	—	3	154.7-177.4	166.9	6.6	—	—	—	—
	Condition	—	—	—	—	3	1.1-1.2	1.2	0.0	—	—	—	—
	CR	—	—	—	—	3	-0.07-0.05	-0.01	0.03	—	—	—	—
						Unmarked stocks							
Upper Chatham Strait	Length	61	108-241	181	4	229	159-297	210	1	118	183-296	254	2
	Weight	61	13.2-167.2	73.1	4.2	229	44.7-200.4	110.8	2.1	118	75.0-319.2	205.1	4.4
	Condition	61	1.0-1.2	1.1	0.0	229	0.3-1.7	1.2	0.0	118	1.1-1.5	1.2	0.0
	CR	61	-0.16-0.12	0.00	0.01	229	-1.30-0.40	0.00	0.01	118	-0.11-0.22	0.04	0.01
Icy Strait	Length	162	107-224	168	2	215	154-254	204	1	124	181-297	245	2
	Weight	162	13.3-129.8	56.1	1.8	215	41.0-195.2	100.0	1.9	124	65.4-324.3	182.6	3.8
	Condition	162	1.0-1.3	1.1	0.0	215	1.0-1.5	1.1	0.0	124	1.1-1.4	1.2	0.0
	CR	162	-0.16-0.15	0.00	0.01	215	-0.17-0.28	-0.01	0.00	124	-0.10-0.18	0.03	0.01
Icy Point	Length	2	140-240	190	50	19	187-268	233	5	2	216-275	246	30
	Weight	2	31.3-183.7	107.5	76.2	19	71.4-249.6	155.2	10.0	2	128.5-252.9	190.7	62.2
	Condition	2	1.1-1.3	1.2	0.1	19	1.1-1.4	1.2	0.0	2	1.2-1.3	1.2	0.0
	CR	2	0.04-0.12	0.08	0.04	19	-0.06-0.15	0.02	0.01	2	0.01-0.09	0.05	0.04
Total	Length	225	107-241	172	2	463	154-297	208	1	244	181-297	249	1
	Weight	225	13.2-183.7	61.2	1.9	463	41.0-249.6	107.6	1.5	244	65.4-324.3	193.6	3.0
	Condition	225	1.0-1.3	1.1	0.0	463	0.3-1.7	1.2	0.0	244	1.1-1.5	1.2	0.0
	CR	225	-0.16-0.15	0.00	0.00	463	-1.30-0.40	0.00	0.00	244	-0.11-0.22	0.04	0.00

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 179 potential predators of juvenile salmon captured in marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2012. 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	Length	5	468-549	497	36	59	412-606	506	35	—	—	—	—
salmon[1]	Weight	5	1220-2200	1624	435	59	1050-3100	1771	420	—	—	—	—
	%BW	5	0.1-0.8	0.3	0.3	59	0.0-1.1	0.3	0.3	—	—	—	—
	Fullness	5	25-75	45	21	59	0-110	68	37	—	—	—	—
Chum	Length	9	610-690	644	29	4	606-709	651	43	6	668-792	710	49
salmon[1]	Weight	9	2700-3900	3289	376	4	2350-4700	3363	985	6	3800-7000	4983	1283
	%BW	9	0.1-1.1	0.3	0.3	4	00.-0.0	0.0	0.0	6	0.0-0.2	0.1	0.1
	Fullness	9	10-100	38	28	4	0-10	5	6	6	0-50	13	21
Coho	Length	3	560-655	616	50	4	572-640	600	30	4	490-680	597	81
salmon[1]	Weight	3	2400-4200	3483	954	4	1800-3250	2525	592	4	1600-4400	3050	1145
	%BW	3	0.0-5.1	1.7	2.9	4	0.0-1.5	0.4	0.7	4	0.1-2.5	0.8	1.2
	Fullness	3	10-110	57	50	4	0-110	46	55	4	50-110	78	32
Coho	Length	—	—	—	—	—	—	—	—	1		333	
salmon[2]	Weight	—	—	—	—	—	—	—	—	1		650	
	%BW	—	—	—	—	—	—	—	—	1		1.2	
	Fullness	—	—	—	—	—	—	—	—	1		110	
Sockeye	Length	3	582-615	603	18	1		578		—	—	—	—
salmon[1]	Weight	3	2450-2900	2643	232	1		2300		—	—	—	—
	%BW	3	0.0-0.2	0.2	0.1	1		0.0		—	—	—	—
	Fullness	3	25-75	50	25	1		0		—	—	—	—

Table 20.—cont.

Species	Factor	June				July				August			
		n	range	mean	sd	*n*	range	mean	sd	*n*	range	mean	sd
Chinook salmon[2]	Length	29	259-445	344	38	6	287-575	401	104	3	322-391	360	35
	Weight	29	400-1200	633	178	6	350-2650	1075	860	3	600-950	733	189
	%BW	29	0.0-2.8	0.6	0.7	6	0.5-1.7	1.1	0.5	3	0.0-2.6	1.0	1.4
	Fullness	29	0-110	55	38	6	50-110	87	24	3	0-100	50	50
Chinook salmon[1]	Length	4	525-615	567	37	3	457-610	551	82	—	—	—	—
	Weight	4	2150-3200	2600	442	3	1300-3200	2383	978	—	—	—	—
	%BW	4	0.0-1.6	0.8	0.9	3	0.1-0.8	0.3	0.4	—	—	—	—
	Fullness	4	10-110	55	46	3	10-100	45	48	—	—	—	—
Walleye pollock[2]	Length	13	500-642	558	48	11	320-543	370	61	6	498-658	580	54
	Weight	13	800-1650	1028	369	11	250-900	393	177	6	900-1550	1233	218
	%BW	13	0.0-5.1	0.7	1.4	11	0.2-1.3	0.5	0.3	6	0.2-2	0.8	0.7
	Fullness	13	0-100	57	40	11	50-100	75	16	6	50-110	97	23
Black rockfish[1]	Length	—	—	—	—	1		520		—	—	—	—
	Weight	—	—	—	—	1		2750		—	—	—	—
	%BW	—	—	—	—	1		8.0		—	—	—	—
	Fullness	—	—	—	—	1		110		—	—	—	—
Spiny dogfish[1]	Length	—	—	—	—	4	655-983	789	139	—	—	—	—
	Weight	—	—	—	—	4	1800-3050	2425	511	—	—	—	—
	%BW	—	—	—	—	4	0.0-11.5	3.4	5.4	—	—	—	—
	Fullness	—	—	—	—	4	10-100	36	43	—	—	—	—

[1] Adult
[2] Immature

Table 21.—Feeding intensity of 179 potential predators of juvenile salmon captured in rope trawl hauls in the marine waters of the northern region of southeastern Alaska, June–August 2012. 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	64	4	94	0	0
Chum salmon	Adult	19	6	68	0	0
Coho salmon	Jack	1	0	100	0	0
Coho salmon	Adult	11	2	82	2	22
Sockeye salmon	Adult	4	1	75	0	0
Chinook salmon	Immature	38	6	84	0	0
Chinook salmon	Adult	7	0	100	0	0
Walleye pollock	Immature	30	3	90	0	0
Black rockfish	Adult	1	0	100	1	100
Spiny dogfish	Adult	4	0	100	1	25

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 2012. 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	16001	ABM	8.4	27.8	320	3	6	7.0	7.0
23 May	16002	ISA	6.7	31.0	199	12	9	10.0	10.0
23 May	16003	ISB	6.7	31.1	205	10	15	6.0	6.0
23 May	16004	ISC	7.0	30.3	166	13	8	15.0	15.0
23 May	16005	ISD	6.9	29.9	174	11	14	14.0	14.0
23 May	16006	UCA	7.5	30.3	172	12	8	17.0	17.0
23 May	16007	UCB	7.5	29.3	191	15	6	8.0	8.0
23 May	16008	UCC	7.1	29.7	160	12	9	7.0	7.0
23 May	16009	UCD	7.2	29.6	126	12	13	25.0	25.0
23 June	16010	ABM	11.2	21.1	—	2	6	100.0	100.0
24 June	16011	ISA	11.7	26.7	104	5	6	60.0	60.0
24 June	16012	ISB	12.5	23.4		6	6	80.0	80.0
24 June	16013	ISC	12.2	23.8	749	6	6	75.0	75.0
24 June	16014	ISD	12.4	23.9	622	5	6	30.0	30.0
24 June	16015	ISD	12.4	23.9	622	5	—	—	—
25 June	16016	ISD	12.0	25.1	29	7	6	60.0	60.0
25 June	16017	ISC	12.3	24.4	113	6	6	35.0	35.0
25 June	16018	ISB	12.6	23.4	124	5	6	50.0	50.0
25 June	16019	ISA	12.7	24.4	118	5	6	75.0	75.0
25 June	16020	ISB	12.6	23.2	159	5	6	75.0	75.0
25 June	16021	ISA	12.1	25.1	160	4	6	60.0	60.0
26 June	16022	ISA	8.9	29.2	50	4	6	70.0	70.0
26 June	16023	ISB	9.8	27.7	74	5	6	75.0	75.0
26 June	16024	ISC	11.8	24.4	97	7	6	65.0	65.0

Appendix 1.—cont.

Date	Haul #	Station	Temperature (°C)	Salinity (PSU)	Light level (W/m^3)	Secchi (m)	MLD (m)	ZSV (ml)	TSV (ml)
26 June	16025	ISD	12.3	23.7	160	7	8	40.0	40.0
26 June	16026	ISC	11.5	24.9	238	7	7	60.0	60.0
27 June	16027	IPD	9.1	32.5	15	10	6	30.0	30.0
27 June	16028	IPC	9.6	31.7	65	6	12	8.5	8.5
27 June	16029	IPB	9.7	31.6	212	4	13	10.0	10.0
27 June	16030	IPA	9.4	31.5	532	4	6	5.5	5.5
28 June	16031	UCA	9.4	29.1	29	5	6	12.5	12.5
28 June	16032	UCB	9.8	28.8	86	4	6	3.5	3.5
28 June	16033	UCC	10.0	29.0	174	5	9	15.0	15.0
28 June	16034	UCD	10.3	27.5	220	4	14	35.0	35.0
28 June	16035	UCD	10.3	27.5	220	4	—	—	—
28 June	16036	UCC	10.0	29.0	173	5	—	—	—
28 June	16037	UCB	9.5	29.2	—	4	6	20.0	20.0
28 June	16038	UCA	9.1	29.1	—	4	6	20.0	20.0
29 June	16039	UCA	10.1	28.0	—	5	7	30.0	30.0
29 June	16040	UCB	10.0	28.5	—	5	6	15.0	15.0
29 June	16041	UCC	10.3	26.7	—	5	17	45.0	45.0
29 June	16042	UCD	10.8	23.9	—	4	20	45.0	45.0
25 July	16043	IPD	12.5	32.5	—	6	6	14.0	14.0
25 July	16044	IPC	13.1	32.0	—	5	8	7.0	7.0
25 July	16045	IPB	12.7	31.6	—	5	8	16.0	16.0
25 July	16046	IPA	11.5	31.3	—	2	15	13.0	13.0
26 July	16047	ISA	11.4	27.2	—	4	6	15.0	15.0
26 July	16048	ISB	12.9	23.8	—	4	6	8.5	8.5
26 July	16049	ISC	13.6	21.2	—	7	6	10.0	10.0
26 July	16050	ISD	13.3	23.6	—	5	7	8.5	8.5
28 July	16051	ISD	14.3	20.2	—	5	6	7.5	7.5
27 July	16052	ISD	12.5	25.0	—	6	6	10.0	10.0

Appendix 1.—cont.

