# PREY SELECTIVITY AND DIET OVERLAP IN JUVENILE PINK, CHUM AND SOCKEYE SALMON IN THE GULF OF ALASKA AND PRINCE WILLIAM SOUND, ALASKA

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# PREY SELECTIVITY AND DIET OVERLAP IN JUVENILE PINK, CHUM AND SOCKEYE SALMON IN THE GULF OF ALASKA AND PRINCE WILLIAM SOUND, ALASKA

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## ABSTRACT

Pink, chum and sockeye salmon are the three most commercially important Pacific salmon. As juveniles, they co-occur in coastal waters of Alaska. To assess the potential for competition among juveniles of these species, I examined their diets in Prince William Sound and in nearby continental shelf waters in the summer and fall of 2001 and quantified surface zooplankton at the same sampling stations. I estimated diet diversity, diet overlap and prey selectivity of the three species. A large proportion of gelatinous prey, especially larvaceans, characterized juvenile chum salmon diet. A pteropod, *Limacina* sp., was an important prey for juvenile pink and sockeye salmon. Juvenile pink and sockeye salmon diets consisted of a wider variety of prey than those of chum salmon; they also had a higher prey overlap with each other than with chum salmon. The three species showed similar trends in selectivity in Prince William Sound and in shelf waters. These results suggest that there is a higher probability of competition between juvenile pink and sockeye salmon than between either juvenile pink or sockeye salmon and chum salmon.

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*If a man hacking in fury at a block of wood ... make there an image of a cow, is that image a work of art? If not, why not?*, J. Joyce.

## INTRODUCTION

Pacific salmon are economically important fish species. There are five species in the eastern Pacific Ocean: *Oncorhynchus gorbuscha* (pink salmon), *O. keta* (chum), *O. nerka* (sockeye), *O. kisutch* (coho) and *O. tshawytscha* (chinook). After the 1980s, up to 200 million North American salmon have been harvested annually, with Alaska contributing 80% of the total (Meacham and Clark 1994). Of the five species, pink, chum, and sockeye salmon constitute the majority of the total catch (Cooney and Brodeur 1998). In this paper I examine prey selectivity and diet overlap between juvenile pink, chum and sockeye salmon in the coastal region of the northeastern Gulf of Alaska.

Pacific salmon are anadromous, maturing in the ocean and spawning in freshwater. Pink salmon spawn in late summer to early fall. Their eggs hatch at the beginning of winter and larvae (alevins) stay in the gravel until early spring when they migrate downstream. In Prince William Sound, juvenile pink salmon move out into the coastal area in April and May, where they aggregate in shoals for several weeks before moving offshore (Mortensen et al. 2000, Boldt 2001). Maturing pink salmon return to spawn the next year. Pink salmon are important zooplankton grazers and exert significant predation pressure (Shiomoto et al. 1997).

Like pink salmon, chum do not smolt, but leave the freshwater streams as fry after spending about a month in streams after hatching. The mature adults return to their natal streams after 2.5 to 4.5 years of marine residence (Bradford 1995).

The early life history of sockeye salmon is very different. Sockeye fry spend at least one year in freshwater before smolting and entering the estuarine environment at a larger size than either of the other two species. This extended freshwater phase is thought to increase their chances of survival in the marine environment (Bradford 1995).

The period juvenile salmon spend on the continental shelf (the coastal environment) is an exceedingly important part of their life-history, with a very high rate of growth in this productive area (Boldt 2001). Most salmon early-life freshwater histories have been well documented, but much remains unknown of their inter-specific interactions and relationships with the marine environment (Brodeur and Pearcy 1990).

The coastal phase plays a primary role in determining survival, perhaps more so than the freshwater phase, as most salmon species experience a substantial natural mortality in the coastal environment (Brodeur and Pearcy 1990, Boldt 2001). Consequently, marine growth, feeding and survival of juvenile pink, chum and sockeye salmon play an important role in interannual variability of adult abundance (Peterman 1987, Brodeur and Pearcy 1990, Healey 1991).

During the coastal phase, juvenile salmon also exhibit higher mortality rates than during the oceanic phase after a year at sea (Parker 1968). This is probably caused not only by higher predation pressure on smaller individuals (Godin 1981), but also by environmental factors, such as water temperature and phytoplankton blooms (Fukuwaka and Suzuki 2002). Beamish and Mahnken (2001) proposed that there are two stages to mortality of juvenile salmon in the saltwater environment. The first is primarily from predation at the onset of the saltwater phase. The second mortality phase occurs in the fall and winter of the first year at sea if individuals do not reach a certain critical size; larger fish have lower predation mortality and are better able to cope with the coastal environment and search for prey than smaller fish. This mechanism has been termed the "Critical Size Hypothesis" (Parker 1968, Godin 1981, Fukuwaka and Suzuki 2002).

A high growth rate is therefore important for juvenile salmon survival, which can be affected by inter-specific competition (Godin 1981, Pearcy 1992). Because juveniles of the three salmon species occupy the same coastal area in their first marine year, density-dependent growth could result when food is limiting (Bigler et al. 1996). This could be a factor in the declining body size of recruitment-age salmon since the 1980s (Bigler et al. 1996).

Diets of juvenile salmon are quite variable, perhaps due to spatial and temporal variability of their prey and competition by other fishes. As a general rule, juvenile salmon are non-specialists, feeding opportunistically within certain size ranges (Brodeur 1990). They appear to feed primarily near the surface (Karpenko and Safronov 1985).

Juvenile sockeye feed primarily on euphausiids, copepods, ichthyoplankton, and insects, although a variety of other prey is eaten to a lesser extent (Brodeur 1990). In Bristol Bay, Alaska, copepods and larval fish were found to be the dominant prey items (Carlson 1976). Other important prey are crab larvae, euphausiids, amphipods and insects. Juvenile sockeye salmon in Hecate Strait, British Columbia, consumed predominantly larvaceans, euphausiids, the amphipod *Parathemisto* sp., the large copepod *Calanus marshallae* and rockfish larvae, although the preferred group of prey items were copepods (Healey 1991).

Juvenile pink salmon have a diet somewhat similar to juvenile sockeye salmon, although the prey size is smaller than those of other salmon species (Brodeur 1990). Pink salmon prey consists mainly of larvaceans, fishes, small copepods, amphipods, euphausiids, and decapod larvae (Brodeur 1990, Okada and Taniguchi 1971). In Hecate Strait, British Columbia, crab zoeae were one of the most important prey items, although euphausiids, larvaceans and copepods were also important (Healey 1991). In the coastal waters of Kamchatka, main prey of juvenile pink salmon were the large copepod *Calanus plumchrus*, the small copepod *Pseudocalanus elongatus* and pteropod *Limacina helicina*. Other prey items included insects, larval fish and other small copepods (Karpenko 1980). In Chatham Sound, British Columbia, copepods and larvaceans were especially important prey (Manzer 1969). In the waters of Vancouver Island, British Columbia pink salmon preyed predominantly on larvaceans, although calanoid copepods and insects were also important (Perry et al. 1996). Other important prey items found were crab megalopae and euphausiids.

Juvenile chum salmon have a strikingly different diet with more emphasis on gelatinous prey (Brodeur 1990). The diet of chum salmon tends to be rich with salps, ctenophores, and medusae (Welch and Parsons 1993). Ctenophores were the dominant prey items in most of the 50 chum salmon stomachs examined by Black and Low (1983). Other prey items utilized are calanoid copepods, euphausiids, hyperiid amphipods, chaetognaths, decapod and fish larvae (LeBrasseur 1969, Perry et al. 1996, Brodeur 1990). The gelatinous prey, like medusae and appendicularians, are not as nutritious as crustacean zooplankton. As a result, at least in the Bering Sea, juvenile pink and sockeye salmon have generally higher body caloric value than juvenile chum salmon (Davis et al. 1998). One important factor in determining a complete diet of juvenile chum salmon is the rate at which most of the gelatinous prey is digested. The remains of these prey in fish stomachs, which are quickly broken down by digestive enzymes, are hard to quantify. This often causes researchers to underestimate their importance or ignore them altogether (Black and Low 1983).

The diet differences between chum, pink and sockeye salmon are probably the result of morphological differences. The gill rakers of juvenile pink and sockeye salmon, used for filtering zooplankton, are similar, being long, slender and set close to each other. The gill rakers of chum salmon are distinctly shorter and stouter, with larger gaps. Chum salmon alimentary canal is also quite unlike those of pink and sockeye salmon; their stomachs are enlarged and contain a large number of esophageal villi, which might aid in digestion of gelatinous material. The stomachs of chum salmon can be up to 3.5 times larger in volume than those of other similar-sized salmon species, which allow chum salmon to ingest a larger quantity of the less nutritious gelatinous prey (Welch 1997). These characteristics, as well as an increased number of pyloric caeca may render chum salmon more efficient in digestion and absorption of gelatinous material (Azuma 1995).

In 1991, when maturing pink salmon abundance was high, maturing chum salmon fed primarily on a more gelatinous diet of pteropods, appendicularians, medusae, chaetognaths and polychaetes (Tadokoro et al. 1996). The next year, when pink salmon abundance dropped due to their odd-even year fluctuation, chum salmon shifted their diet to more nutritious euphausiids, copepods, amphipods, ostracods, mysids, and decapods. This shift to a less nutritious diet in 1991 may have alleviated competitive pressure imposed by pink salmon.

Little work has been done to examine diet overlap and prey selectivity among juvenile pink, chum and sockeye salmon in coastal Gulf of Alaska, an important salmon rearing habitat. My objectives were to examine resource partitioning between juvenile salmon species by estimating prey selectivity, diet overlap and diet diversity. This facilitated an assessment of the potential role of competition among juvenile pink, chum and sockeye salmon in the northeastern Gulf of Alaska.

Two processes that affect patterns of prey use in fishes are competition and optimal foraging. Competition occurs when co-occurring populations are using the same limited resources. In feeding fish, this is usually reflected in increased resource partitioning (i.e., decreased diet overlap) when resources are low enough to be limiting. The theory of optimal foraging dictates that predators adjust their diets to maximize their net energy intake. In general, a fish that follows an optimal foraging strategy will use fewer prey types when zooplankton is abundant. This would result in increased selectivity when prey abundance is high. To assess importance of competition, I tested the following hypotheses:

$H_{01}$: Juvenile pink and sockeye salmon have the highest diet overlap of the three salmon species,

$H_{02}$: Evidence for competition: overlap among the three species increases when zooplankton abundance is high,

$H_{03}$: Juvenile chum have a higher proportion of gelatinous prey than either pink or sockeye salmon,

$H_{04}$: Juvenile salmon shift diet preferences as they grow, and

$H_{05}$: Evidence of optimal foraging: diet diversity decreases with increase in zooplankton abundance.

## METHODS

Field component

Fieldwork was completed in summer and fall of 2001. Four cruises took place on 8 - 14 July, 11 - 19 August, 18 - 22 September and 21 - 24 October. During each cruise, samples were collected at six stations along the Seward Hydrological Line in the **G**ulf of **A**lask**a** (the GAK transect) and at three stations in Prince William Sound (the PWS transect), Alaska (Fig. 1, Appendix A). The GAK stations start in the mouth of Resurrection Bay and are spaced 10 nm apart across the continental shelf. The 6$^{th}$ station is located over the outer shelf.

At each station, a Nordic 264 surface rope trawl (Nor'Eastern Trawl Systems, Inc., 30 by 18-m mouth opening, 8.9-cm codend mesh with 0.8-cm mesh liner) was deployed to sample the upper 10 m for 30 min at around 3 kts. If more fish were needed for a minimum sample of 10 of each species, a second trawl was deployed. Juvenile pink, chum and sockeye salmon were sorted to species and frozen immediately in seawater.

Three zooplankton samples were collected at each station with 5-min surface tows at around 2.5 kts of a 1-m$^2$ NIO/Tucker trawl with a 505-µm mesh. Plankton samples were fixed in 10% formalin-seawater solution. Volume filtered was measured by General Oceanics digital flowmeters (model# 2030) attached in the mouth of the net.

A Seabird Electronics CTD (model# SBE-19), equipped to record fluorescence, temperature, salinity and conductivity, was deployed to 100 m at each station. Temperature and salinity averaged from the upper 10 m (where juvenile salmon generally feed) are reported for each station from the CTD data readings taken at 1-m intervals (Appendix F).

Laboratory component

Stomach contents (from the esophageal opening to the pylorus) of pink, sockeye and chum salmon were examined for zooplankton composition. Fish were thawed, blotted dry, measured and weighed whole, the guts were dissected, blotted dry and

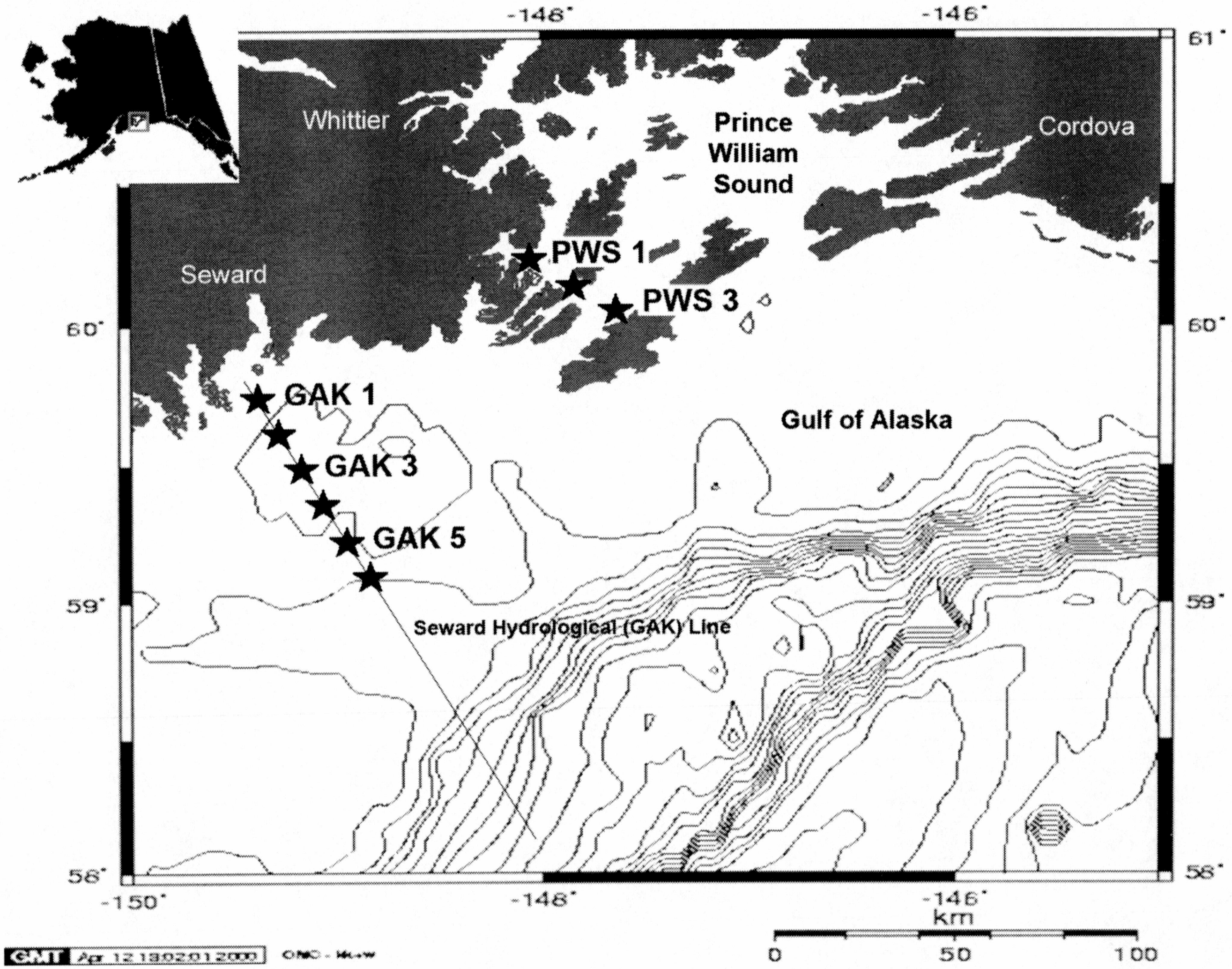


Figure 1. Stations sampled in the northern Gulf of Alaska and Prince William Sound in 2001.

weighed. The gut contents were removed and fixed in 10% formalin-fresh water solution. The gut tissue was again blotted dry and weighed.

I counted the number of prey organisms of each group in each fish and weighed wet gelatinous and non-gelatinous prey from each gut. The gelatinous prey found in fish guts were composed of gut lining and unidentifiable, digested gelatinous plankton, such as medusae, ctenophores and larvaceans.

For zooplankton identification, first the whole sample was examined under a low-power magnification and large and rare organisms were removed. If needed, the Folsom plankton splitter was used to divide the sample, aiming for a sub-sample of 150 to 200 of the more common organisms.

The main taxonomic groups of zooplankton in zooplankton samples and fish stomachs were:

<u>Copepods</u>
- Large
  - *Calanus and Neocalanus* spp.*
  - *Epilabidocera longipedata* *
  - *Eucalanus bungii* *
  - *Candacia* sp.
  - *Metridia* sp.
  - Large copepods, other *
- Small
  - *Centropages* sp.*
  - *Acartia* sp.*
  - *Tortanus* sp.
  - *Pseudocalanus* sp.
  - Small copepods, other *

<u>Amphipods</u>
- Hyperiid
  - *Parathemisto pacifica* *
  - *Paraphronima crassipes*
  - *Primno macropa* *
- Gammarid
  - *Cyphocaris challengeri*
  - *Caleiopus* sp.
- Amphipods, other *

<u>Gastropods</u>
- *Limacina helicina* *
- *Clione limacina*

<u>Gelatinous</u>
- Medusae
- Appendicularia (larvaceans) *
- Siphonophores
- Chaetognaths
- Other *

<u>Other</u>
- Fish larvae *
- Euphausiids
- Mysid shrimp *
- Barnacle nauplii *
- Crab megalopae *
- Zoeae
- *Podon* sp.
- Crustacean, other *
- Other *

* Prey categories used in data analysis.

Fifty-six (56) categories of potential juvenile salmon prey (Appendix B) were identified from the plankton. This total included 33 prey categories for juvenile chum, 46 for juvenile sockeye and 33 for juvenile pink salmon (Appendices C-E). The majority of prey items were found in very small numbers, often in just a few fish at one station. Therefore, for higher statistical power, the prey categories whose proportional contribution was 5% or less were combined together into higher hierarchical categories (i.e., *Oithona* sp. and *Pseudocalanus* sp. were combined into "small copepods"). This resulted in 19 aggregate prey categories (indicated by "*" above) that I used in data analysis.

Data analysis

Zooplankton density ((# individuals, $N_i$)/m$^3$) was based on the number of organisms ($n_i$) in each taxonomic group ($i$) counted in the sub-sample that was split $k$ times, and the amount of seawater filtered (m$^3$). That is,

$$N_i / sample = n_i \times 2^k, \, and$$
$$N_i / m^3 = (N_i / sample)/m^3 .$$

The mean number of prey of each category per station was calculated by summing the number of prey of a particular category eaten by all the fish of the same species at that station and dividing by the number of fish sampled. A proportional contribution of a prey item to the total diet in each fish at a particular station was determined by dividing the number of that prey by the total number of prey in a fish stomach. To calculate mean proportional contribution of a prey at each station, individual prey proportions in each fish were averaged over all fish at each station (Boldt 2001).

Consumption of prey is a function of the consumer's electivity and the abundance of that prey item in the environment (Lawlor 1980). Selective predation is defined as "the situation in which the relative frequencies of prey types in a predator's diet differ from the relative frequencies in the environment" (Chesson 1978). To compare prey selectivity of juvenile pink, chum and sockeye salmon, I used Chesson selectivity index (Chesson 1978):

$$\alpha_i = \frac{p_i / r_i}{\sum (p_i / r_i)}, \text{ i} = 1,\ldots,\text{m}$$

were $p_i$ is the proportion of prey item *i* in the gut and $r_i$ is the proportion of prey item i in the surrounding environment and *m* is the number of total prey types available to the fish. The Selectivity Index, $\alpha_i$, ranges from 0 to infinity and is equal to 1/m when there is no selectivity. I converted the $\alpha_i$ values to the more intuitive electivity index, $\varepsilon_i$, which ranges from -1 to +1 (Chesson 1983):

$$\varepsilon_i = \frac{m\alpha_i - 1}{(m-2)\alpha_i + 1}, i = 1,\ldots,m,$$

and is equal to 0 when no selectivity is detected. Negative values indicate that fish are selecting against a certain prey item and positive values indicate selectivity for that prey item.

Diet overlap was described with the Pianka index, $O_{ik}$, as it is one of the most widely accepted (Lawlor 1980):

$$O_{ik} = \frac{\sum_j p_{ij} p_{kj}}{\sqrt{\sum_j p_{ij}^2 \cdot \sum_j p_{kj}^2}},$$

where $p_{ij}$ and $p_{ik}$ are proportions of the food item *i* consumed by predators *j* and *k*, respectively. There is no direct relationship between any overlap index and the competition level. However, the Pianka index is suitable as an approximation to a competition coefficient as the latter is rarely available for field studies (Lawlor 1980).

Prey diversity was calculated with the Simpson's index of diversity (Pielou 1969):

$$D = 1 - \sum_j \frac{N_j (N_j - 1)}{N(N-1)}, \text{ j} = 1,\ldots,\text{m}$$

where $N_j$ is the number of prey item *j* in a fish and *N* is the total number of prey consumed by that fish. I tested differences in diversity between species with Mann-Whitney, a non-parametric pair-wise test, with a P-value of 0.05.

The null hypotheses were tested as follows:

$H_{01}$: There is no difference in overlap among the three species.

I tested this hypothesis with a non-parametric ANOVA analog, Kruskal-Wallis test, which compared medians of overlap indices among the species over all samples (statistic rejected at P-value ≥ 0.05).

$H_{02}$: Overlap is independent of zooplankton abundance.

This hypothesis was tested with regression analyses, using overlap indices of each pair of species as the dependent variable and zooplankton abundance as the independent variable (statistic rejected at P-value ≥ 0.05).

$H_{03}$: There is no difference in gelatinous prey content between the species.

I tested this hypothesis with a Kruskal-Wallis test to compare medians of gelatinous prey proportions of each species (statistic rejected at P-value ≥ 0.05).

$H_{04}$: There is no difference in diet preferences in each species between time periods.

This hypothesis was tested with a non-parametric pair-wise test, such as the Mann-Whitney, comparing the selectivity indices for each species between July and September in Prince William Sound and between August and September on the GAK transect (statistic rejected at P-value ≥ 0.05).

$H_{05}$: Diet diversity is independent of zooplankton abundance.

I tested this hypothesis with regression analyses, using selectivity of each species as the dependent variable and zooplankton abundance as the independent variable (statistic rejected at P-value ≥ 0.05).

## RESULTS

Zooplankton

Fourteen zooplankton groups were observed in numerical proportions greater than 1% in Prince William Sound (the PWS transect) and in the coastal Gulf of Alaska (the GAK transect). There was a larger variability in zooplankton composition among stations on the GAK transect than on the PWS transect (Tables 1, 2). The mean standard deviation of the upper 5 zooplankton prey proportions on the PWS transect in July was 0.01 and 0.08 in September (Table 2). On the GAK transect, the mean SD of the same prey groups in August was 0.09 and in September – 0.11.

In July, only samples from Prince William Sound were analyzed. The large copepod *Centropages* was the most abundant, making up 79% of all the zooplankton caught. Larvaceans made up 5% of the zooplankton, followed by a large copepod complex *Calanus/Neocalanus* spp. (3%) and a large copepod *Epilabidocera longipedata* (also 3%) (Table 2).

In August, four stations on the GAK transect were processed. *Centropages* sp. was again the most dominant of the zooplankton (61%). Two other important zooplankton groups on the GAK transect in August were large copepods *Epilabidocera longipedata* (17%) and *Calanus/Neocalanus* spp. (14%).

In September, we sampled two stations on the PWS transect and four stations on the GAK transect. There was a large difference in composition of the most abundant plankton between the two areas. There was also a much higher diversity of plankton on both the PWS and the GAK transects than in the previous two months. On the PWS transect, on average, *E. longipedata* made up 60% of all the zooplankton, followed by large copepod *Centropages* sp. (9%), amphipod *Parathemisto pacifica*, *Calanus/Neocalanus* spp. (7%), unidentified small copepods (5%), fish larvae (3%) and small copepod *Acartia* sp. (2%). On the GAK transect, *Calanus/Neocalanus* spp. were the most abundant (43%), followed by larvacean (24%), *Centropages* sp. (16%), *E. longipedata* (7%), the amphipod *P. pacifica* (4%), the pteropod *Limacina* sp. (3%) and *Acartia* sp. (2%).

Table 1. Zooplankton density (#/m^3) and the proportion of its contribution to the total sampled in July through September. Only zooplantkon are listed that had a proportional contribution of 0.01 or more in at least one station. PWS - Prince William Sound transect, GAK - Seward Line (Gulf of Alaska) transect.

| | July PWS 1 | | July PWS 2 | | August GAK 2 | |
|---|---|---|---|---|---|---|
| | Density | Proportion | Density | Proportion | Density | Proportion |
| *Calanus/Neocalanus* spp. | 0.11 | 0.03 | 0.05 | 0.02 | 3.36 | 0.29 |
| *Epilabidocera longipedata* | 0.17 | 0.05 | 0.03 | 0.01 | 3.43 | 0.30 |
| *Centorpages* sp. | 2.88 | 0.79 | 1.98 | 0.79 | 3.60 | 0.31 |
| *Acartia* sp. | 0.13 | 0.04 | 0.03 | 0.01 | 0.00 | 0.00 |
| Copepods, small | 0.04 | 0.01 | 0.03 | 0.01 | 0.13 | 0.01 |
| *Parathemisto pacifica* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Amphipods | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.02 |
| Larvaceans | 0.09 | 0.02 | 0.17 | 0.07 | 0.00 | 0.00 |
| *Limacina* sp. | 0.04 | 0.01 | 0.01 | 0.00 | 0.14 | 0.01 |
| Gelatinous plankton | 0.06 | 0.02 | 0.07 | 0.03 | 0.16 | 0.01 |
| Barnacle nauplii | 0.02 | 0.00 | 0.02 | 0.01 | 0.04 | 0.00 |
| Shrimp | 0.01 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 |
| Fish larvae | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| Other | 0.05 | 0.01 | 0.06 | 0.02 | 0.47 | 0.04 |

| | August GAK 3 | | August GAK 4 | | August GAK 5 | |
|---|---|---|---|---|---|---|
| | Density | Proportion | Density | Proportion | Density | Proportion |
| *Calanus/Neocalanus* spp. | 8.58 | 0.16 | 0.14 | 0.04 | 0.23 | 0.08 |
| *Epilabidocera longipedata* | 0.72 | 0.01 | 0.86 | 0.24 | 0.38 | 0.13 |
| *Centorpages* sp. | 40.90 | 0.77 | 2.35 | 0.64 | 2.03 | 0.71 |
| *Acartia* sp. | 0.03 | 0.00 | 0.03 | 0.01 | 0.02 | 0.01 |
| Copepods, small | 0.42 | 0.01 | 0.16 | 0.04 | 0.02 | 0.01 |
| *Parathemisto pacifica* | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| Amphipods | 0.01 | 0.00 | 0.00 | 0.00 | 0.07 | 0.03 |
| Larvaceans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| *Limacina* sp. | 0.07 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| Gelatinous plankton | 0.25 | 0.00 | 0.02 | 0.01 | 0.01 | 0.00 |
| Barnacle nauplii | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Shrimp | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fish larvae | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other | 1.78 | 0.03 | 0.05 | 0.01 | 0.10 | 0.04 |

Table 1 (continued). Zooplankton density (#/m$^3$) and the proportion of its contribution to the total sampled in July through September. Only zooplantkon are listed that had a proportional contribution of 0.01 or more in at least one station. PWS - Prince William Sound transect, GAK - Seward Line (Gulf of Alaska) transect.