Date	Haul #	Station	Temperature (°C)	Salinity (PSU)	Light level (W/m^3)	Secchi (m)	MLD (m)	ZSV (ml)	TSV (ml)
27 July	16053	ISC	12.9	24.4	—	4	6	8.0	8.0
27 July	16054	ISB	13.3	21.4	—	5	6	13.0	13.0
27 July	16055	ISA	14.4	20.0	—	5	6	25.0	25.0
27 July	16056	ISB	14.3	19.6	—	5	7	18.0	18.0
27 July	16057	ISA	13.8	21.7	—	4	6	20.0	20.0
28 July	16058	ISA	11.8	25.3	—	4	6	12.0	12.0
28 July	16059	ISB	11.7	25.4	—	4	6	7.5	7.5
28 July	16060	ISC	13.2	23.1	—	6	6	7.0	7.0
28 July	16061	ISD	14.1	20.5	—	5	7	30.0	30.0
28 July	16062	ISC	13.8	21.6	—	6	6	7.0	7.0
29 July	16063	UCA	13.8	21.0	—	6	6	14.0	14.0
29 July	16064	UCB	13.7	22.7	—	6	6	2.0	2.0
29 July	16065	UCC	13.8	22.8	—	5	6	18.0	18.0
29 July	16066	UCD	14.3	23.0	—	6	7	2.0	2.0
29 July	16067	UCC	13.9	24.0	—	5	6	4.0	4.0
29 July	16068	UCD	14.2	23.7	—	5	6	6.5	6.5
30 July	16069	UCD	14.1	23.5	—	4	9	16.0	16.0
30 July	16070	UCC	13.4	24.2	—	5	6	13.0	13.0
30 July	16071	UCB	14.1	22.5	—	5	6	33.0	33.0
30 July	16072	UCA	12.2	25.8	—	5	6	3.0	3.0
30 July	16073	UCB	14.3	26.3	—	5	8	5.0	5.0
30 July	16074	UCA	13.8	25.2	—	4	6	7.5	7.5
31 July	16075	ABM	13.7	15.8	—	2	6	25.0	25.0
28 August	16076	ABM	12.6	19.0	107	4	6	5.0	5.0
29 August	16077	ISD	12.0	23.6	248	6	7	32.0	32.0
29 August	16078	ISC	12.2	23.8	420	6	6	3.5	3.5
29 August	16079	ISB	11.9	24.9	443	5	9	62.0	62.0
29 August	16080	ISA	12.7	23.6	444	5	6	3.5	3.5

Appendix 1.—cont.

Date	Haul #	Station	Temperature (°C)	Salinity (PSU)	Light level (W/m^3)	Secchi (m)	MLD (m)	ZSV (ml)	TSV (ml)
30 August	16081	IPA	10.6	31.1	325	4	14	20.0	20.0
30 August	16082	IPB	13.9	31.4	424	7	16	6.5	6.5
30 August	16083	IPC	13.7	31.7	585	7	13	3.0	3.0
30 August	16084	IPD	13.7	31.4	475	5	12	2.5	2.5
31 August	16085	ISA	11.1	22.2	492	6	7	20.0	20.0
31 August	16086	ISB	11.1	24.9	344	5	9	10.0	10.0
31 August	16087	ISC	11.3	23.9	343	5	9	3.5	3.5
31 August	16088	ISD	11.5	24.8	588	7	6	8.0	8.0
31 August	16089	ISD	11.5	24.8	588	7	—	—	—
31 August	16090	ISC	11.8	23.2	392	7	9	80.0	80.0
31 August	16091	ISB	11.4	23.6	517	5	6	5.5	5.5
31 August	16092	ISA	10.8	26.8	341	5	6	10.0	10.0
01 Sept	16093	ISA	11.5	23.5	31	6	6	11.0	11.0
01 Sept	16094	ISB	11.3	24.7	62	6	7	8.5	8.5
01 Sept	16095	ISC	10.9	25.4	54	6	6	5.5	5.5
01 Sept	16096	ISD	11.1	25.5	144	7	8	15.0	15.0
01 Sept	16097	UCD	11.1	24.3	31	4	7	2.0	2.0
01 Sept	16098	UCC	11.3	23.8	29	5	6	4.5	4.5
02 Sept	16099	UCA	9.0	29.5	47	7	6	8.0	8.0
02 Sept	16100	UCB	10.1	27.2	76	7	6	2.5	2.5
02 Sept	16101	UCC	9.8	28.1	310	6	6	1.5	1.5
02 Sept	16102	UCD	10.1	26.9	56	5	6	1.0	1.0
02 Sept	16103	UCD	10.1	26.9	56	5	—	—	—
02 Sept	16104	UCC	9.8	28.1	310	6	—	—	—
01 Sept	16105	UCB	10.0	28.0	19	5	6	2.0	2.0
02 Sept	16106	UCA	9.0	29.5	47	7	—	—	—
03 Sept	16107	UCA	8.6	29.7	5	6	6	1.0	1.0
03 Sept	16108	UCB	9.5	28.4	34	6	6	4.0	4.0

Appendix 2.—Catch and life history stage of salmonids captured in 96 surface rope trawl hauls from the marine waters of the northern region of southeastern Alaska, June–August 2012. 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
24 June	16011	ISA	20	124	9	4	0	0	0	0	0	0	0
24 June	16012	ISB	20	15	18	0	3	1	0	0	0	0	0
24 June	16013	ISC	20	24	72	4	2	0	0	0	0	0	0
24 June	16014	ISD	20	13	44	18	0	0	0	0	0	0	0
24 June	16015	ISD	20	0	0	0	1	0	0	0	0	0	0
25 June	16016	ISD	20	322	53	3	4	0	0	0	0	0	0
25 June	16017	ISC	20	149	4	2	11	0	0	0	0	0	0
25 June	16018	ISB	20	7	1	4	13	0	0	0	0	0	0
25 June	16019	ISA	20	1	0	9	16	1	0	0	0	0	0
25 June	16020	ISB	20	26	15	1	23	0	0	0	0	0	0
25 June	16021	ISA	20	0	1	1	7	0	0	0	0	0	0
26 June	16022	ISA	20	0	0	0	0	0	0	0	0	0	0
26 June	16023	ISB	20	0	0	3	4	1	0	0	0	0	0
26 June	16024	ISC	20	4992	1344	48	56	0	0	0	0	0	0
26 June	16025	ISD	20	609	194	17	164	0	0	0	0	0	0
26 June	16026	ISC	20	21	11	1	2	0	0	0	0	0	0
27 June	16027	IPD	20	0	0	0	0	0	0	0	0	0	0
27 June	16028	IPC	20	0	0	0	0	0	0	0	0	0	0
27 June	16029	IPB	20	0	0	1	1	0	1	0	1	0	1
27 June	16030	IPA	20	0	0	3	1	0	1	0	1	0	1
28 June	16031	UCA	20	0	0	0	0	0	1	0	0	0	0
28 June	16032	UCB	20	0	0	1	1	0	0	4	0	0	0
28 June	16033	UCC	12	0	0	0	2	0	0	0	0	0	0
28 June	16034	UCD	20	24	24	0	2	0	0	0	0	0	0
28 June	16035	UCD	20	55	5	2	1	0	0	0	0	1	1
28 June	16036	UCC	20	51	9	0	0	0	0	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
28 June	16037	UCB	20	0	0	0	3	0	0	0	0	1	1
28 June	16038	UCA	20	0	0	1	0	0	0	0	0	0	0
29 June	16039	UCA	20	0	0	0	0	0	0	0	0	0	0
29 June	16040	UCB	20	0	0	0	3	0	0	2	0	0	0
29 June	16041	UCC	20	58	13	1	44	1	0	0	1	1	2
29 June	16042	UCD	20	10	6	7	13	4	0	0	0	0	0
25 July	16043	IPD	30	0	0	0	1	0	0	0	0	0	0
25 July	16044	IPC	30	34	4	0	11	12	7	0	0	0	0
25 July	16045	IPB	20	310	60	31	4	4	1	0	0	0	0
25 July	16046	IPA	20	106	60	3	9	0	0	0	1	0	1
26 July	16047	ISA	20	794	247	5	22	0	0	0	0	0	0
26 July	16048	ISB	20	1512	589	64	39	0	1	0	0	0	0
26 July	16049	ISC	20	4571	2421	231	16	0	0	0	0	0	0
26 July	16050	ISD	10	1034	169	10	6	0	2	0	0	0	0
28 July	16051	ISD	10	953	85	22	23	1	0	0	0	0	0
27 July	16052	ISD	10	1686	196	34	1	0	0	0	0	0	0
27 July	16053	ISC	10	20	2	4	0	0	2	0	0	0	0
27 July	16054	ISB	20	1293	160	37	18	0	2	2	0	0	0
27 July	16055	ISA	20	105	107	16	13	0	0	0	0	0	0
27 July	16056	ISB	20	284	118	22	3	0	0	0	0	0	0
27 July	16057	ISA	20	388	287	39	18	0	0	1	0	1	1
28 July	16058	ISA	20	43	62	10	6	0	0	0	0	0	0
28 July	16059	ISB	20	1581	820	153	17	0	1	0	0	1	1
28 July	16060	ISC	20	2858	163	31	27	0	0	0	0	0	0
28 July	16061	ISD	10	1612	197	22	25	0	1	0	0	0	0
28 July	16062	ISC	10	230	56	11	23	0	0	0	0	0	0
29 July	16063	UCA	20	9	44	1	32	0	0	0	0	0	0
29 July	16064	UCB	20	37	61	14	34	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	16065	UCC	20	35	29	14	11	0	1	0	0	0	0
29 July	16066	UCD	20	3	6	5	18	1	1	0	0	0	0
29 July	16067	UCC	20	3	1	1	9	0	1	0	0	0	0
29 July	16068	UCD	20	5	23	7	18	0	2	0	0	0	0
30 July	16069	UCD	20	96	75	8	41	0	3	1	0	0	0
30 July	16070	UCC	20	49	38	6	41	1	4	0	0	0	0
30 July	16071	UCB	20	23	17	10	29	0	0	0	0	0	0
30 July	16072	UCA	20	0	4	1	25	0	9	0	0	0	0
30 July	16073	UCB	20	5	24	7	32	1	3	0	0	2	2
30 July	16074	UCA	20	0	3	0	31	0	8	0	0	0	0
29 August	16077	ISD	20	341	19	12	12	0	0	0	0	0	0
29 August	16078	ISC	20	345	12	3	7	0	0	0	0	0	0
29 August	16079	ISB	20	1150	205	21	61	1	0	0	0	0	0
29 August	16080	ISA	20	243	61	15	42	0	0	0	0	0	0
30 August	16081	IPA	30	1000	28	76	3	0	0	0	0	0	0
30 August	16082	IPB	30	0	6	0	1	0	0	0	0	0	0
30 August	16083	IPC	30	0	2	0	0	0	0	0	0	0	0
30 August	16084	IPD	30	0	0	0	0	0	0	0	0	0	0
31 August	16085	ISA	20	229	67	14	6	0	0	1	0	0	0
31 August	16086	ISB	20	757	229	63	15	0	0	0	0	0	0
31 August	16087	ISC	10	67	7	4	2	0	0	0	0	0	0
31 August	16088	ISD	10	79	13	2	0	1	0	0	0	0	0
31 August	16089	ISD	10	191	11	1	12	0	0	0	0	0	0
31 August	16090	ISC	10	151	17	10	6	0	0	0	0	0	0
31 August	16091	ISB	10	151	31	9	5	1	0	0	0	1	1
31 August	16092	ISA	10	38	7	0	14	0	0	0	0	0	0
01 Sept	16093	ISA	10	43	5	0	6	0	0	1	0	0	0
01 Sept	16094	ISB	10	1008	79	74	1	0	0	0	0	1	1

Appendix 2.—cont.