| | September PWS 1 | | September PWS 3 | | September GAK 3 | |
|---|---|---|---|---|---|---|
| | Density | Proportion | Density | Proportion | Density | Proportion |
| *Calanus/Neocalanus* spp. | 0.09 | 0.10 | 0.36 | 0.04 | 26.00 | 0.57 |
| *Epilabidocera longipedata* | 0.46 | 0.47 | 6.37 | 0.73 | 10.17 | 0.22 |
| *Centorpages* sp. | 0.14 | 0.14 | 0.29 | 0.03 | 2.22 | 0.05 |
| *Acartia* sp. | 0.03 | 0.03 | 0.04 | 0.00 | 0.43 | 0.01 |
| Copepods, small | 0.10 | 0.10 | 0.03 | 0.00 | 0.08 | 0.00 |
| *Parathemisto pacifica* | 0.05 | 0.05 | 0.98 | 0.11 | 4.32 | 0.09 |
| Amphipods | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.00 |
| Larvaceans | 0.02 | 0.02 | 0.07 | 0.01 | 0.09 | 0.00 |
| *Limacina* sp. | 0.01 | 0.01 | 0.06 | 0.01 | 2.15 | 0.05 |
| Gelatinous plankton | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 |
| Barnacle nauplii | 0.00 | 0.00 | 0.12 | 0.01 | 0.06 | 0.00 |
| Shrimp | 0.02 | 0.02 | 0.03 | 0.00 | 0.04 | 0.00 |
| Fish larvae | 0.03 | 0.03 | 0.22 | 0.02 | 0.03 | 0.00 |
| Other | 0.01 | 0.01 | 0.06 | 0.01 | 0.07 | 0.00 |

| | September GAK 4 | | September GAK 5 | | September GAK 6 | |
|---|---|---|---|---|---|---|
| | Density | Proportion | Density | Proportion | Density | Proportion |
| *Calanus/Neocalanus* spp. | 8.61 | 0.25 | 4.90 | 0.11 | 15.71 | 0.80 |
| *Epilabidocera longipedata* | 0.40 | 0.01 | 0.31 | 0.01 | 0.72 | 0.04 |
| *Centorpages* sp. | 10.77 | 0.31 | 9.65 | 0.21 | 1.10 | 0.06 |
| *Acartia* sp. | 1.14 | 0.03 | 1.54 | 0.03 | 0.06 | 0.00 |
| Copepods, small | 0.61 | 0.02 | 0.53 | 0.01 | 0.02 | 0.00 |
| *Parathemisto pacifica* | 0.26 | 0.01 | 0.02 | 0.00 | 1.31 | 0.07 |
| Amphipods | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Larvaceans | 10.69 | 0.31 | 29.11 | 0.63 | 0.01 | 0.00 |
| *Limacina* sp. | 1.85 | 0.05 | 0.03 | 0.00 | 0.47 | 0.02 |
| Gelatinous plankton | 0.00 | 0.00 | 0.01 | 0.00 | 0.12 | 0.01 |
| Barnacle nauplii | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Shrimp | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fish larvae | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| Other | 0.01 | 0.00 | 0.04 | 0.00 | 0.01 | 0.00 |

Table 2. Monthly mean (average by region) zooplankton density, #/m $^3$, and the proportion of its contribution to the total sampled in July -September. Only zooplantkon are listed that had a proportional contribution of 0.01 or more in at least one station. PWS - Prince William Sound transect, GAK - Seward Line (Gulf of Alaska) transect.

| | July PWS | | August GAK | | September PWS | | September GAK | |
|---|---|---|---|---|---|---|---|---|
| | Density | Proportion | Density | Proportion | Density | Proportion | Density | Proportion |
| *Calanus/Neocalanus* spp. | 0.08 | 0.03 | 3.08 | 0.14 | 0.23 | 0.07 | 13.81 | 0.43 |
| *Epilabidocera longipedata* | 0.10 | 0.03 | 1.35 | 0.17 | 3.42 | 0.60 | 2.90 | 0.07 |
| *Centorpages* sp. | 2.43 | 0.79 | 12.22 | 0.61 | 0.21 | 0.09 | 5.93 | 0.16 |
| *Acartia* sp. | 0.08 | 0.02 | 0.02 | 0.00 | 0.03 | 0.02 | 0.79 | 0.02 |
| Copepods, small | 0.03 | 0.01 | 0.18 | 0.02 | 0.06 | 0.05 | 0.31 | 0.01 |
| *Parathemisto pacifica* | 0.00 | 0.00 | 0.01 | 0.00 | 0.51 | 0.08 | 1.48 | 0.04 |
| Amphipods | 0.00 | 0.00 | 0.08 | 0.01 | 0.01 | 0.00 | 0.03 | 0.00 |
| Larvaceans | 0.13 | 0.05 | 0.00 | 0.00 | 0.04 | 0.01 | 9.97 | 0.24 |
| *Limacina* sp. | 0.03 | 0.01 | 0.06 | 0.00 | 0.04 | 0.01 | 1.12 | 0.03 |
| Gelatinous plankton | 0.06 | 0.02 | 0.11 | 0.01 | 0.00 | 0.00 | 0.05 | 0.00 |
| Barnacle nauplii | 0.02 | 0.01 | 0.02 | 0.00 | 0.06 | 0.01 | 0.01 | 0.00 |
| Shrimp | 0.02 | 0.01 | 0.00 | 0.00 | 0.03 | 0.01 | 0.01 | 0.00 |
| Fish larvae | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.03 | 0.01 | 0.00 |
| Other | 0.05 | 0.02 | 0.60 | 0.03 | 0.03 | 0.01 | 0.04 | 0.00 |

<u>Fish catch</u>

Not all stations sampled had sufficient numbers (at least 15) of the three species of salmon for a statistically sound analysis. Pink and chum salmon were the most abundant in our catches, with at least 10 fish of each species at most stations. Ten or more juvenile sockeye salmon were caught at only four stations, all on the GAK transect in September (Table 3).

Juvenile pink salmon were slightly but significantly shorter ($P<0.05$, ANOVA) in July and August than juvenile chum and sockeye salmon, which were about equal in length. Chum salmon were significantly longer in September ($P<0.01$, ANOVA) (Table 4, Fig. 2).

Juvenile pink salmon weighed the least at almost all stations in the three months sampled ($P<0.001$, ANOVA). Chum salmon weighed significantly more than pink and sockeye salmon at all stations in September ($P<0.001$, ANOVA) (Table 4, Fig. 3).

<u>Fish diet</u>

*Pink salmon*

In Prince William Sound, over the three-month period, *Limacina* sp. and the amphipod *Parathemisto pacifica* were the most numerically important prey items, making up, on average, 58% of the gut content by number. *Limacina* sp. and two large copepods *Epilabidocera longipedata* and *Eucalanus bungii* composed half of the prey items consumed on the GAK transect (Table 5).

In July, *Limacina* sp. comprised the numerical majority of prey of pink salmon on the PWS transect, making up 56% of prey. Larvaceans were the second most important prey, making up 10% of total prey, followed by *P. pacifica* (8%) and crab megalopae (5%) (Table 6).

In August, on the GAK transect, pink salmon preyed predominantly on *E. longipedata* (24%), *Limacina* sp. (23%), *Calanus/Neocalanus* spp. (11%) and crab megalopae (7%).

Table 3. Stations with sufficient numbers of fish for analysis and the number of fish caught and dissected at those stations. All stations were sampled in 2001. PWS stations were on the **P**rince **W**illiam **S**ound transect and GAK stations were on the Seward Line (**G**ulf of **A**las**k**a) transect.

| Cruise | Station | Date | Time | Pink salmon | | Sockeye salmon | | Chum salmon | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Caught | Dissected | Caught | Dissected | Caught | Dissected |
| Jul | PWS 1 | 12-Jul | 15:24 | 140 | 15 | 6 | 6 | 245 | 15 |
| Jul | PWS 2 | 12-Jul | 12:39 | 46 | 15 | 3 | 3 | 12 | 12 |
| Aug | GAK 2 | 15-Aug | 10:02 | 34 | 15 | 9 | 9 | 11 | 11 |
| Aug | GAK 3 | 19-Aug | 08:34 | 16 | 15 | 5 | 5 | 17 | 15 |
| Aug | GAK 4 | 13-Aug | 12:20 | 33 | 15 | 6 | 6 | 15 | 15 |
| Aug | GAK 5 | 13-Aug | 15:27 | 18 | 15 | 8 | 8 | 39 | 15 |
| Sep | PWS 1 | 23-Sep | 08:18 | 5 | 5 | 6 | 6 | 6 | 6 |
| Sep | PWS 3 | 21-Sep | 18:56 | 10 | 10 | 2 | 2 | 6 | 6 |
| Sep | GAK 3 | 20-Sep | 17:58 | 9 | 9 | 38 | 15 | 12 | 12 |
| Sep | GAK 4 | 20-Sep | 16:30 | 25 | 10 | 25 | 15 | 14 | 14 |
| Sep | GAK 5 | 20-Sep | 13:22 | 13 | 13 | 10 | 10 | 22 | 15 |
| Sep | GAK 6 | 20-Sep | 09:52 | 35 | 14 | 14 | 14 | 14 | 11 |

Table 4. Monthly mean (across all stations at each transect) fork lengths (mm) and mean wet whole-fish weights (g) with standard errors (in parentheses) for fishes collected on the PWS (Prince William Sound) and the GAK (Seward Line) transects.

| Cruise | Area | Pink salmon | | Sockeye salmon | | Chum salmon | |
|---|---|---|---|---|---|---|---|
| | | Length | Weight | Length | Weight | Length | Weight |
| Jul | PWS | 93.2 (1.6) | 9.9 (0.5) | 101.6 (4.3) | 15.9 (2.0) | 99.9 (1.8) | 13.8 (0.6) |
| Aug | GAK | 133.0 (1.6) | 24.9 (0.9) | 147.7 (4.8) | 43.4 (3.5) | 149.6 (1.7) | 42.0 (1.4) |
| Sep | PWS | 164.3 (3.3) | 52.2 (3.3) | 162.6 (4.5) | 59.4 (4.5) | 176.4 (5.3) | 72.5 (7.7) |
| Sep | GAK | 175.2 (1.9) | 58.5 (1.9) | 178.9 (2.9) | 74.0 (3.0) | 203.9 (3.3) | 114.6 (5.8) |

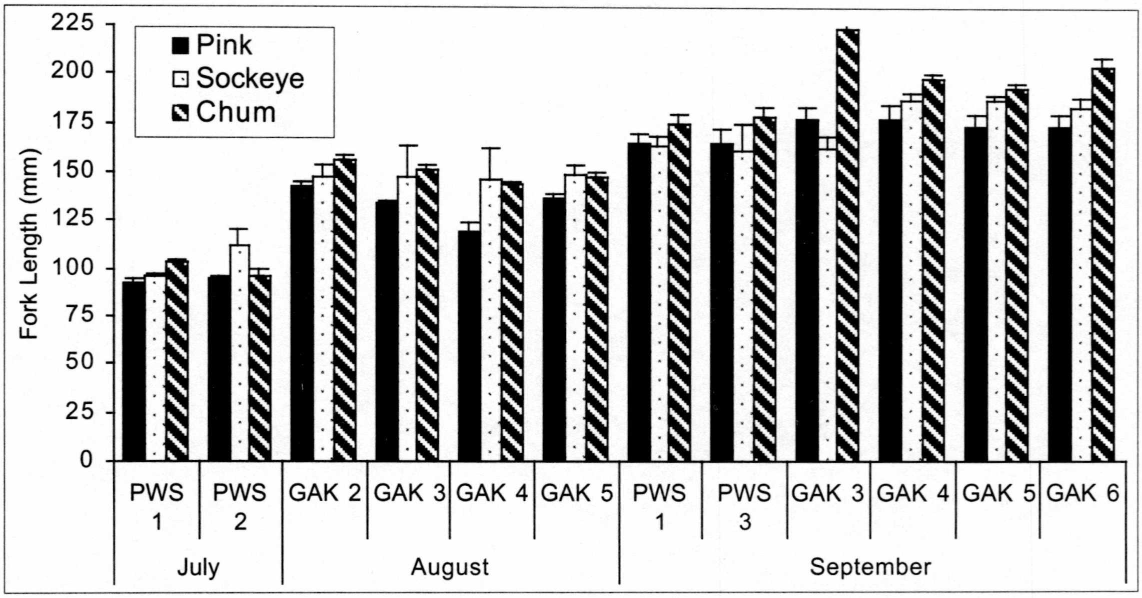


Figure 2. Mean fork lengths of the three salmon species with standard error bars.

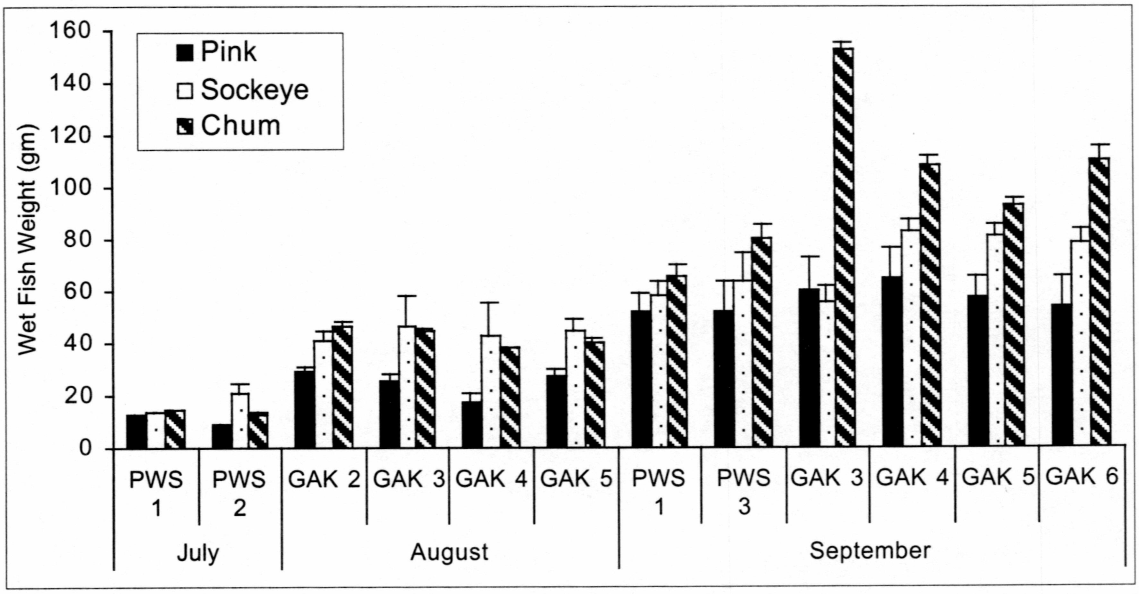


Figure 3. Mean wet weights of the three salmon species with standard error bars.

Table 5. Proportions by number of the top 6 prey consumed by each species on the PWS and the GAK transects. All months and stations on both transects are pooled together.

| PWS Transect | | GAK Transect | |
| --- | --- | --- | --- |
| | Pink salmon | | |
| *Limacina* sp. | 0.39 | *Limacina* sp. | 0.25 |
| *Parathemisto pacifica* | 0.19 | *Epilabidocera longipedata* | 0.15 |
| Fish larvae | 0.08 | *Eucalanus bungii* | 0.11 |
| Larvacean | 0.07 | Calanus & Neocalanus sp. | 0.09 |
| *Primno macropa* | 0.06 | *Parathemisto pacifica* | 0.07 |
| Shrimp | 0.04 | Larvacean | 0.06 |
| | Sockeye salmon | | |
| *Primno macropa* | 0.27 | Limacina sp. | 0.25 |
| *Limacina* sp. | 0.24 | *Eucalanus bungii* | 0.15 |
| Larvacean | 0.17 | Calanus & Neocalanus sp. | 0.14 |
| *Parathemisto pacifica* | 0.14 | Larvacean | 0.12 |
| Fish larvae | 0.07 | Shrimp | 0.07 |
| Shrimp | 0.04 | *Parathemisto pacifica* | 0.06 |
| | Chum salmon | | |
| Larvacean | 0.72 | Larvacean | 0.19 |
| *Parathemisto pacifica* | 0.12 | Calanus & Neocalanus sp. | 0.14 |
| *Primno macropa* | 0.06 | Acartia sp. | 0.13 |
| *Limacina* sp. | 0.05 | Copepods, small | 0.13 |
| Shrimp | 0.01 | *Eucalanus bungii* | 0.13 |
| Copepods, small | 0.01 | Limacina sp. | 0.11 |

Table 6. Proportions of the top 6 prey items consumed by each species, broken down by month and location. Standard errors are (in parentheses).

| | Pink | | | Sockeye | | | Chum | | |
|---|---|---|---|---|---|---|---|---|---|
| July PWS | *Limacina* sp. | 0.56 | (0.07) | *Limacina* sp. | 0.45 | (0.15) | Larvacean | 0.84 | (0.06) |
| | Larvacean | 0.11 | (0.05) | Larvacean | 0.32 | (0.13) | *Limacina* sp. | 0.07 | (0.04) |
| | *Parathemisto pacifica* | 0.08 | (0.02) | *Primno macropa* | 0.05 | (0.04) | *Parathemisto pacifica* | 0.05 | (0.03) |
| | Crab megalopa | 0.05 | (0.03) | *Parathemisto pacifica* | 0.05 | (0.03) | Copepods, small | 0.01 | (0.00) |
| | Other | 0.04 | (0.02) | Copepods, small | 0.03 | (0.02) | Crab megalopa | 0.01 | (0.01) |
| | *E. longipedata* | 0.04 | (0.01) | *Acartia* sp. | 0.02 | (0.02) | *Primno macropa* | 0.01 | (0.01) |
| August GAK | E. longipedata | 0.24 | (0.04) | *Limacina* sp. | 0.22 | (0.06) | Larvacean | 0.28 | (0.06) |
| | *Limacina*sp. | 0.23 | (0.04) | *Calanus/Neocalanus* spp. | 0.10 | (0.03) | *Calanus/Neocalanus* spp. | 0.23 | (0.05) |
| | *Calanus/Neocalanus* spp. | 0.11 | (0.02) | Shrimp | 0.09 | (0.04) | *Limacina*sp. | 0.09 | (0.03) |
| | Crab megalopa | 0.07 | (0.02) | Larvacean | 0.08 | (0.04) | Shrimp | 0.07 | (0.03) |
| | Barnacle nauplii | 0.05 | (0.01) | Crab megalopa | 0.08 | (0.03) | Copepods, small | 0.07 | (0.03) |
| | Eucalanus bungi | 0.04 | (0.02) | Copepods, small | 0.07 | (0.04) | *Parathemisto pacifica* | 0.05 | (0.02) |
| September PWS | *Parathemisto pacifica* | 0.41 | (0.05) | *Primno macropa* | 0.51 | (0.09) | Larvacean | 0.47 | (0.09) |
| | Fish larvae | 0.25 | (0.08) | *Parathemisto pacifica* | 0.24 | (0.09) | *Parathemisto pacifica* | 0.29 | (0.05) |
| | *Primno macropa* | 0.13 | (0.03) | Fish larvae | 0.12 | (0.08) | *Primno macropa* | 0.19 | (0.05) |
| | Shrimp | 0.10 | (0.03) | Shrimp | 0.08 | (0.04) | Shrimp | 0.04 | (0.02) |
| | *Limacina*sp. | 0.03 | (0.03) | Crab megalopa | 0.03 | (0.01) | *Acartia* sp. | 0.00 | (0.00) |
| | Amphipod, other | 0.02 | (0.02) | Copepods, small | 0.02 | (0.02) | Copepods, small | 0.00 | (0.00) |
| September GAK | *Limacina* sp. | 0.27 | (0.05) | *Limacina* sp. | 0.26 | (0.04) | *Acartia* sp. | 0.24 | (0.03) |
| | *Eucalanus bungii* | 0.19 | (0.05) | *Eucalanus bungii* | 0.19 | (0.04) | *Eucalanus bungii* | 0.20 | (0.04) |
| | *Parathemisto pacifica* | 0.15 | (0.04) | *Calanus/Neocalanus* spp. | 0.16 | (0.04) | Copepods, small | 0.18 | (0.02) |
| | Larvacean | 0.10 | (0.04) | Larvacean | 0.13 | (0.04) | *Limacina* sp. | 0.13 | (0.03) |
| | Shrimp | 0.08 | (0.03) | *Parathemisto pacifica* | 0.09 | (0.02) | Larvacean | 0.11 | (0.02) |
| | *Calanus/Neocalanus* spp. | 0.07 | (0.02) | Shrimp | 0.06 | (0.02) | *Calanus/Neocalanus* spp. | 0.06 | (0.01) |

In September, on the PWS transect, *P. pacifica* (41%), fish larvae (25%), *P. macropa* (13%) and shrimp (9%) made up the numerical majority of the diet. On the GAK transect, pink salmon fed on *Limacina* sp. (27%), *E. bungii* (19%), *P. pacifica* (15%), larvaceans (10%), shrimp (8%) and *Calanus/Neocalanus* spp. (7%).

*Sockeye salmon*

Over the three-month period, the top prey of juvenile sockeye salmon were the amphipod *Primno macropa* and *Limacina* sp. (51% of the total) on the PWS transect and *Limacina* sp., *E. bungii*, and large copepods *Calanus* and *Neocalanus* spp. (54%) on the GAK transect.

In July, in Prince William Sound, juvenile sockeye salmon fed primarily on *Limacina* sp. (45%) and larvacean (32%), with some emphasis on amphipods *P. macropa* (5%) and *P. pacifica* (5%) (Table 5).

In August, sockeye salmon on the GAK transect preyed on *Limacina* sp. (22%), *Calanus/Neocalanus* spp. (9%), shrimp (9%), larvacean (8%), crab megalopae (8%) and small unidentified copepods (7%).

In September, more than half of sockeye diet on the PWS transect was *P. macropa* (51%). Other important prey items there were *P. pacifica* (24%), fish larvae (12%) and shrimp (8%). On the GAK transect, juvenile sockeye salmon preyed on *Limacina* sp. (27%), *E. bungii* (19%), *Calanus* & *Neocalanus* (16%), larvacean (13%), *P. pacifica* (9%) and shrimp (6%).

*Chum salmon*

Larvaceans were, over the three-month period, the most important prey items on the PWS transect (72%) and on the GAK transect (19%), although in Prince William Sound, it was almost an exclusive food item (Table 4). Amphipods *P. pacifica* (12%) and *P. macropa* (6%) also played an important role on the PWS transect. On the GAK transect, there was a much higher prey diversity, with *Calanus* & *Neocalanus* spp., small copepod *Acartia* sp., unidentified small copepods, *E. bungii* and *Limacina* sp. being consumed in about the same numerical proportions (11% – 14%).

In July, on the PWS transect, juvenile chum salmon fed primarily on larvaceans (84%), with *Limacina* sp. as the second most abundant prey at 7% of the diet.

In August, on the GAK transect, the two most important prey were larvaceans (28%) and *Calanus & Neocalanus* spp. (23%). Other important prey were *Limacina* sp. (9%), shrimp (7%), small unidentified copepods (7%), and *P. pacifica* (5%).

In September, on the PWS transect, larvaceans (47%), *P. pacifica* (29%) and *P. macropa* (19%) composed the majority of diet. On the GAK transect, prey was composed of *Acartia* sp. (24%), *E. bungii* (20%), small unidentified copepods (18%), *Limacina* sp. (13%) and *Calanus/Neocalanus* spp. (6%).

<u>Prey use</u>

*Prey overlap*

Juvenile pink and chum salmon exhibited the smallest diet overlap on the PWS and the GAK transects, followed by sockeye and chum salmon at both areas. Diet overlap between sockeye and pink salmon was significantly greater ($P<0.005$) than between pink and chum salmon (Fig. 4 a, b).

In July, at station PWS 1, pink and sockeye salmon had the highest Pianka overlap index (0.48) (Table 7), whereas at PWS 2, the highest overlap was between chum and sockeye salmon (0.44).

In August, all sampled stations except GAK 5 had relatively low overlap indices. The highest diet overlaps at all stations were between pink and sockeye salmon. At GAK 5, the diet overlap between pink and sockeye salmon was 0.50. Unlike all the other stations in August, at GAK 5, pink and chum salmon (0.35) had a slightly higher overlap than chum and sockeye salmon (0.32).

In September, all stations except PWS 1 had the highest diet overlap between pink and sockeye salmon. In Prince William Sound, at PWS 1 station, the highest diet overlap was between chum and sockeye salmon (0.39), followed closely by pink and chum

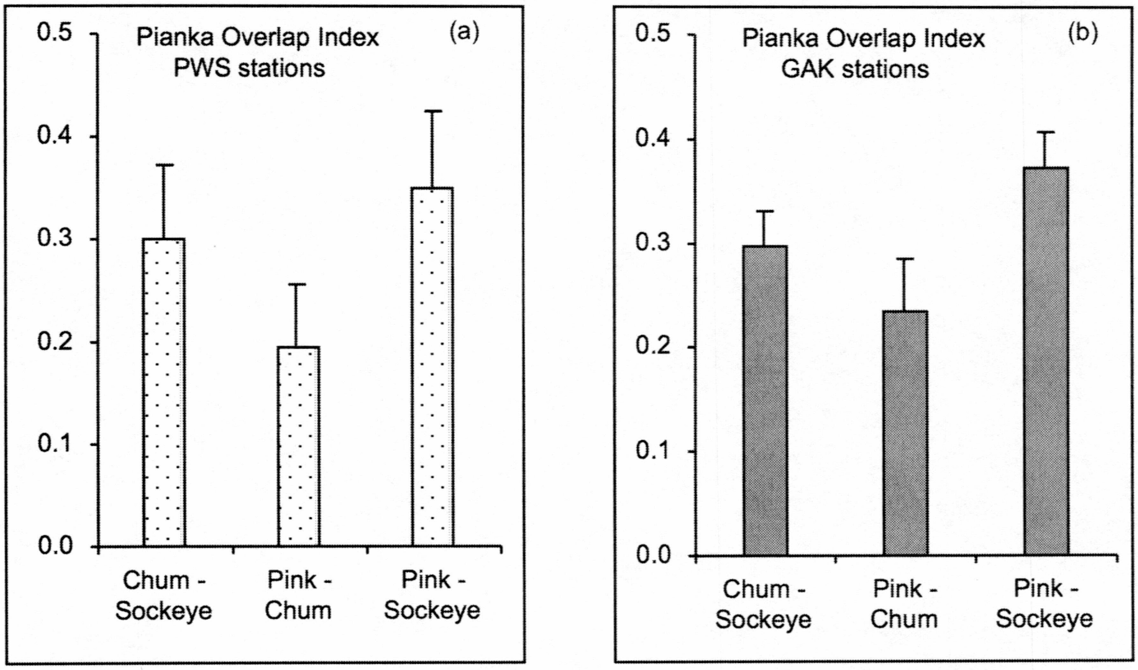


Figure 4. Pianka overlap indices with standard error bars. Stations were pooled over all sampling months and the (a) PWS transect and the (b) GAK transect. There is a significant difference ($P<0.005$) between pink and chum salmon and pink and sockeye salmon pairs at both transects.

Table 7. Pianka overlap indices at all stations for (a) 19 categories making up 95% of prey and (b) top 6 prey at each station.

(a)

| Cruise | Station | Pink - Sockeye | Pink - Chum | Chum - Sockeye |
|---|---|---|---|---|
| July | PWS 1 | 0.48 | 0.12 | 0.25 |
| | PWS 2 | 0.18 | 0.16 | 0.44 |
| August | GAK 2 | 0.23 | 0.06 | 0.16 |
| | GAK 3 | 0.32 | 0.26 | 0.28 |
| | GAK 4 | 0.35 | 0.14 | 0.34 |
| | GAK 5 | 0.50 | 0.35 | 0.32 |
| September | PWS 1 | 0.27 | 0.38 | 0.39 |
| | PWS 3 | 0.47 | 0.12 | 0.12 |
| | GAK 3 | 0.30 | 0.08 | 0.22 |
| | GAK 4 | 0.48 | 0.40 | 0.45 |
| | GAK 5 | 0.43 | 0.42 | 0.31 |
| | GAK 6 | 0.38 | 0.17 | 0.22 |

(b)

| Cruise | Station | Pink - Sockeye | Pink - Chum | Chum - Sockeye |
|---|---|---|---|---|
| July | PWS 1 | 0.48 | 0.12 | 0.25 |
| | PWS 2 | 0.17 | 0.16 | 0.45 |
| August | GAK 2 | 0.17 | 0.03 | 0.15 |
| | GAK 3 | 0.26 | 0.21 | 0.26 |
| | GAK 4 | 0.33 | 0.11 | 0.30 |
| | GAK 5 | 0.49 | 0.35 | 0.32 |
| September | PWS 1 | 0.26 | 0.37 | 0.39 |
| | PWS 3 | 0.47 | 0.11 | 0.12 |
| | GAK 3 | 0.30 | 0.05 | 0.20 |
| | GAK 4 | 0.48 | 0.40 | 0.45 |
| | GAK 5 | 0.42 | 0.41 | 0.30 |
| | GAK 6 | 0.36 | 0.15 | 0.19 |

salmon (0.38). At station PWS 3, diet overlap between chum and pink salmon and pink and sockeye salmon were the same (0.12). On the GAK transect, at GAK 5, the diet overlap between pink and sockeye salmon (0.43) was similar to that of pink and chum salmon (0.42).