Date	Haul #	Station	Trawl time	Juvenile salmon					Immature and adult salmon				
				Pink	Chum	Sockeye	Coho	Chinook	Pink	Chum	Sockeye	Coho	Chinook
01 Sept	16095	ISC	10	292	16	12	1	0	0	0	0	0	0
01 Sept	16096	ISD	10	167	5	5	8	1	0	0	0	0	0
01 Sept	16097	UCD	20	65	25	10	36	3	0	3	0	1	1
01 Sept	16098	UCC	20	9	26	1	25	1	0	0	0	0	0
02 Sept	16099	UCA	20	0	0	0	2	0	0	0	0	1	1
02 Sept	16100	UCB	20	0	0	0	13	0	0	0	0	0	0
02 Sept	16101	UCC	20	67	13	3	6	0	0	0	0	0	0
02 Sept	16102	UCD	20	110	7	5	0	0	0	0	0	0	0
02 Sept	16103	UCD	20	29	1	0	13	0	0	0	0	0	0
02 Sept	16104	UCC	20	90	23	3	5	0	0	0	0	0	0
01 Sept	16105	UCB	20	0	1	0	21	1	0	0	0	0	0
02 Sept	16106	UCA	20	0	0	0	27	1	0	1	0	0	0
03 Sept	16107	UCA	20	4	1	0	0	0	0	0	0	0	0
03 Sept	16108	UCB	20	21	12	3	6	0	0	0	0	0	0

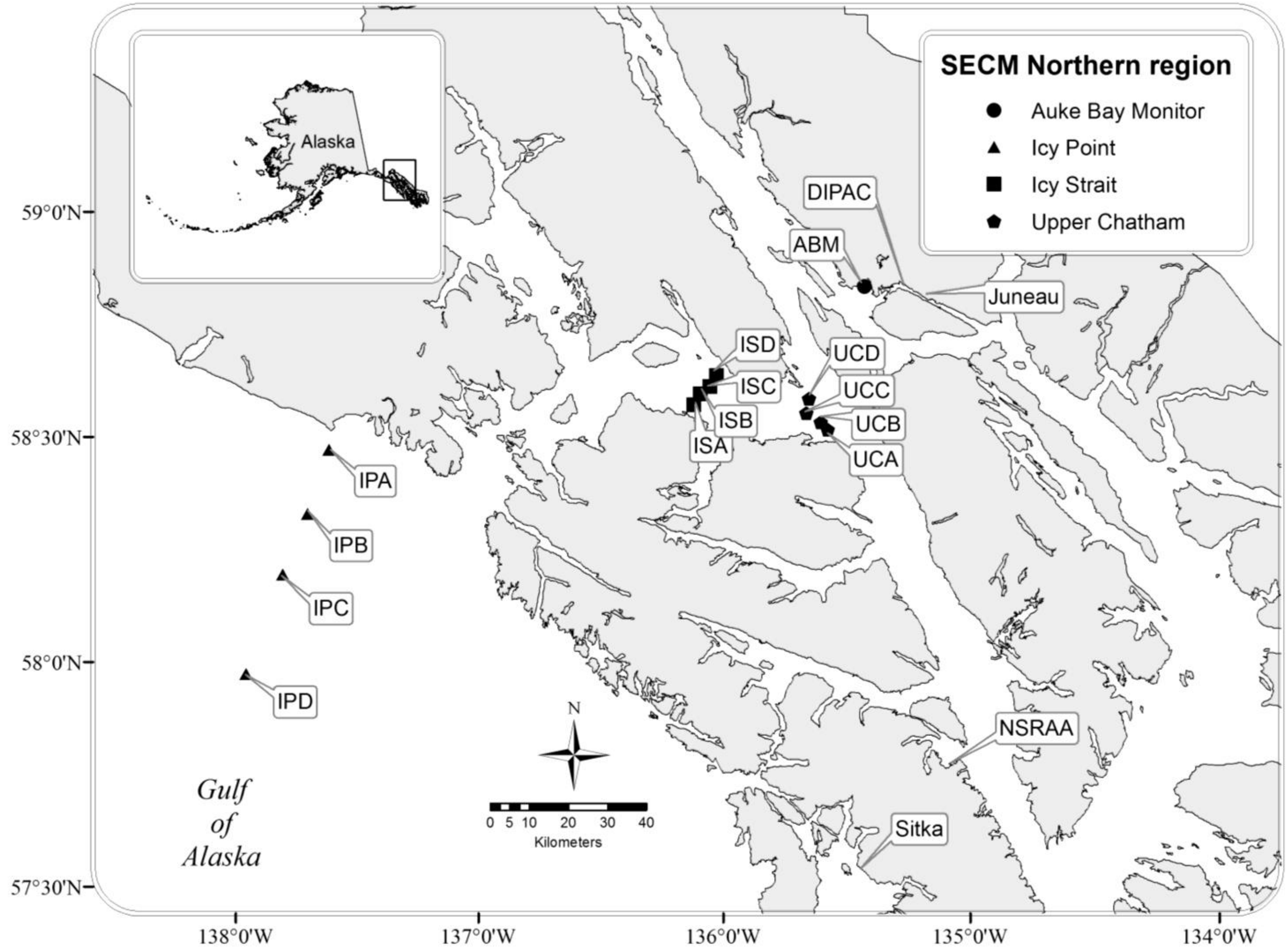

Figure 1.—Stations sampled at inshore, strait, and coastal habitats in the marine waters of the northern region of southeastern Alaska, May–August 2012 by the Southeast Coastal Monitoring (SECM) project. Transect and station coordinates and station code acronyms are shown in Table 1.

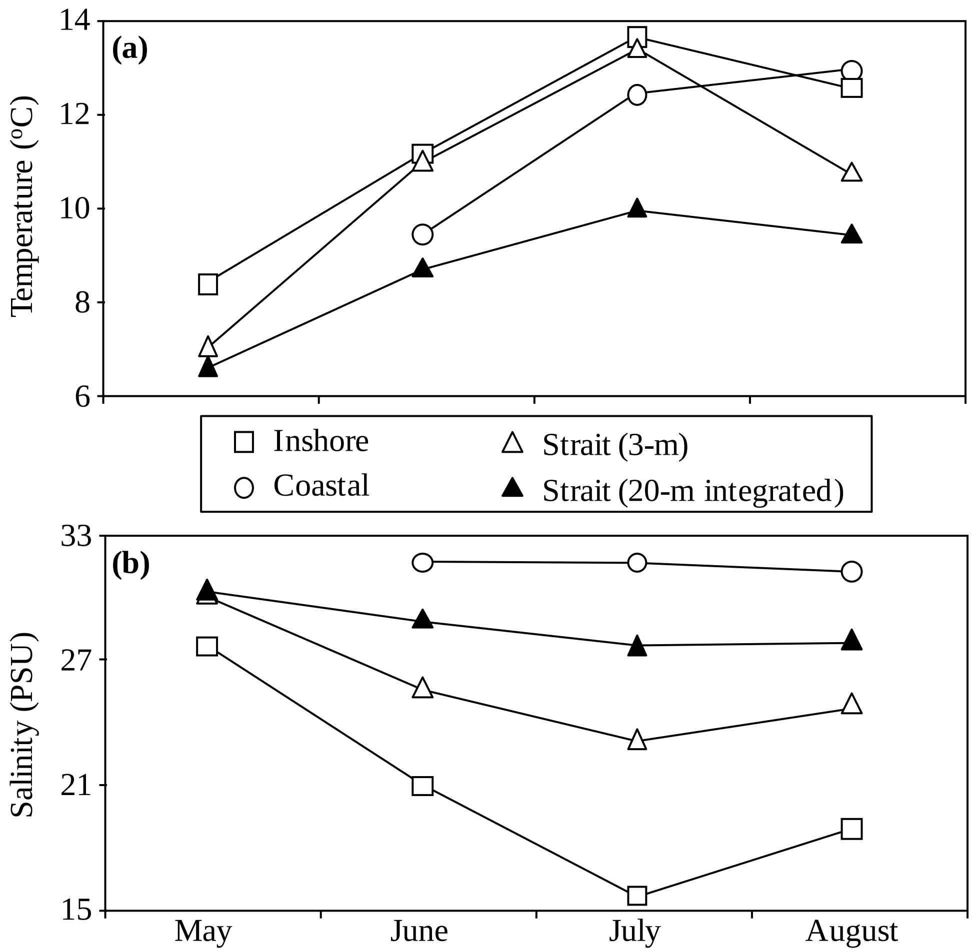

Figure 2.—Mean surface (3-m) and 20-m integrated temperature (a; ˚C) and salinity (b; PSU) for the marine waters of the northern region of southeastern Alaska, May–August 2012. The 3-m measures represent the most active segment of the water column, while the 20-m integrated measures represent more stable waters also sampled by the trawl (see also Figure 3). See Table 2 for monthly sample sizes and Appendix 1 for data values.

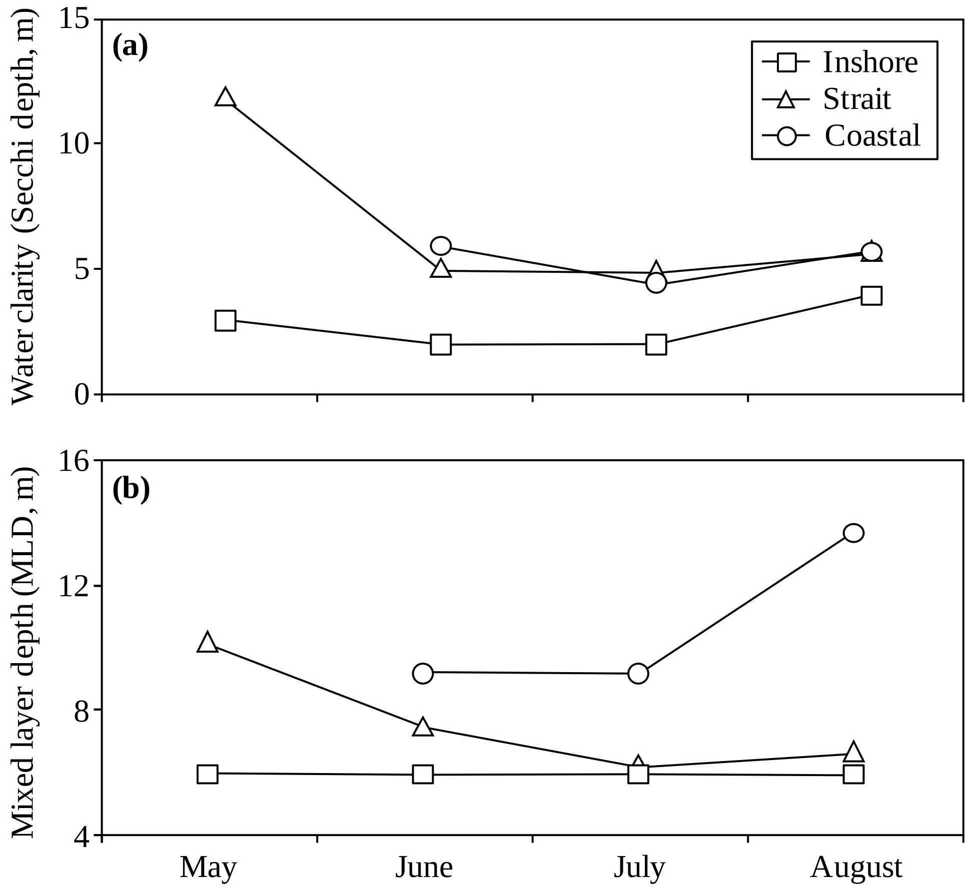

Figure 3.—Water clarity as mean depth (a; m) of Secchi disappearance and mixed layer depth (b; MLD, m; see text for definition) calculated from CTD profiles from the marine water column in the northern region of southeastern Alaska, May–August 2012. See Table 2 for monthly sample sizes and Appendix 1 for data values.

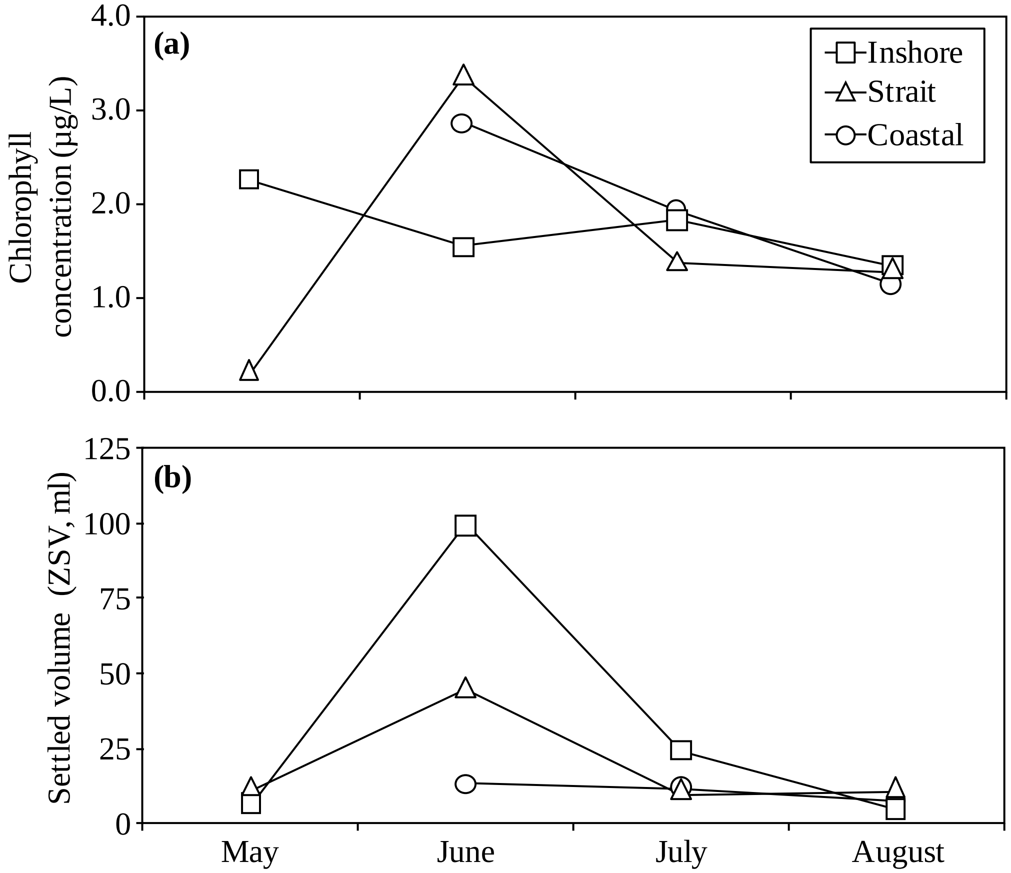

Figure 4.—Mean chlorophyll-a concentration (a; µg/L) from surface water samples and zooplankton settled volumes (b; ZSV, ml) from 20-m Norpac net hauls in the marine waters of the northern region of southeastern Alaska, May–August 2012. Chlorophyll was estimated from single monthly samples per station, 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.

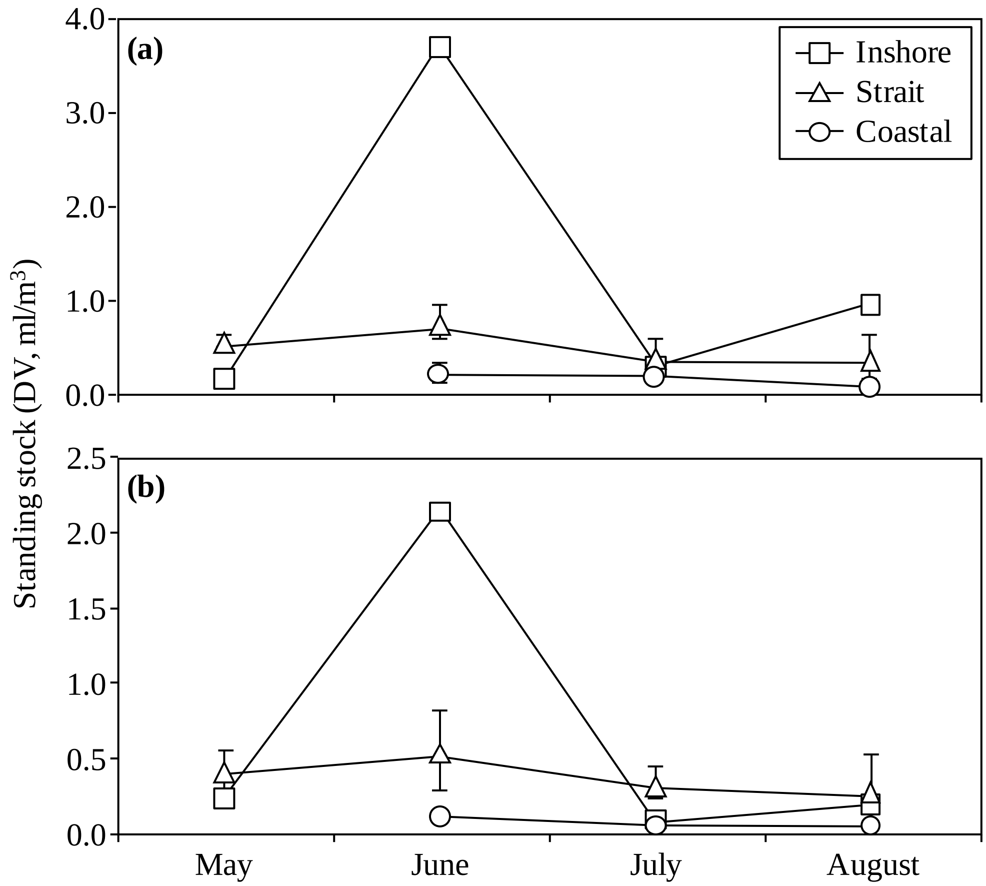

Figure 5.—Monthly zooplankton standing stock (mean ml/m^3, ± 1 standard error) from (a) 333-µm, and (b) 505-µm mesh double oblique bongo net samples hauled from ≤ 200 m depths during daylight in strait habitat in marine waters of the northern region of southeastern Alaska, May–August 2012.

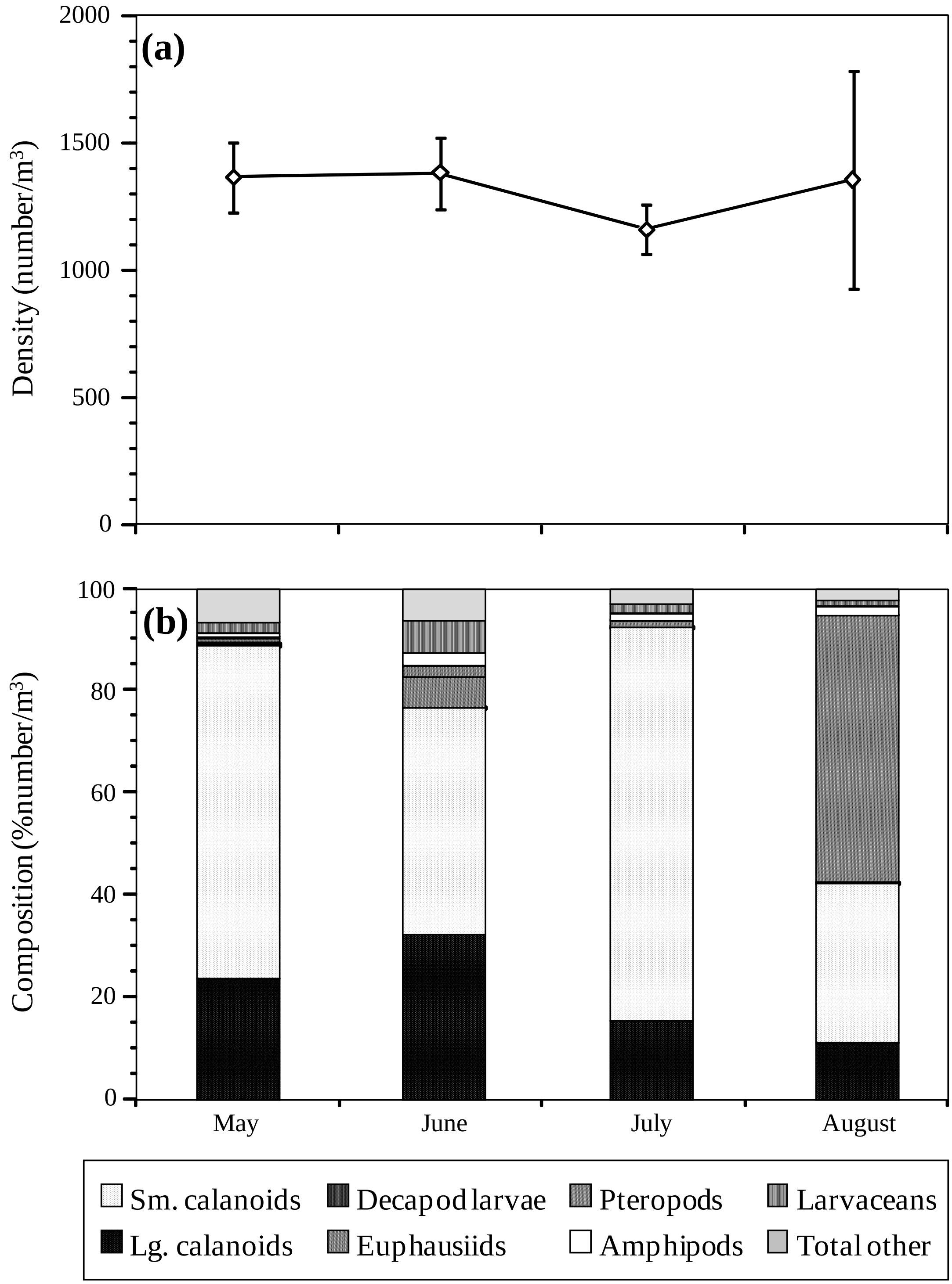

Figure 6.—Monthly "deep" (≤ 200 m depth) zooplankton collected in strait habitat in marine waters of the northern region of southeastern Alaska, May–August 2012. Data include (a) mean total density of organisms (thousands/m^3) ± 1 standard error, and (b) taxonomic composition (mean percent/m^3). Samples were collected in daylight using a 333-µm mesh bongo net (double oblique tow) at 4 stations in Icy Strait each month.