In Prince William Sound, numerically, more than 80% of chum salmon diet was composed of larvaceans (72%) and the amphipod *P. pacifica* (12%). *P. pacifica* played a similar role in pink (19%) and sockeye salmon (14%). However, the pteropod *Limacina* sp. composed 39% of pink salmon and 24% of sockeye salmon diet and only 5% of chum salmon diet. The amphipod *P. macropa* played an important role in sockeye (27%), but was not very important in pink or chum salmon (both 6%) (Table 6).

On the GAK transect, *Limacina* sp. was equally very important in pink and sockeye salmon (both 25%), while it composed only 11% of the diet of chum salmon. The large copepod *E. longipedata* was also important in pink salmon diet (15%), but was present only in trivial amounts in sockeye and chum salmon. Large copepods *E. bungii* and *Calanus* & *Neocalanus* spp. were consumed in similar proportions in pink salmon (11% / 9%), sockeye (15% / 14%) and chum salmon (13% / 14%). Larvaceans played a minor role in pink salmon (6%), moderate role in sockeye (12%), but constituted the highest mean proportion of any prey item in chum salmon (19%).

The null hypothesis $H_{01}$, there is no difference in diet overlap among the three species, was rejected. As expected, pink and sockeye had the largest diet overlap while pink and chum salmon the smallest (Fig. 4 a, b). The overlaps for each species pair were very similar between PWS and the GAK transect. There was a significant difference ($P<0.005$) between pink-chum and pink-sockeye pairs.

The null hypothesis $H_{02}$, overlap is independent of zooplankton abundance, was not rejected, as there was no significant change in the Pianka overlap index with the change of average zooplankton density (Fig. 5).

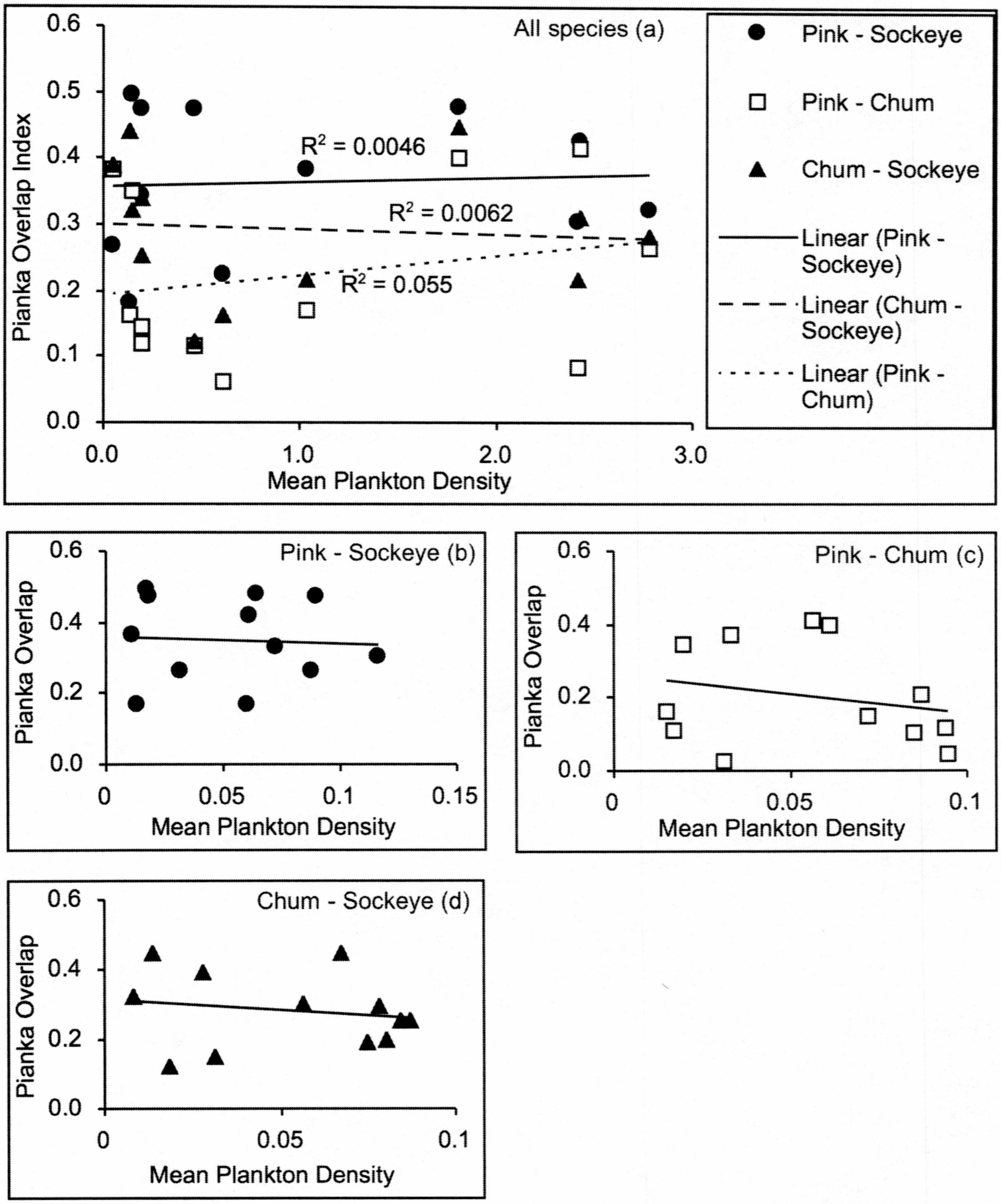


Figure 5. Changes in Pianka overlap for juvenile salmon with changes in mean zooplankton density. All linear regressions are insignificant. Changes in Pianka overlap indices for (a) all fish species vs. mean density of all collected zooplankton, (b) top 6 prey of pink and sockeye salmon vs. density of those zooplankton, (c) top 6 prey of pink and chum salmon vs. density of those zooplankton, and (d) top 6 prey of chum and sockeye salmon vs. density of those zooplankton.

*Gelatinous prey*

Overall, juvenile chum salmon consumed significantly more ($P<0.001$) gelatinous prey than either pink or sockeye salmon. Both juvenile pink and sockeye salmon utilized, on average, similar proportions of gelatinous prey, measured by the proportion of wet gelatinous material to the total wet weight of gut contents (Figs. 6, 7). The proportion of the mean gelatinous prey content of pink salmon over all stations was about 40%, compared to 44% for sockeye and 92% for chum salmon.

Therefore, the null hypothesis $H_{03}$, there is no difference in proportions of gelatinous prey consumed by the three species of juvenile salmon, was rejected. Juvenile chum salmon consume the highest proportion of gelatinous zooplankton.

*Prey selectivity*

There was a higher variability in prey selectivity among stations on the GAK transect (Figs. 9, 10, 12, 13) than on the PWS transect (Figs. 8, 11). Diet preferences for the three species were closer on the PWS transect than on the GAK transect.

In July, at the two stations sampled in Prince William Sound (PWS 1 and PWS 2), the three species were actively selecting for the amphipod *Parathemisto pacifica* (Fig. 8). Positive selectivity for *Primno macropa* was shown by pink salmon at PWS 1 and pink and sockeye salmon at PWS 2. Larvaceans were slightly selected for by pink salmon and strongly by chum salmon at PWS 1 and moderately by chum salmon at PWS 2. Only in PWS 1 did the three species select for *Limacina* sp.

In August, at station GAK 2, only chum salmon selected for *Acartia* sp. and *P. pacifica* (Fig. 9). Chum and sockeye salmon showed positive selectivity for *E. bungii*, pink and sockeye salmon for shrimp and crab megalopae, and sockeye salmon for unidentifiable gelatinous material.

At station GAK 3 in August, pink salmon selected for *E. longipedata* and unidentified crustaceans, sockeye salmon selected slightly for *P. macropa* and chum salmon for *Centropages* sp., *P. pacifica* and unidentified gelatinous material (Fig. 9). Pink and chum salmon selected for *Calanus/Neocalanus* spp. and slightly for barnacle

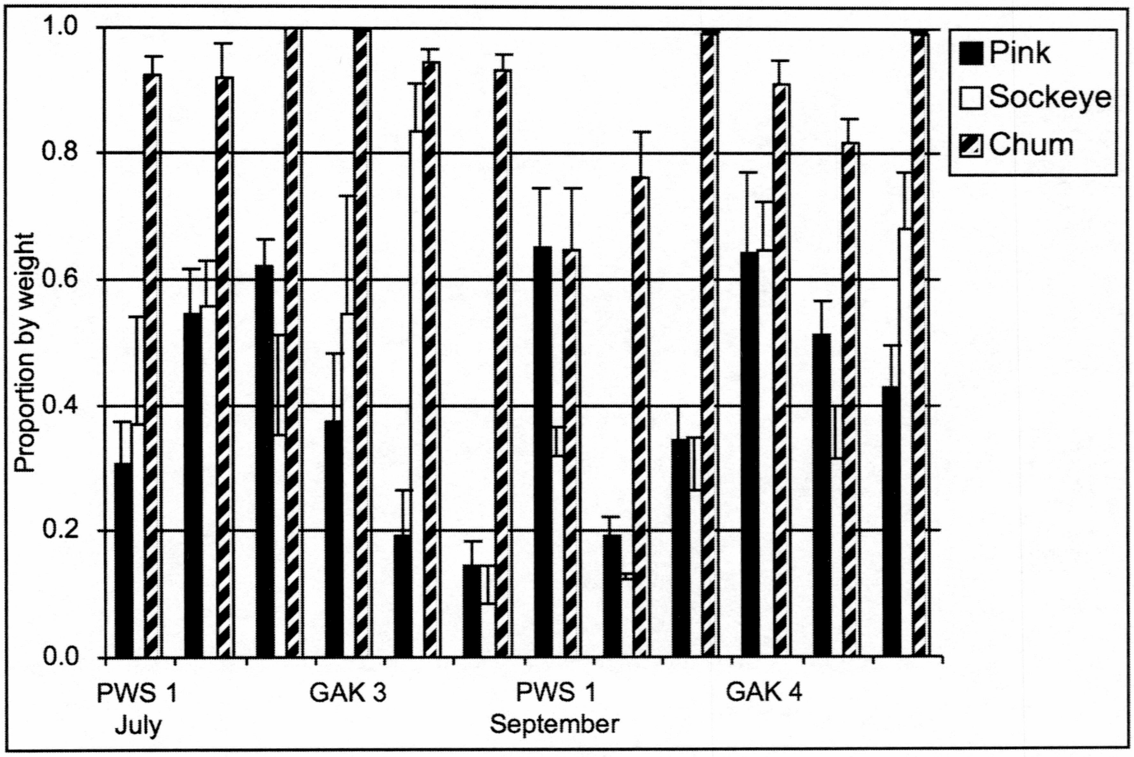


Figure 6. Mean weight proportions of gelatinous prey, with standard errors, for all stations.

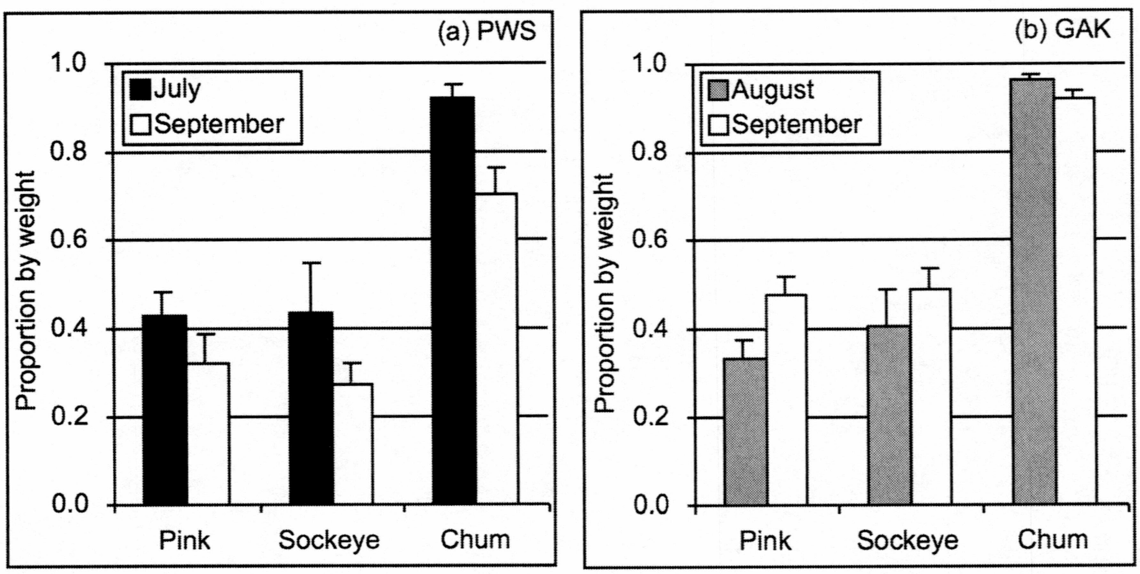


Figure 7. Mean weight proportions of gelatinous prey, with standard errors, on the (a) PWS and (b) GAK transects. There are significant differences (t-test, $P < 0.01$) in mean gelatinous prey proportions by weight between chum and pink salmon and chum and sockeye salmon in July and September on the PWS transect and in August and September on the GAK transect.