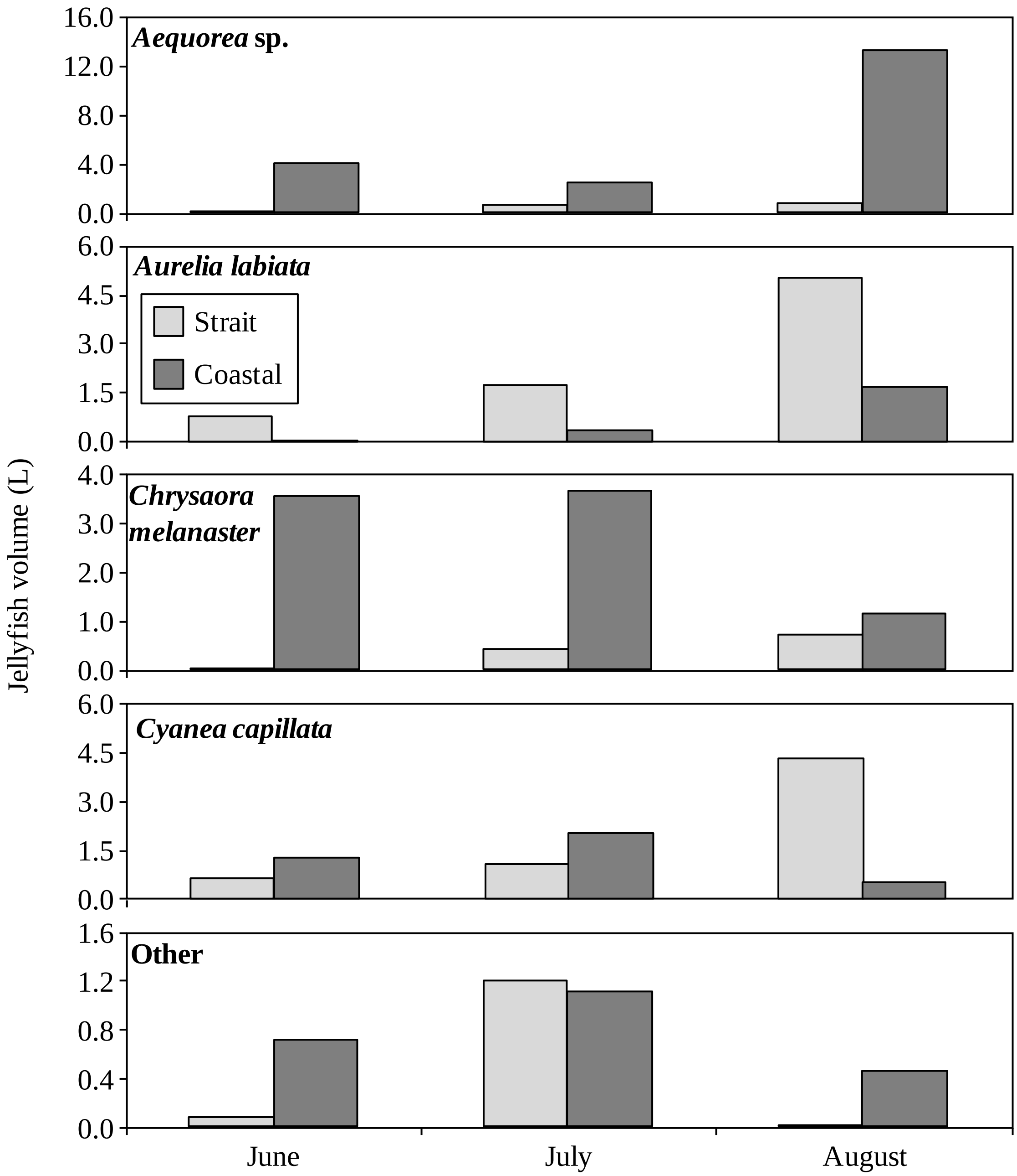

Figure 7.—Mean volume (L) of jellyfish captured in strait and coastal habitats in marine waters of the northern region of southeastern Alaska by rope trawl, June–August 2012. See Table 2 for monthly sample sizes. Other = ctenophores, *Staurophora* sp., *Phacellophora* sp. and unknown species. Note difference in y-axis scales.

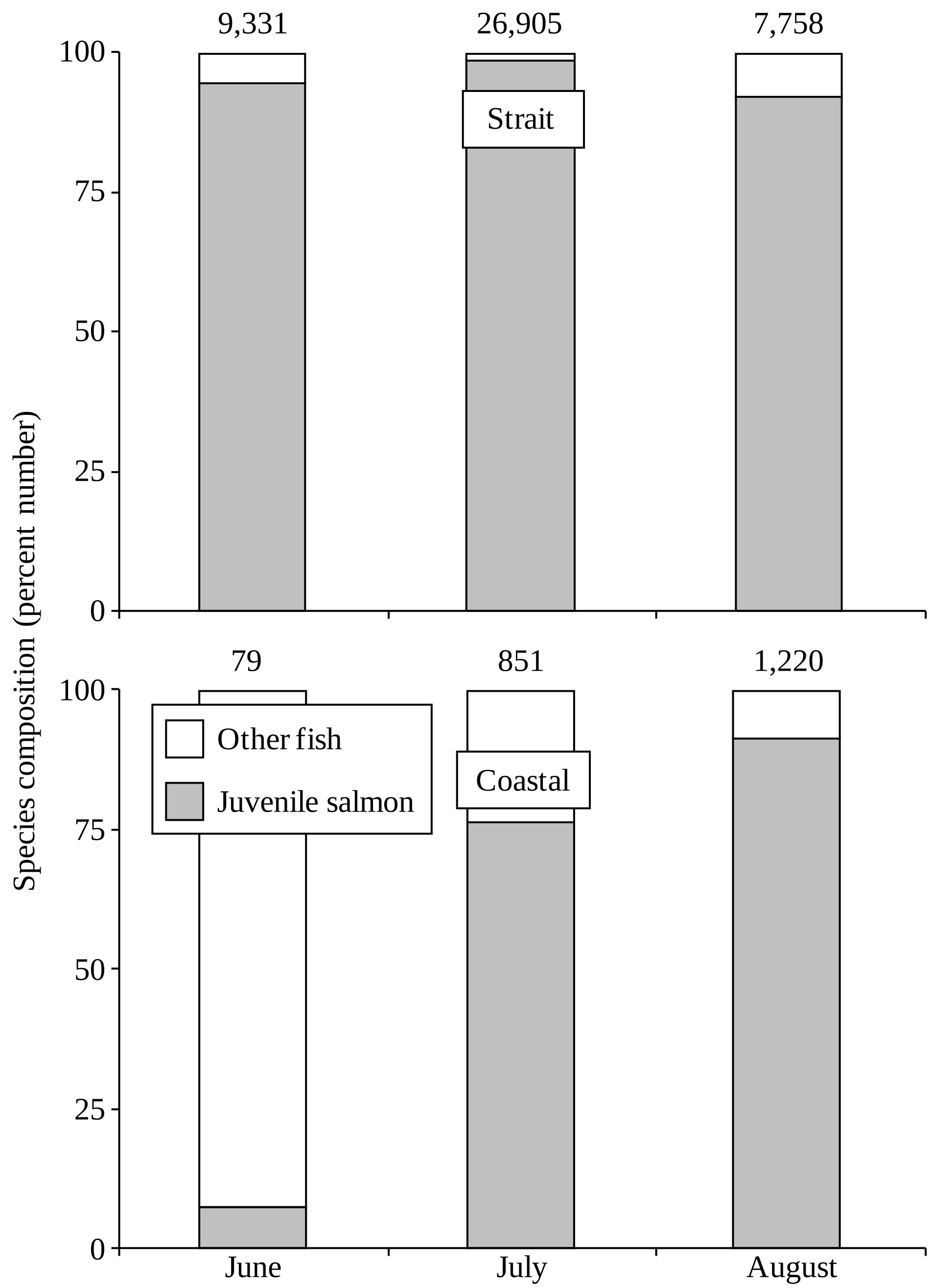

Figure 8.—Fish categories (percent number) in catch from rope trawls by month in strait and coastal marine habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Total number of fish is indicated above each bar. See Tables 2 and 8 for monthly sample sizes by species.

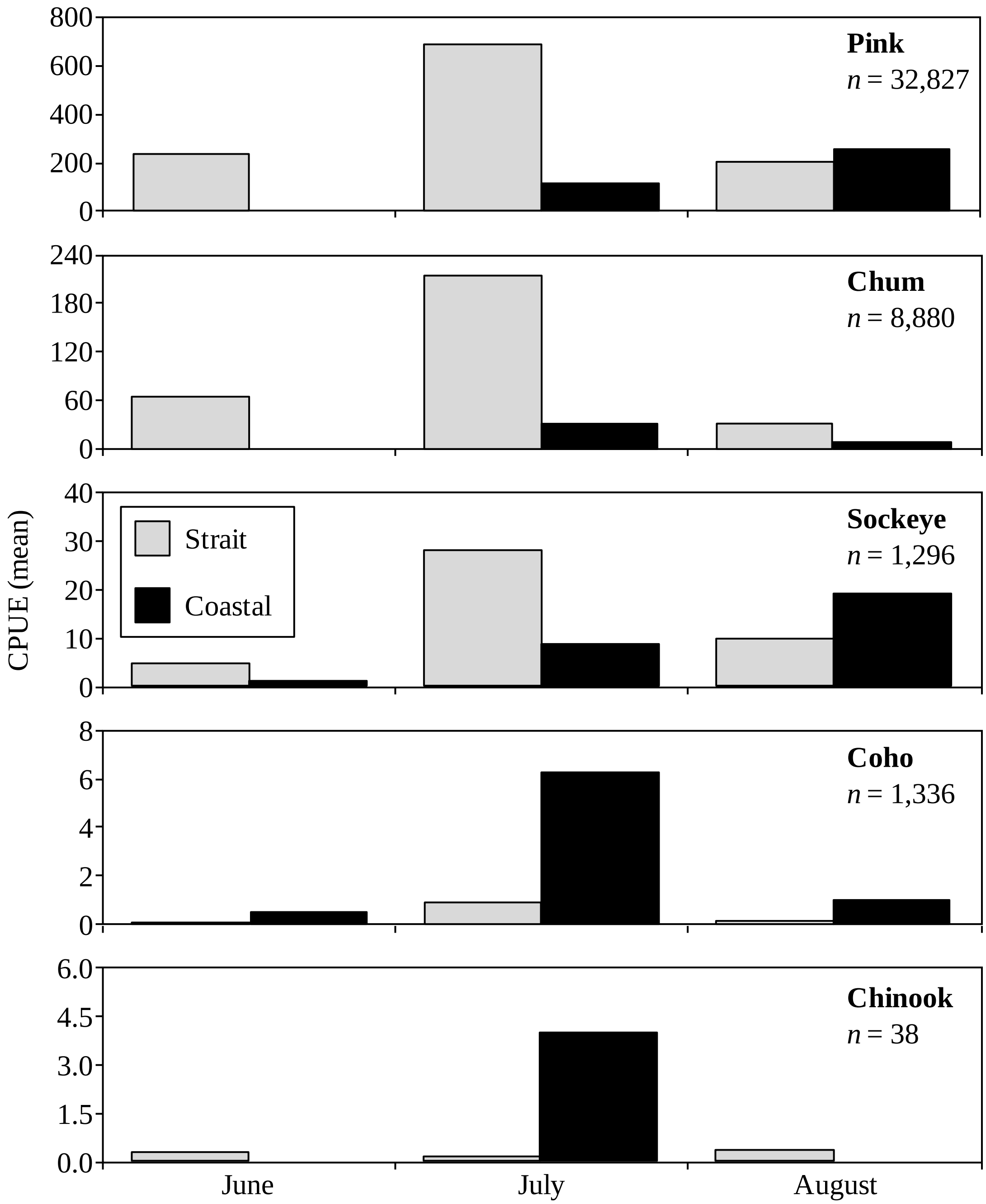

Figure 9.—Catch-per-unit-effort (CPUE, mean catch per trawl haul) for juvenile salmon captured in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Total seasonal CPUE is indicated for each species. See Table 2 for the number of trawl samples per month. Note difference in y-axis scales.

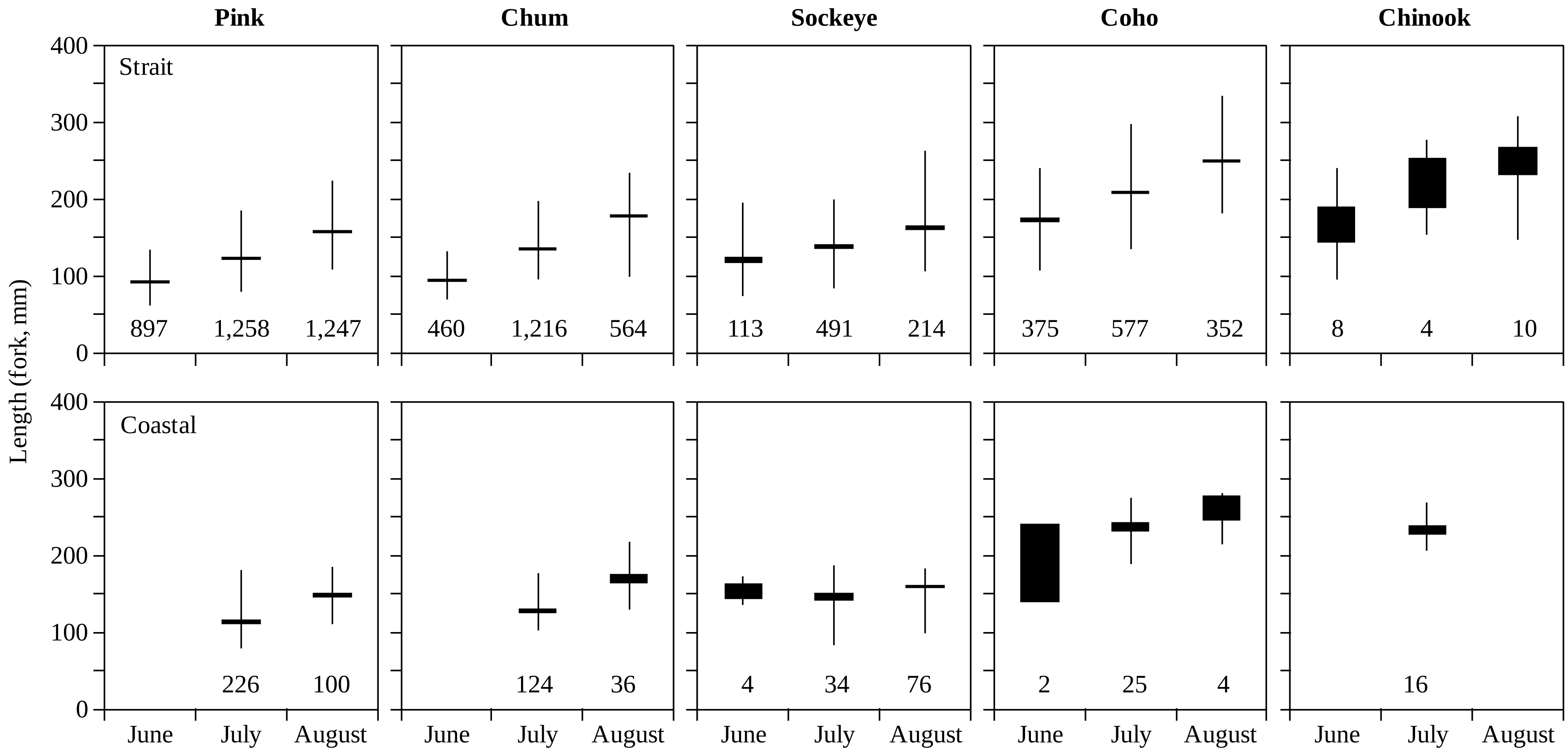

Figure 10.—Length (mm, fork) of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Monthly range in length is represented by the vertical bars; boxes within the range are one standard error on either side of the mean. Sample sizes are indicated for each month.

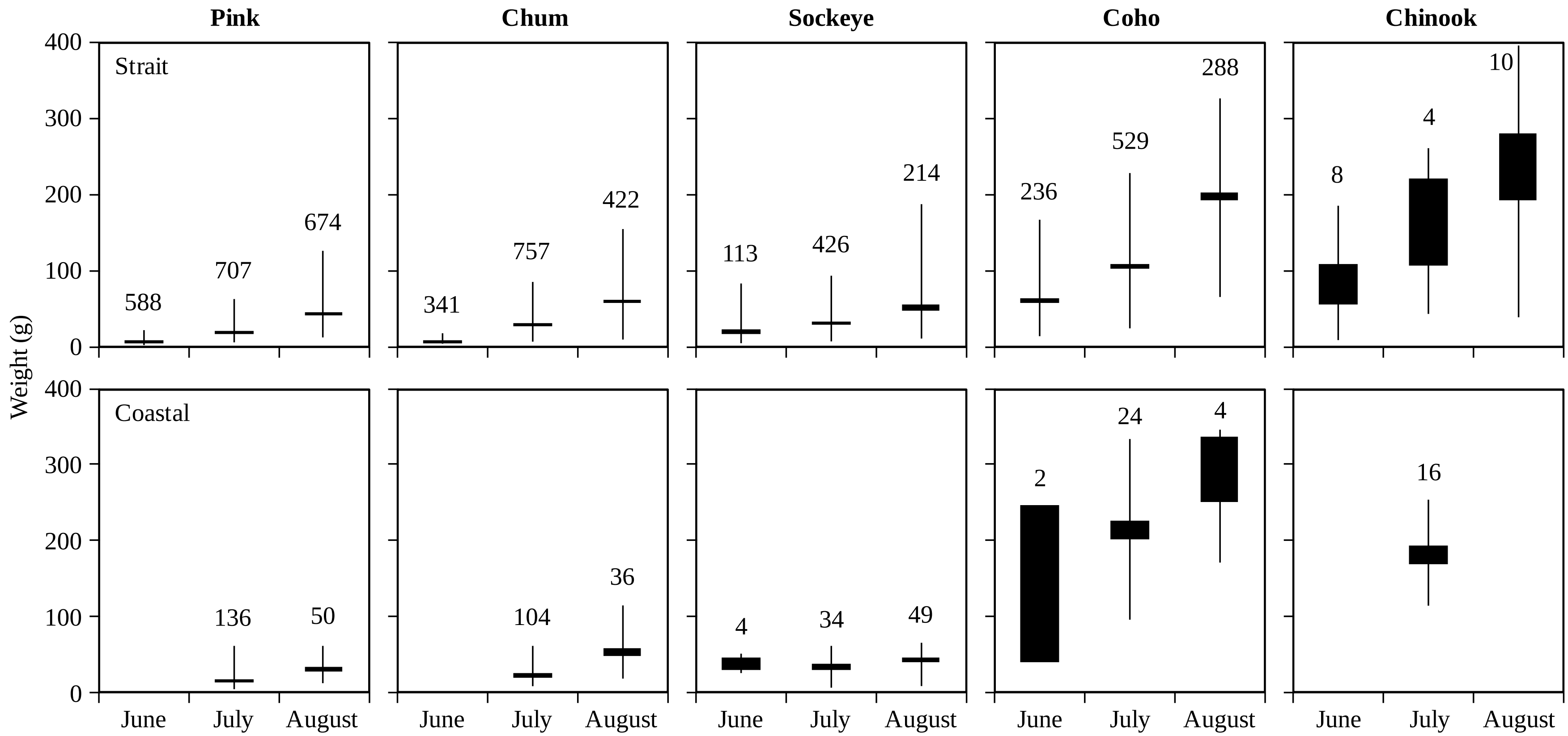

Figure 11.—Weight (g) of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Monthly range in length is represented by the vertical bars; bars within the range are one standard error on either side of the mean. Sample sizes are indicated for each month.

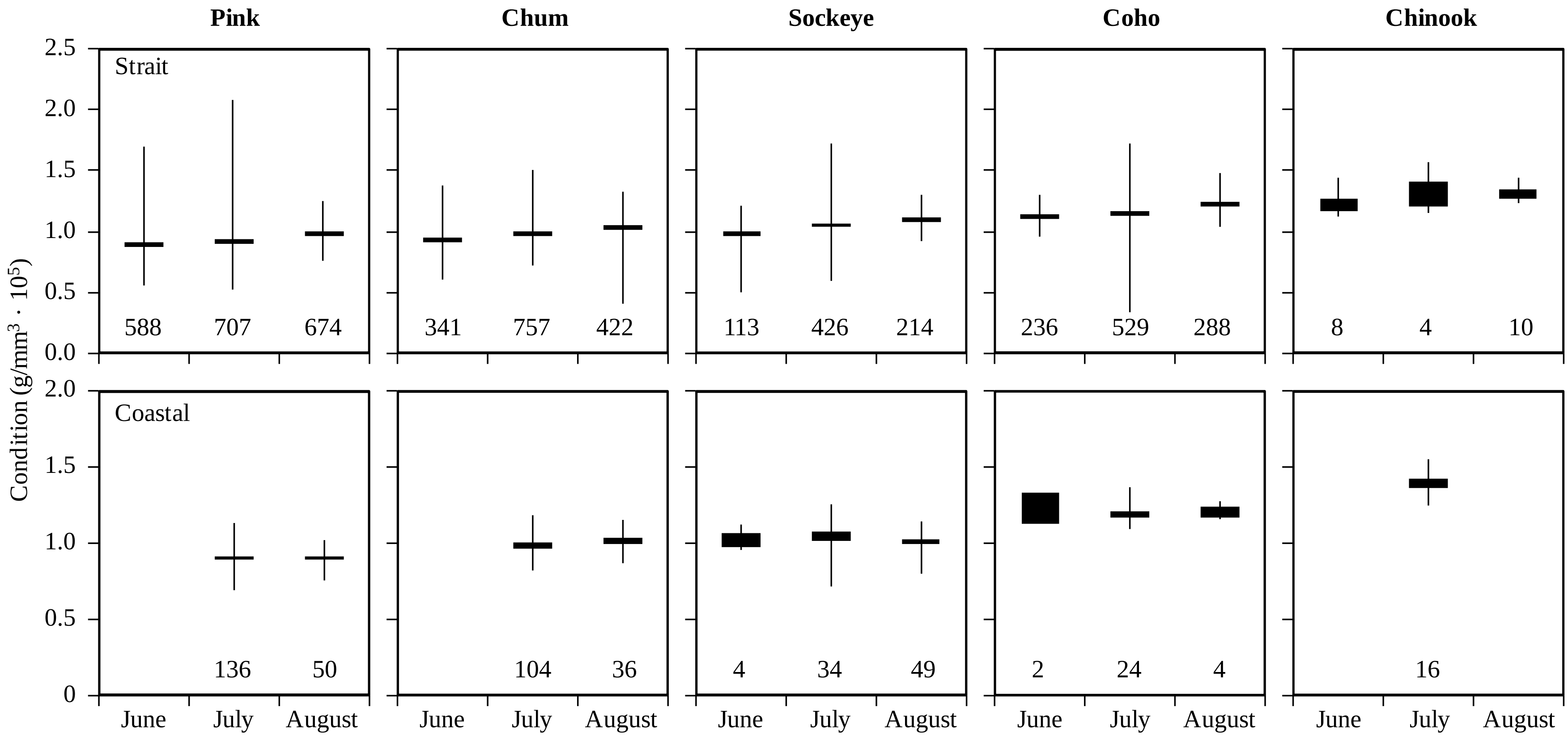

Figure 12.—Fulton's condition (g/mm^3 · 10^5) of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Monthly range in length is represented by the vertical bars; bars within the range are one standard error on either side of the mean. Sample sizes are indicated for each month. Note difference in y-axis scales.