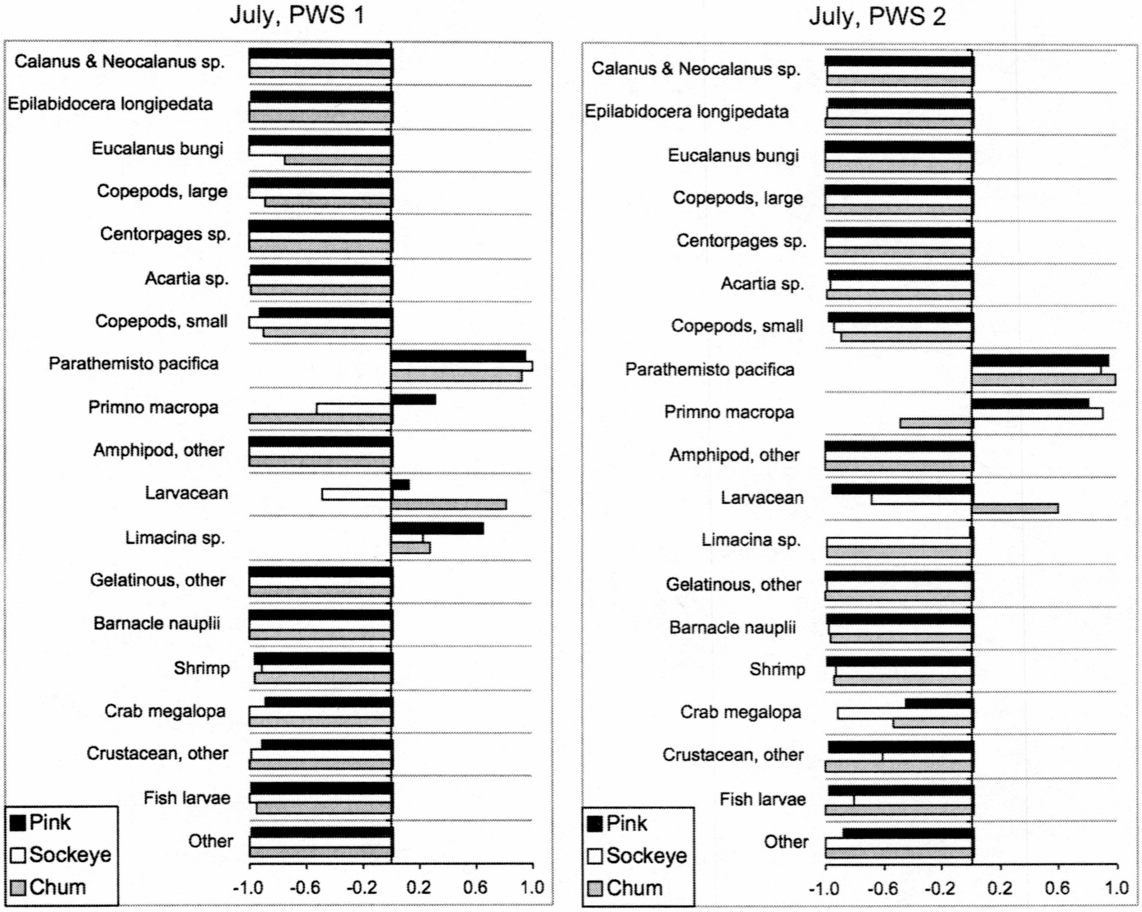


Figure 8. Transformed Chesson selectivity index for stations PWS 1 and PWS 2 in July. Values between 0 and 1 indicate level of fish selectivity for that prey, values between 0 and -1 indicate level of selectivity against that prey.

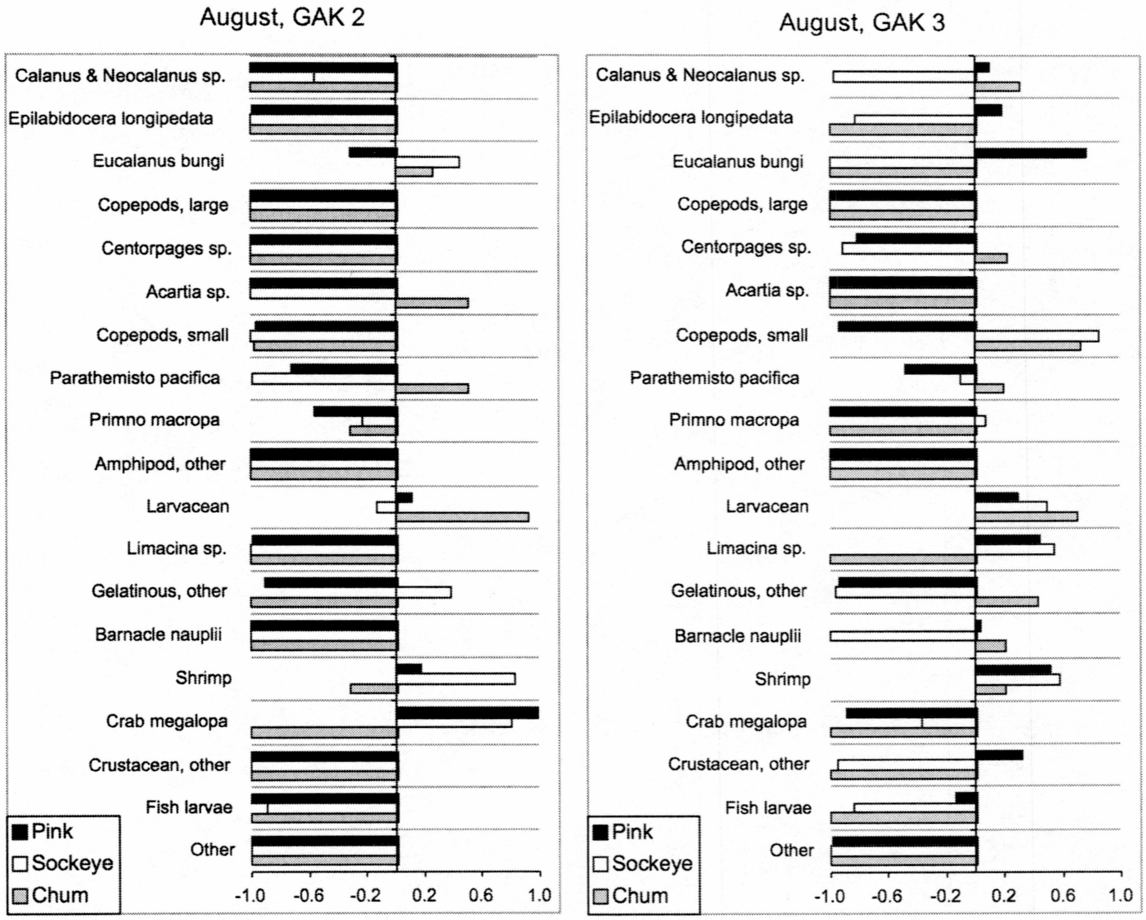


Figure 9. Transformed Chesson selectivity index for stations GAK 2 and GAK 3 in August. Values between 0 and 1 indicate level of fish selectivity for that prey, values between 0 and -1 indicate level of selectivity against that prey.

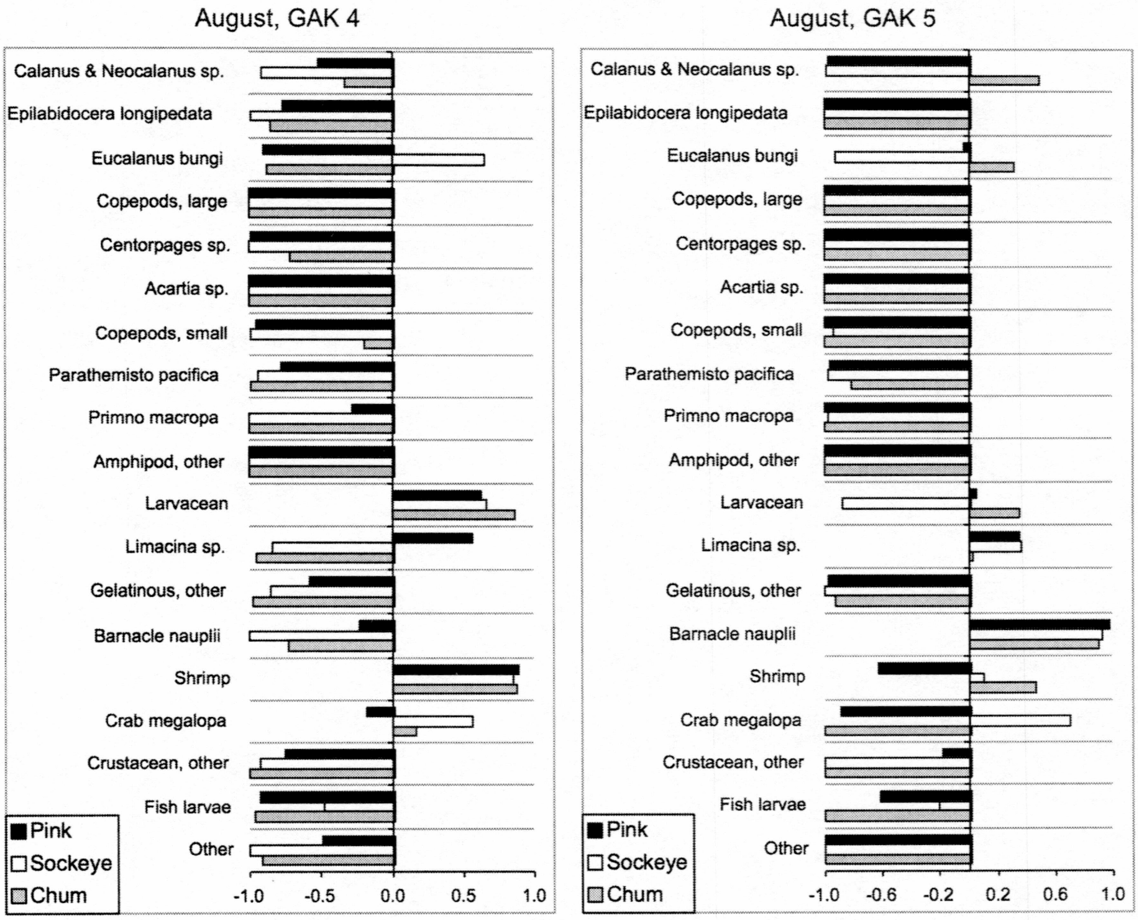


Figure 10. Transformed Chesson selectivity index for stations GAK 4 and GAK 5 in August. Values between 0 and 1 indicate level of fish selectivity for that prey, values between 0 and -1 indicate level of selectivity against that prey.

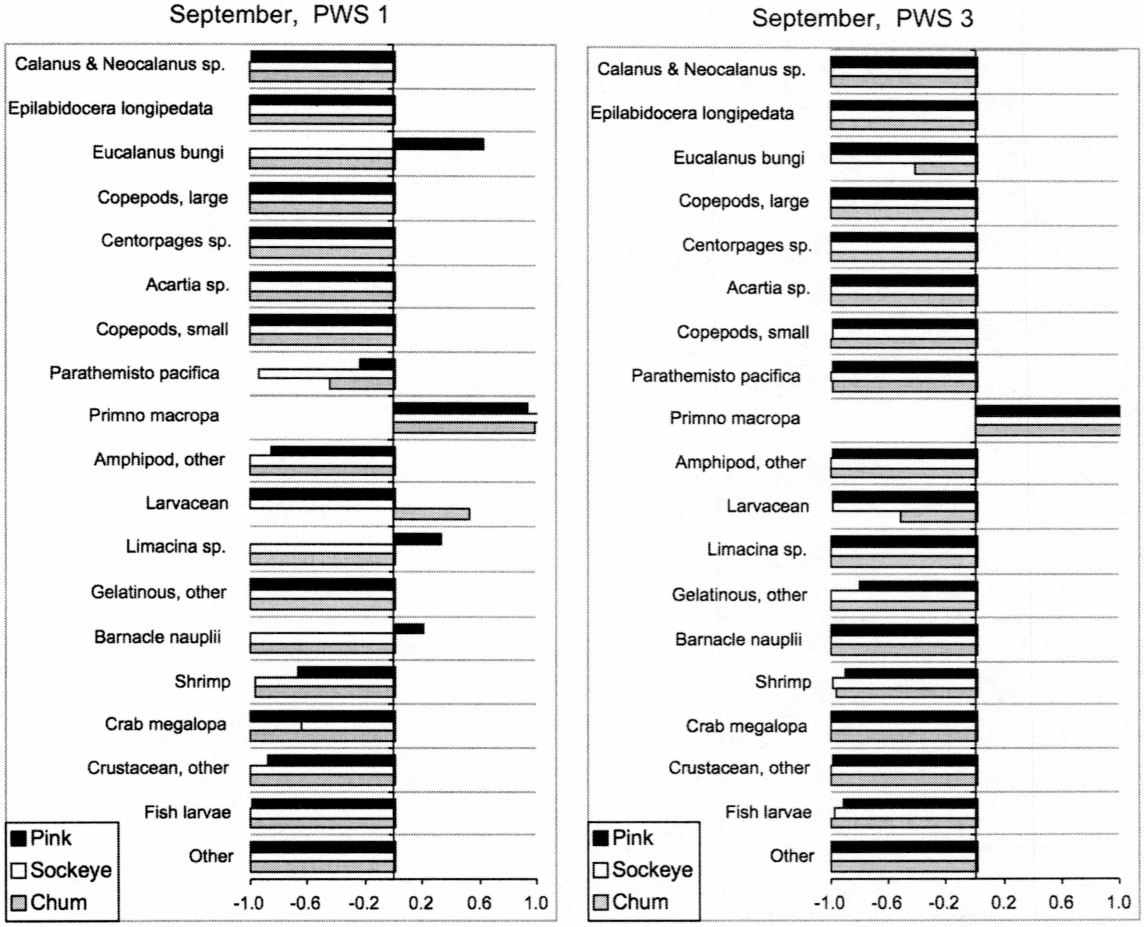


Figure 11. Transformed Chesson selectivity index for stations PWS 1 and PWS 3 in September. Values between 0 and 1 indicate level of fish selectivity for that prey, values between 0 and -1 indicate level of selectivity against that prey.