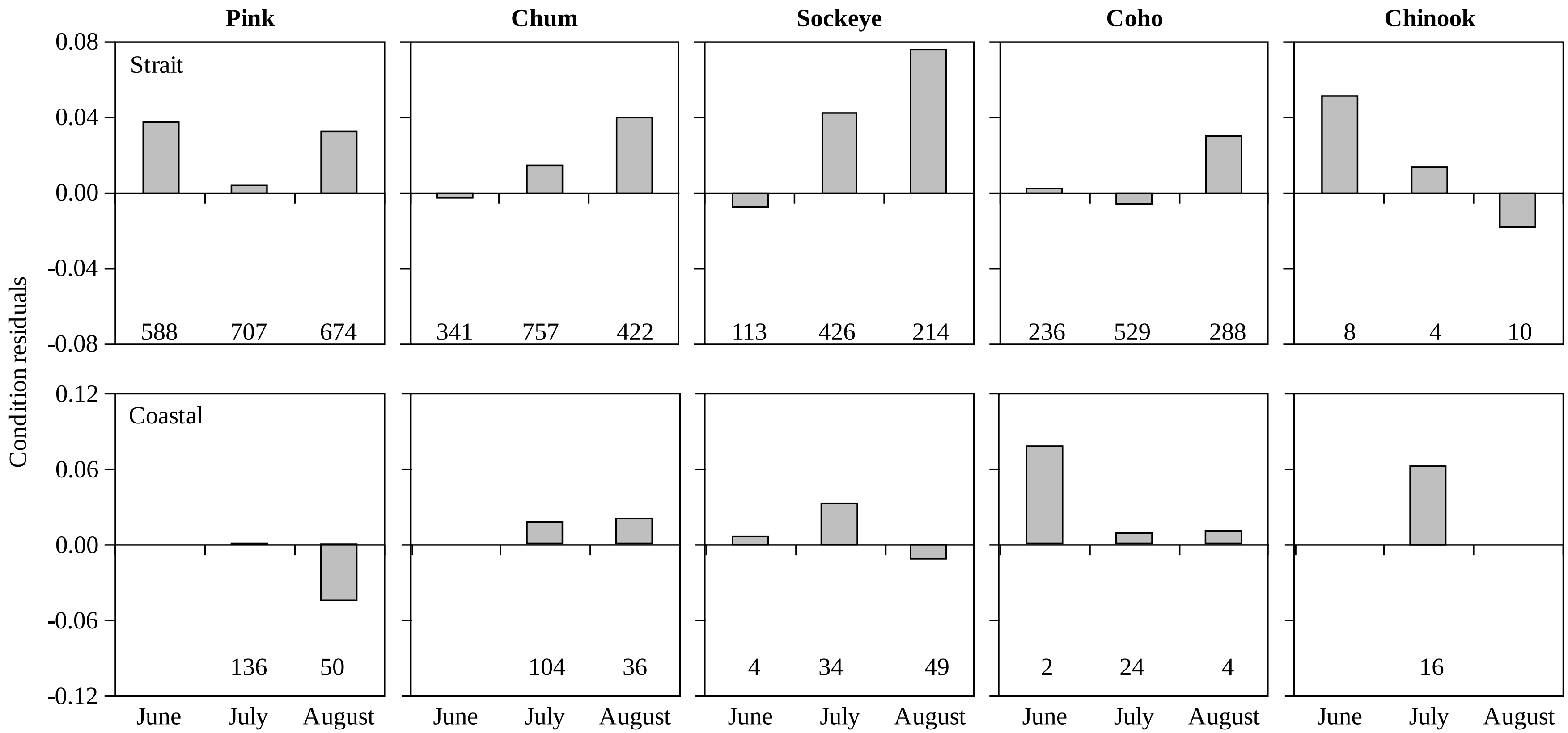

Figure 13.—Condition residuals from length-weight regression analysis of juvenile salmon species captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Sample sizes are indicated for each month. Note difference in y-axis scales.

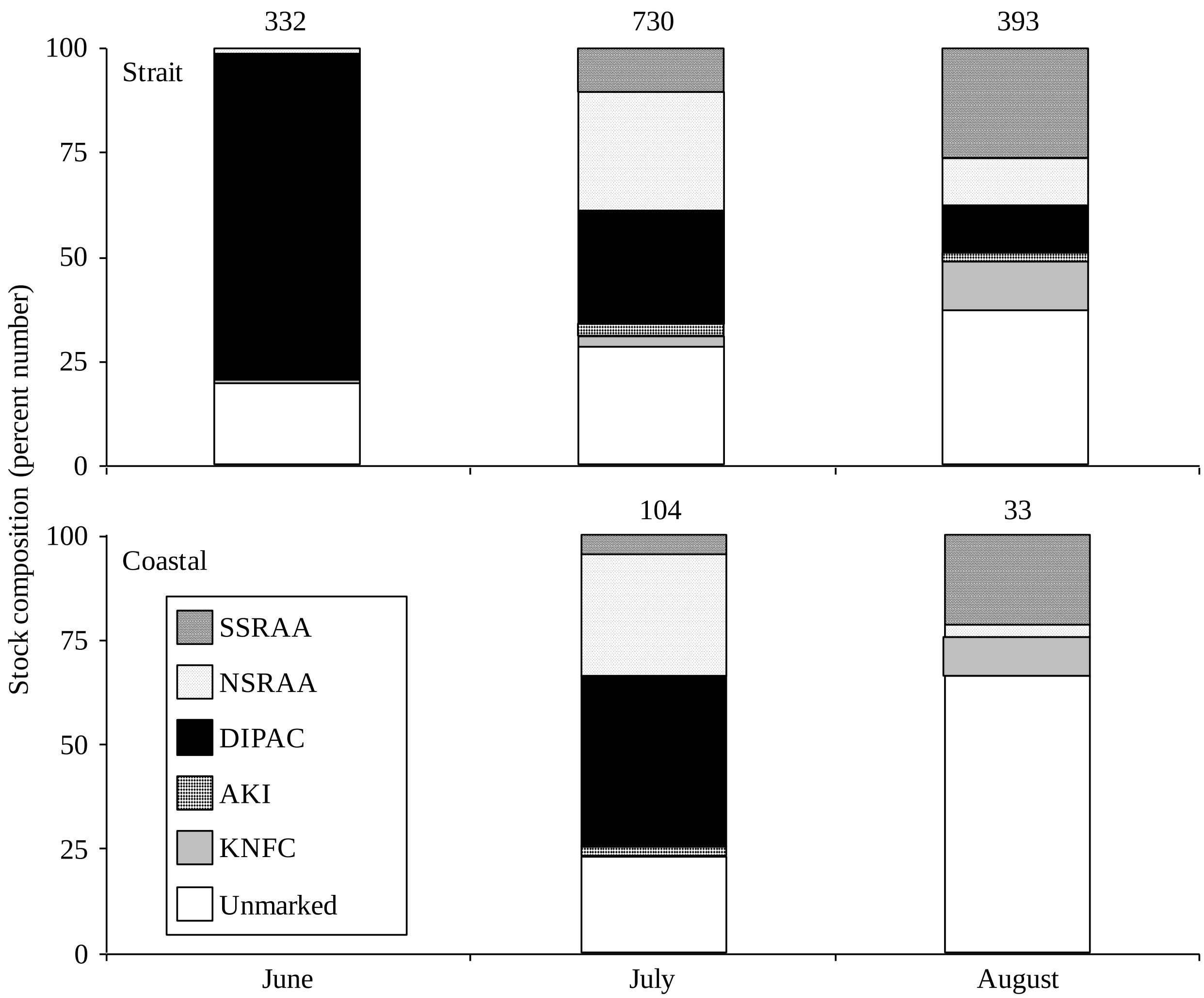

Figure 14.—Monthly stock composition (based on otolith thermal marks) of juvenile chum salmon captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Number of salmon sampled per month is indicated above each bar.

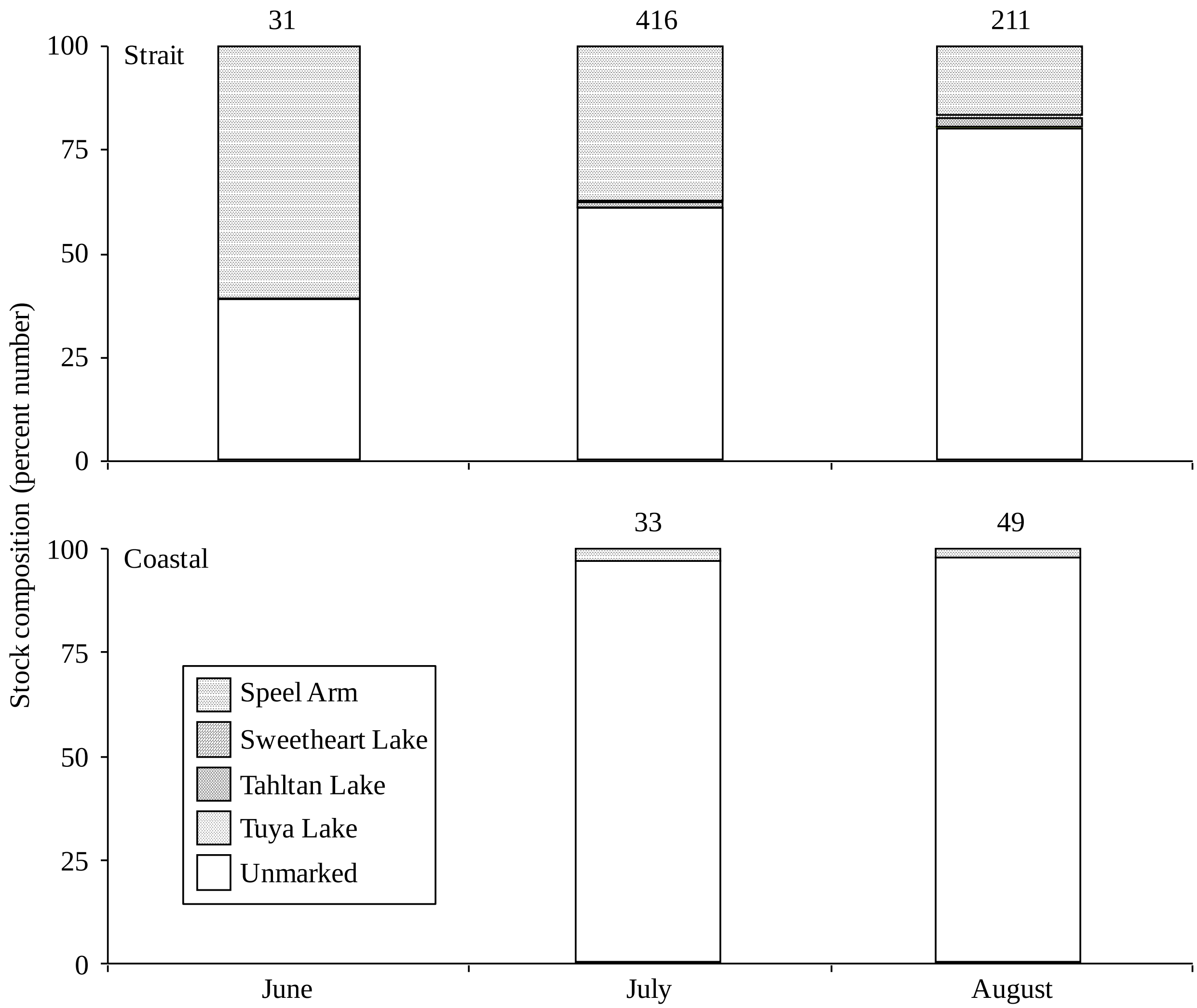

Figure 15.—Monthly stock composition (based on otolith thermal marks) of juvenile sockeye salmon captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Number of salmon sampled per month is indicated above each bar. No sockeye salmon were caught in June in the coastal habitat.

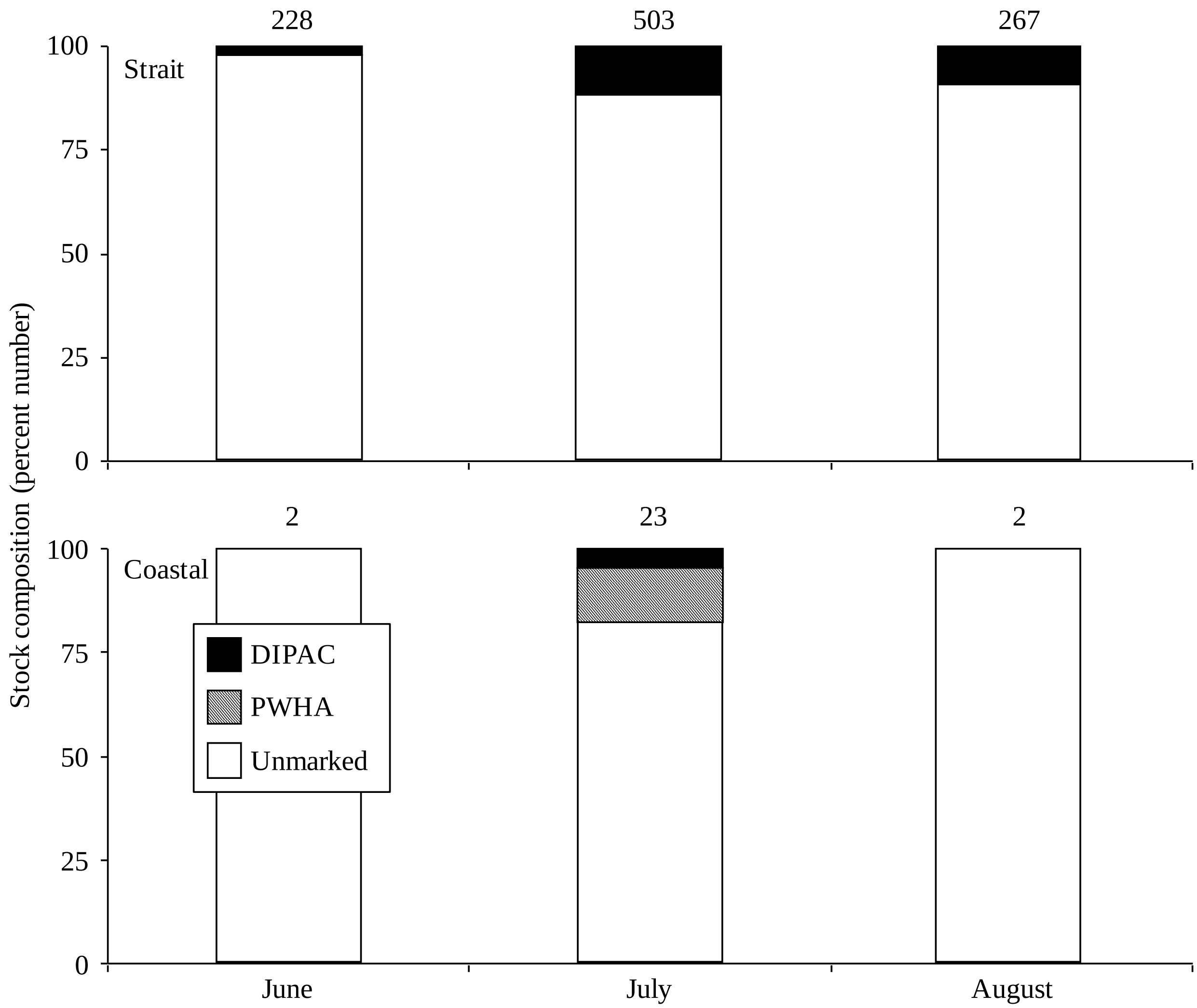

Figure 16.—Monthly stock composition (based on otolith thermal marks) of juvenile coho salmon captured by rope trawl in strait and coastal habitats in marine waters of the northern region of southeastern Alaska, June–August 2012. Number of salmon sampled per month is indicated above each bar.

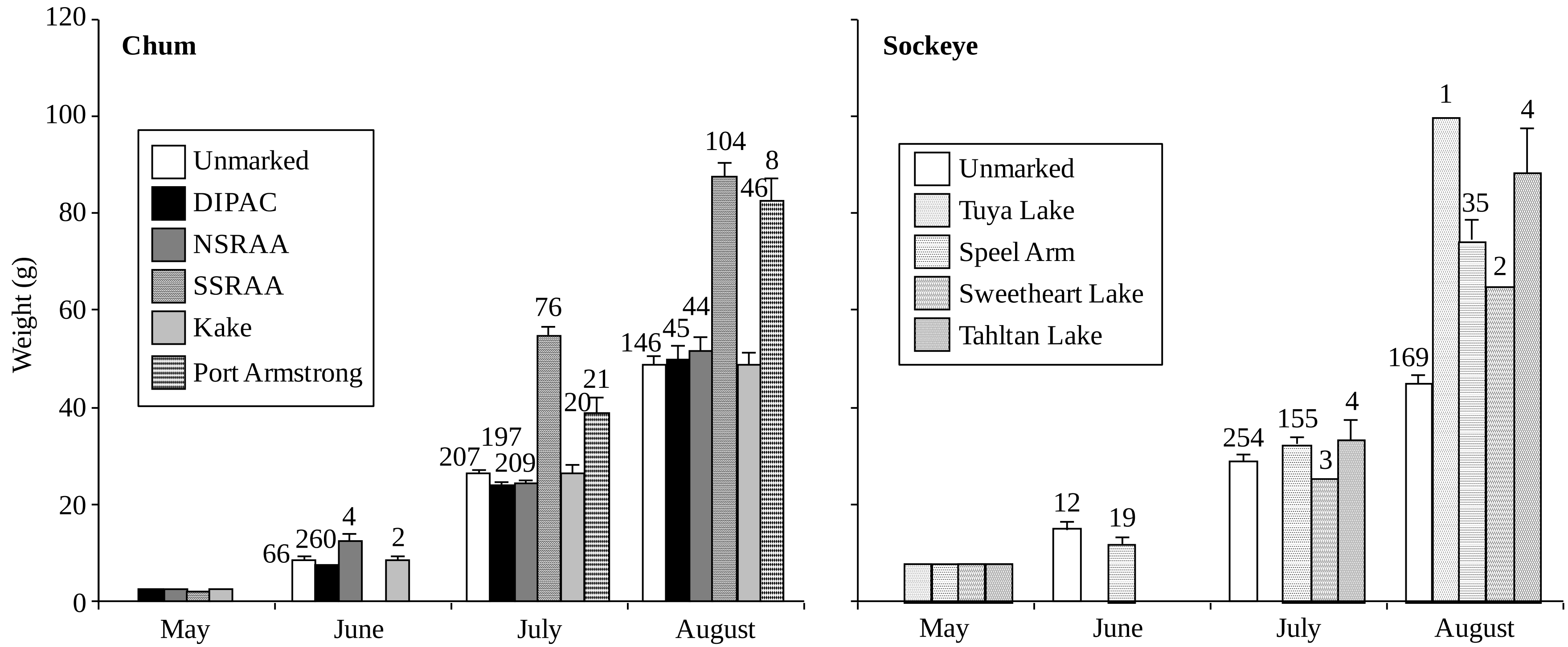

Figure 17.—Stock-specific growth trajectories of juvenile chum and sockeye salmon (mean weight, g, ± 1 standard error) captured by rope trawl in strait habitat in marine waters of the northern region of southeastern Alaska, June–August 2012. Weights of May fish are mean values at time of hatchery release. The sample sizes are indicated above each bar.

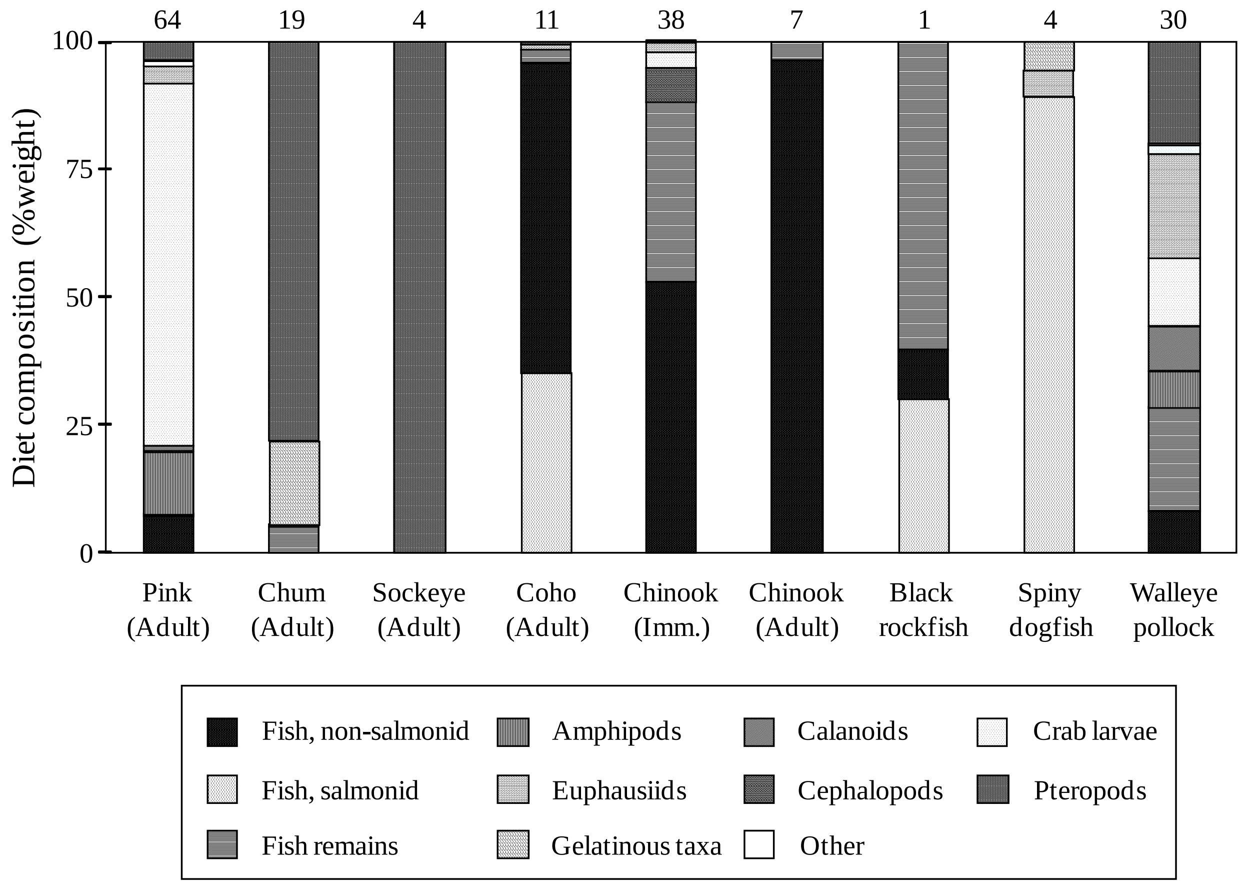

Figure 18.—Prey composition of 178 potential predators of juvenile salmon captured in 96 rope trawl hauls in strait and coastal habitats in marine waters of the northern region of Southeast Alaska, June–August 2012. The numbers of fish examined per species are shown above the bars; one coho salmon jack not shown. See Tables 20-21 for additional feeding attributes.