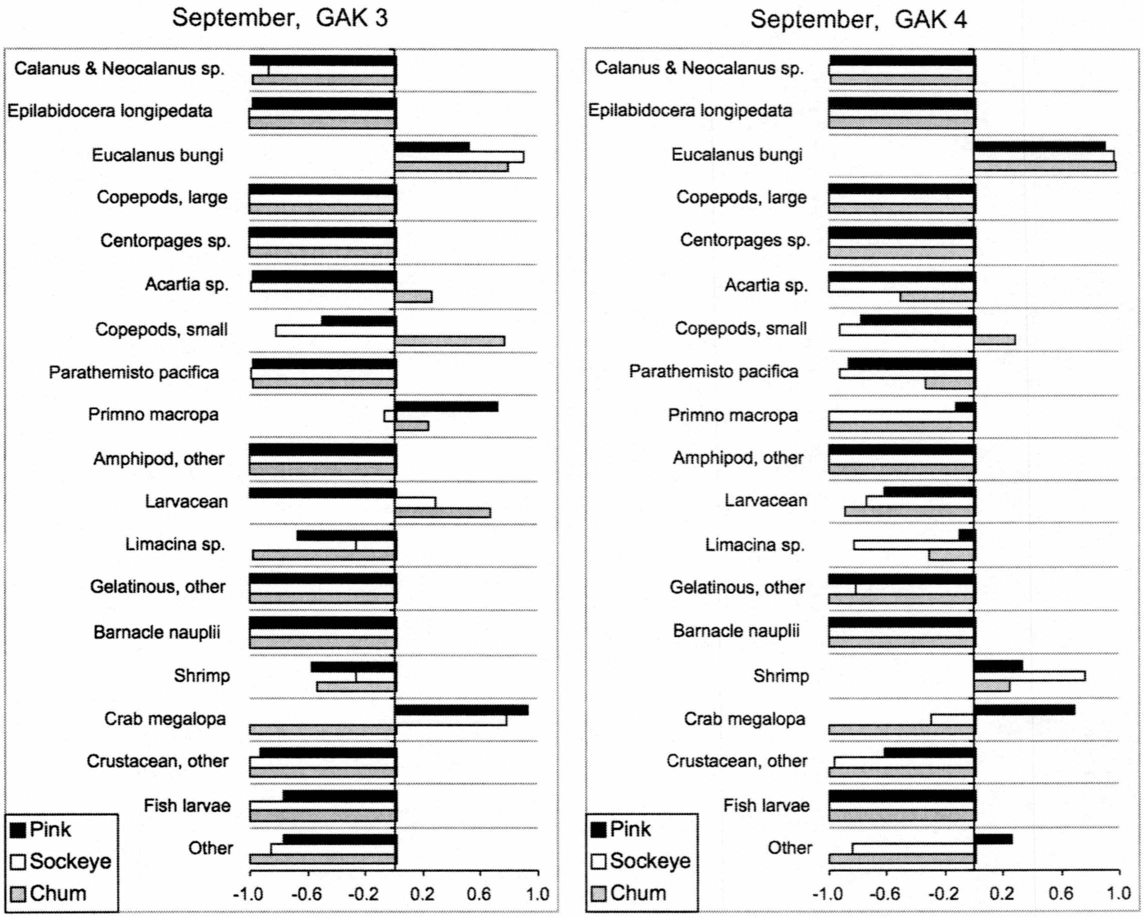


Figure 12. Transformed Chesson selectivity index for stations GAK 3 and GAK 4 in September. Values between 0 and 1 indicate level of fish selectivity for that prey, values between 0 and -1 indicate level of selectivity against that prey.

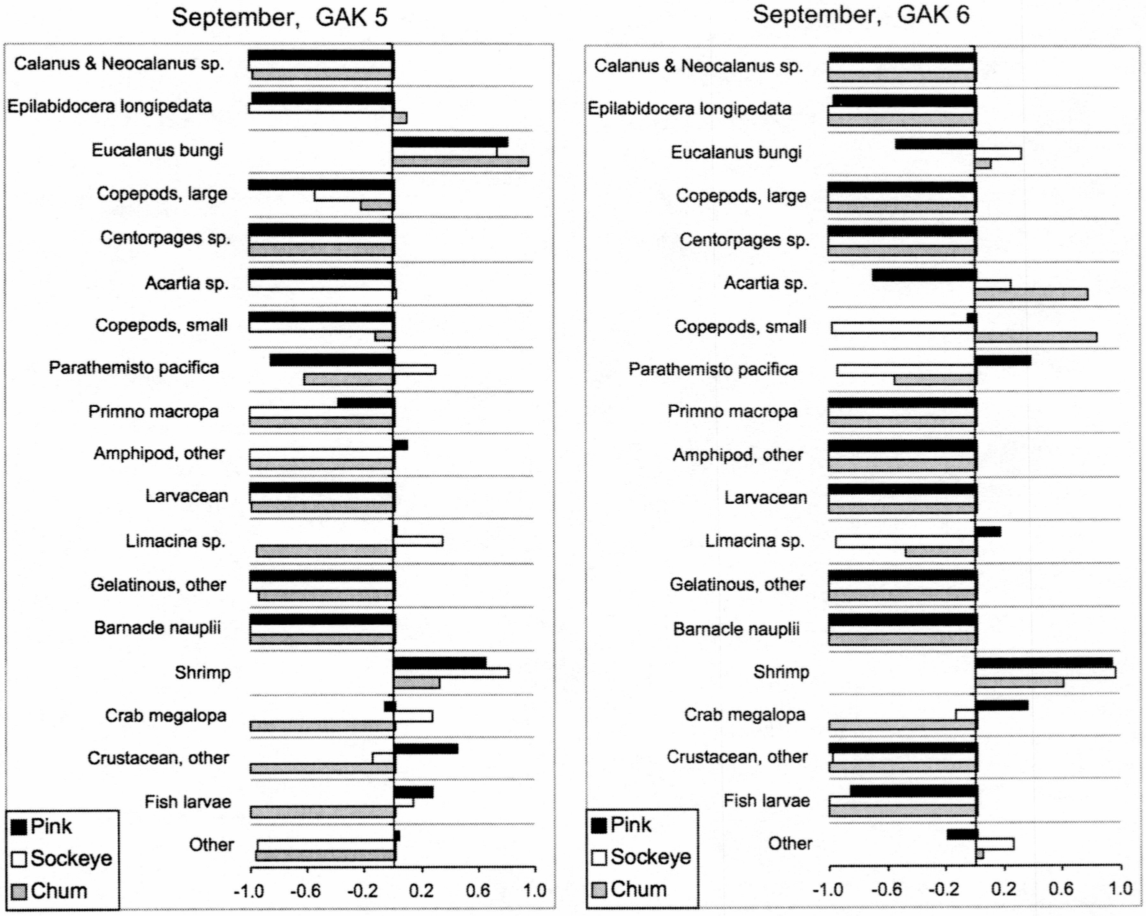


Figure 13. Transformed Chesson selectivity index for stations GAK 5 and GAK 6 in September. Values between 0 and 1 indicate level of fish selectivity for that prey, values between 0 and -1 indicate level of selectivity against that prey.

nauplii. Pink and sockeye salmon selected for *Limacina* sp., and sockeye and chum salmon for small copepods. The three species showed positive selectivity for larvaceans and shrimp.

At GAK 4 in August, sockeye salmon showed positive selectivity for *E. bungii* and pink salmon for *Limacina* sp. (Fig. 10). Sockeye and chum salmon selected for crab megalopae and the three species selected for larvaceans and shrimp.

At GAK 5 in August, chum salmon selected for *Calanus/Neocalanus* spp. and *E. bungii* and sockeye salmon selected for crab megalopae (Fig. 10). Pink and chum salmon selected for larvaceans, while sockeye and chum salmon for shrimp. The three species exhibited positive selectivity for *Limacina* sp. and barnacle nauplii.

In September in Prince William Sound, at station PWS 1, pink salmon selected for *E. bungii*, *Limacina* sp. and barnacle nauplii (Fig. 11). Chum salmon selected for larvaceans and the three species expressed a strong positive selectivity for *P. macropa*. At station PWS 2, only *P. macropa* was positively selected for by the three species.

In September on the GAK transect, at station GAK 3, chum salmon selected for *Acartia* sp. and unidentified small copepods (Fig. 12). Pink and chum salmon selected for *P. macropa*, pink and sockeye salmon for crab megalopae, and sockeye and chum salmon for larvaceans. The three species also selected for *E. bungii*.

At station GAK 4, the three species selected for *E. bungii* and shrimp (Fig. 12). Pink salmon also selected for crab megalopae and unidentified prey items, while chum salmon selected for small unidentified copepods.

At station GAK 5 in September, pink salmon selected for unidentified amphipods, unidentified crustaceans and other unidentified prey items (Fig. 13). Sockeye salmon selected for *P. pacifica* and crab megalopae, while chum salmon selected for *E. longipedata* and slightly for *Acartia* sp. Both pink and sockeye salmon selected for *Limacina* sp. and fish larvae. The three species selected for *E. bungii* and shrimp.

At station GAK 6, pink salmon selected for *Limacina* sp., *P. pacifica* and crab megalopae, while chum salmon selected for small unidentified copepods (Fig. 13). Chum and sockeye salmon selected for *E. bungii*, *Acartia* sp. and unidentified prey items. The three species also selected for shrimp.

A decrease in selectivity was observed for larvaceans and *Limacina* sp. on the PWS transect (Figs. 14, 15). There was a significant drop from positive to negative selectivity for *P. pacifica* in all three salmon species from July to September, although it still remained one of the most important prey items (Fig. 16). On the other hand, selectivity for *P. macropa* significantly increased in all species from July to September, making *P. macropa* the most important prey for sockeye salmon and the 3rd most important prey for pink and chum salmon (Fig. 16).

A similar tendency, where selectivity for top prey items varied across all species, was observed on the GAK transect (Figs. 14, 15, 17). Large copepods of *Calanus* and *Neocalanus* spp. and larvaceans dropped in selectivity between August and September. *Limacina* sp. dropped in selectivity in pink and sockeye salmon and stayed the same in chum salmon. Selectivity for the large copepod *Eucalanus bungii*, on the other hand, increased dramatically to the 2$^{nd}$ place in numerical importance.

There was an apparent shift to larger prey items among all juvenile salmon with growth (Fig. 18). Therefore, the null Hypothesis $H_{04}$, there is no shift in diet preferences with juvenile salmon growth, was rejected. All three species showed significant changes in selectivity of the major prey items between July and September on the PWS transect and August and September on the GAK transect (Figs. 14-17).

*Prey diversity*

Prey diversity of pink and sockeye salmon was similar on the PWS and the GAK transects, with slightly higher prey diversity on the GAK transect (Fig. 19). The differences between pink and chum salmon and sockeye and chum salmon were significant ($P<0.05$) on the PWS transect, and not significant on the GAK transect. Chum salmon had the lowest prey diversity on the PWS transect (Table 8). On the GAK transect, chum salmon had the highest (although insignificantly different) prey diversity.

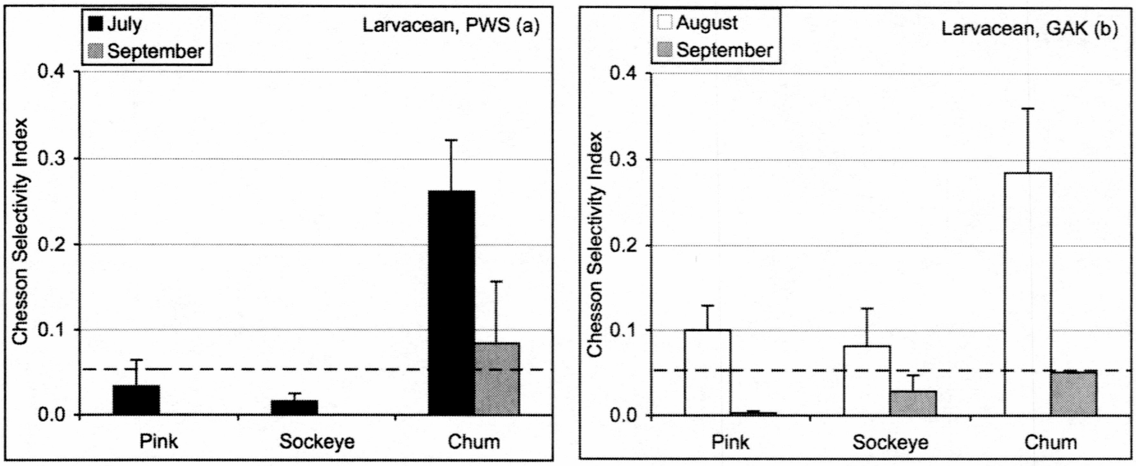


Figure 14. Chesson selectivity indices, with standard errors, for larvaceans on the (a) PWS transect in July and September and (b) GAK transect in August and September. Dash line indicates no selectivity. Values above the line indicate positive selectivity and below the line, negative selectivity. Selectivity changes between months are significant (P<0.05) only for pink salmon on the GAK transect and chum salmon on the PWS transect.

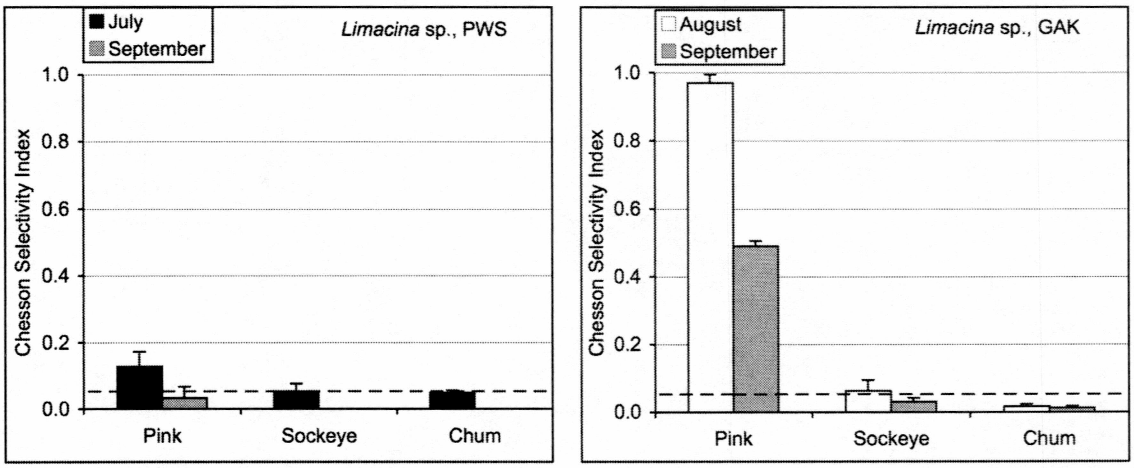


Figure 15. Chesson selectivity indices, with standard errors, for *Limacina* sp. on the (a) PWS transect in July and September and (b) GAK transect in August and September. Dash line indicates no selectivity. Values above the line indicate positive selectivity and below the line, negative selectivity. Selectivity changes between months are significant (P<0.05) only for pink and sockeye salmon on th PWS transect.

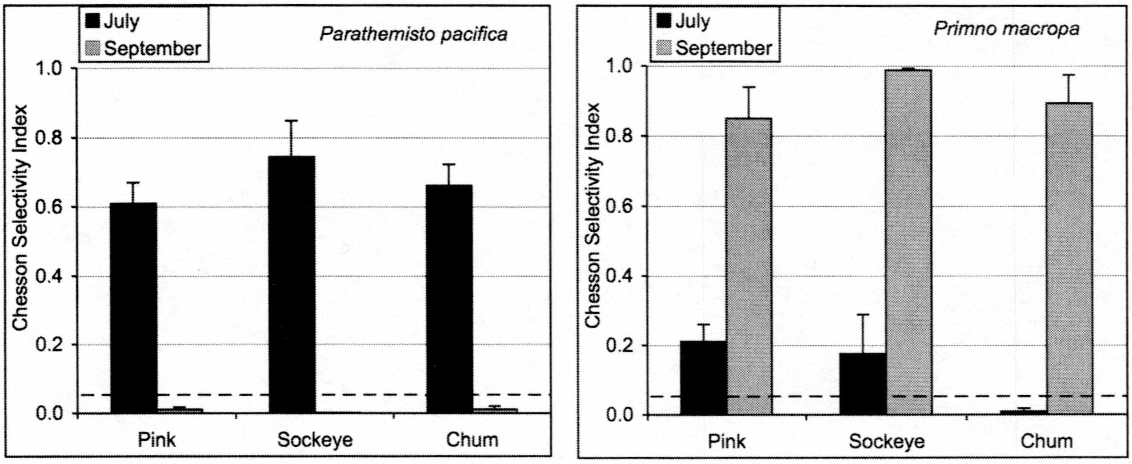


Figure 16. Chesson selectivity indices, with standard errors, for amphipods (a) *Parathemisto pacifica* and (b) *Primno macropa* on the PWS transect in July and September. Dash line indicates no selectivity. Values above the line indicate positive selectivity and below the line, negative selectivity. All selectivity changes between months are significant (P<0.05).

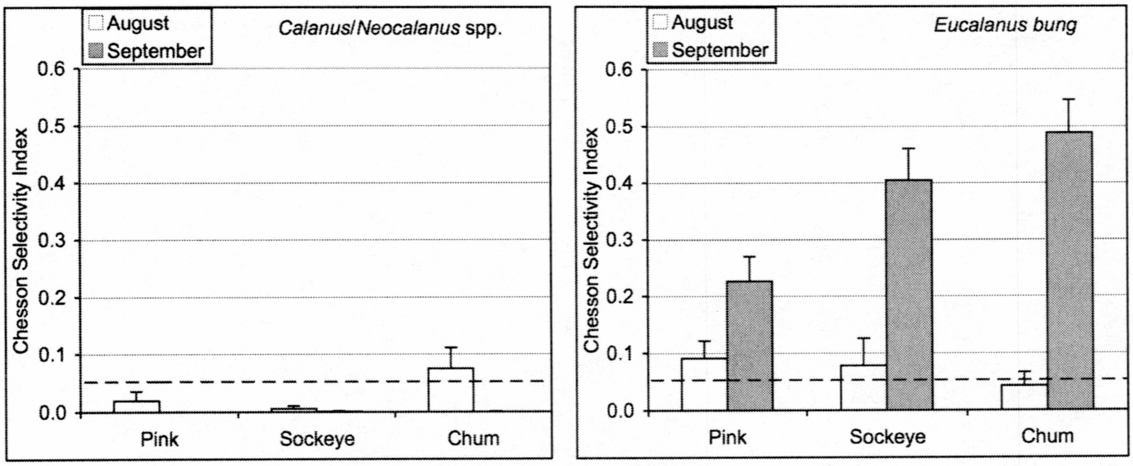


Figure 17. Chesson selectivity indices, with standard errors, for large copepods (a) *Calanus* & *Neocalanus* spp. and (b) *Eucalanus bungii* on the GAK transect in August and September. Dash line indicates no selectivity. Values above the line indicate positive selectivity and below the line, negative selectivity. Selectivity changes between months are significant (P<0.05) for *Calanus/Neocalanus* spp. in pink salmon and *Eucalanus bungii* in all species.

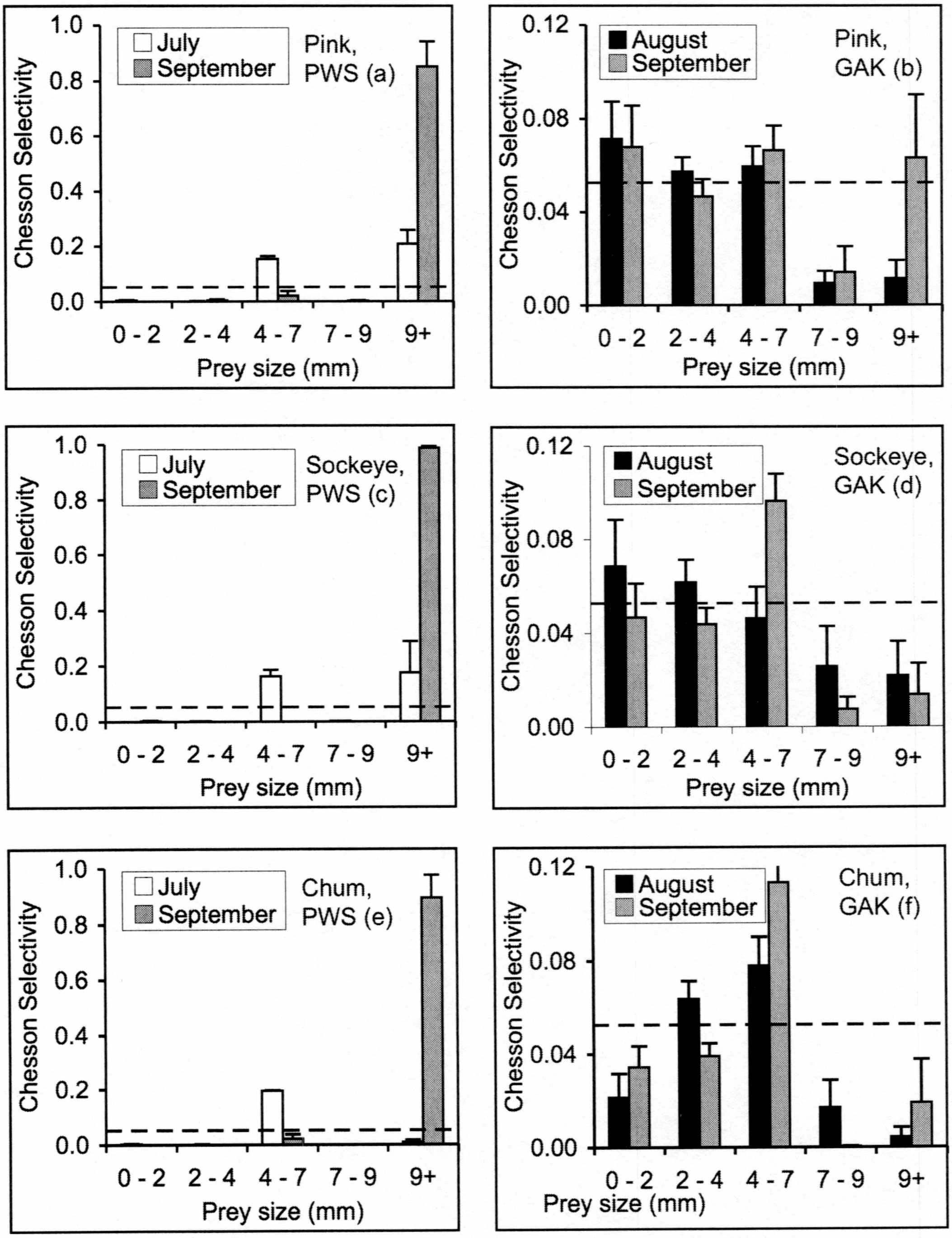


Figure 18. Chesson selectivity indices grouped by prey size (mm), with standard errors, for pink salmon on (a) the PWS transect and (b) the GAK Line transect, sockeye salmon on (c) the PWS transect and (d) the GAK Line transect and chum salmon on (e) the PWS transect and (f) the GAK Line transect. Values above the line indicate positive selectivity and below the line, negative selectivity.

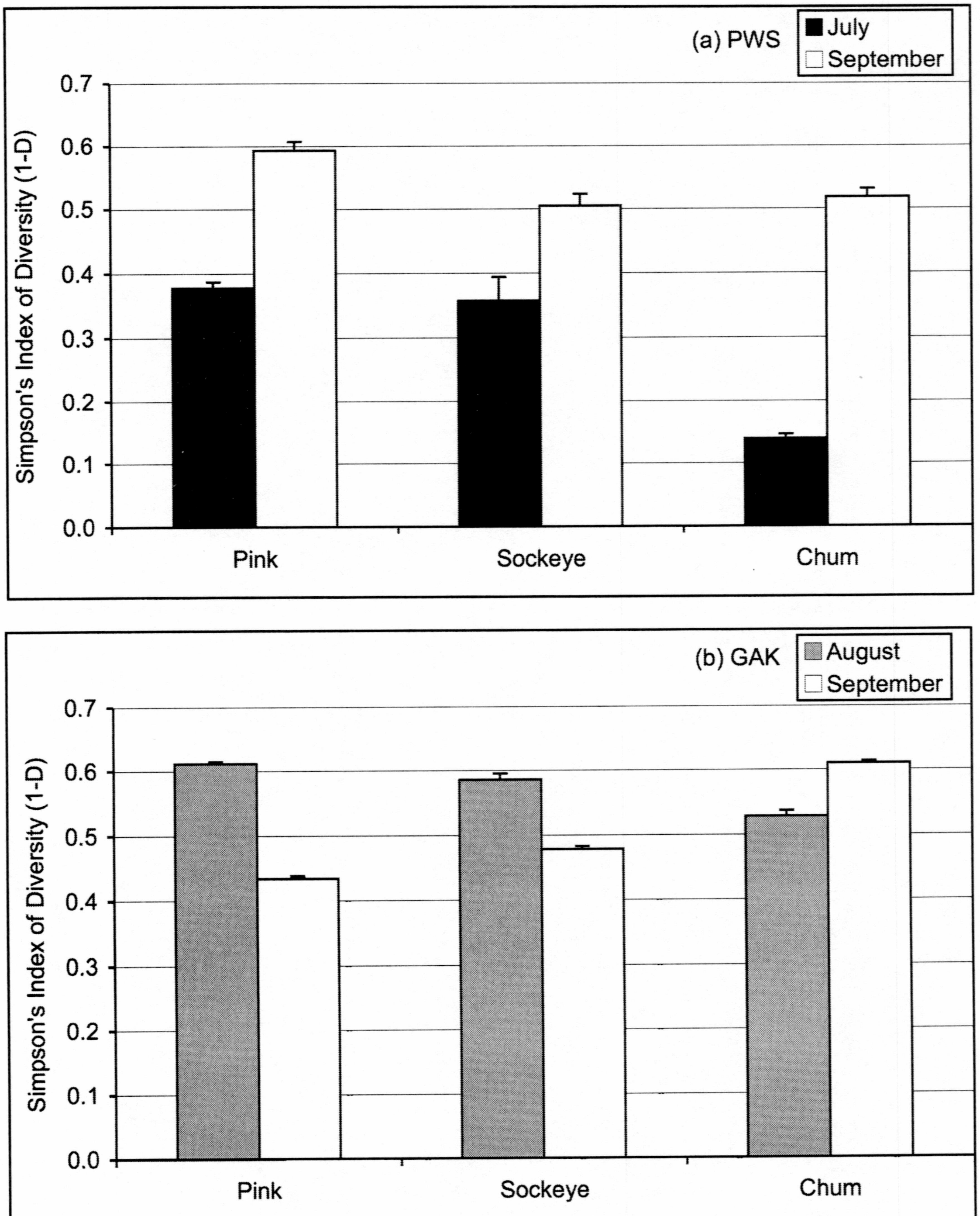


Figure 19. Simpson's indices of diversity (1-D) in (a) July and September on the PWS (Prince William Sound) transect and in August and September on the GAK (Seward Line) transect. There are significant differences between pink and chum salmon (t-test, P<0.01) and sockeye and chum salmon (t-test, P<0.05) on the PWS transect in July and between the same species pairs on the GAK transect in September (t-test, P<0.01).

Table 8. Simpson's indices of diversity (1-D) for individual stations.

| Cruise | Station | Chum | Pink | Sockeye |
|---|---|---|---|---|
| July | PWS 1 | 0.11 | 0.23 | 0.19 |
| | PWS 2 | 0.17 | 0.53 | 0.68 |
| August | GAK 2 | 0.94 | 0.61 | 0.67 |
| | GAK 3 | 0.58 | 0.66 | 0.58 |
| | GAK 4 | 0.48 | 0.66 | 0.68 |
| | GAK 5 | 0.45 | 0.52 | 0.44 |
| September | PWS 1 | 0.60 | 0.57 | 0.48 |
| | PWS 3 | 0.44 | 0.61 | 0.58 |
| | GAK 3 | 0.74 | 0.53 | 0.42 |
| | GAK 4 | 0.58 | 0.29 | 0.46 |
| | GAK 5 | 0.52 | 0.41 | 0.49 |
| | GAK 6 | 0.63 | 0.48 | 0.59 |

In July, on the PWS transect, sockeye had the highest mean prey diversity, comparable to that of pink salmon (Table 8). The Simpson's Index of Diversity (1-D) was 0.44 for sockeye salmon and 0.38 for pink salmon. Chum salmon had the lowest prey diversity of 0.14.

In August, on the GAK transect, the three species had similar mean prey diversities. Simpson's index was 0.61 for pink and chum salmon and 0.59 for sockeye salmon.

In September, on the PWS transect, chum (0.52) and sockeye (0.53) salmon had similar prey diversity indices and slightly lower than that of pink salmon (0.59). On the GAK transect, chum salmon had the highest prey diversity of 0.62. Prey diversities of pink (0.43) and sockeye (0.49) salmon were similar to each other (Table 8).

The null hypothesis $H_{05}$, diet diversity is independent of zooplankton abundance, was not rejected. Diet diversity, using Simpson's Index of Diversity, did not vary with a change in average zooplankton density (Fig. 20).

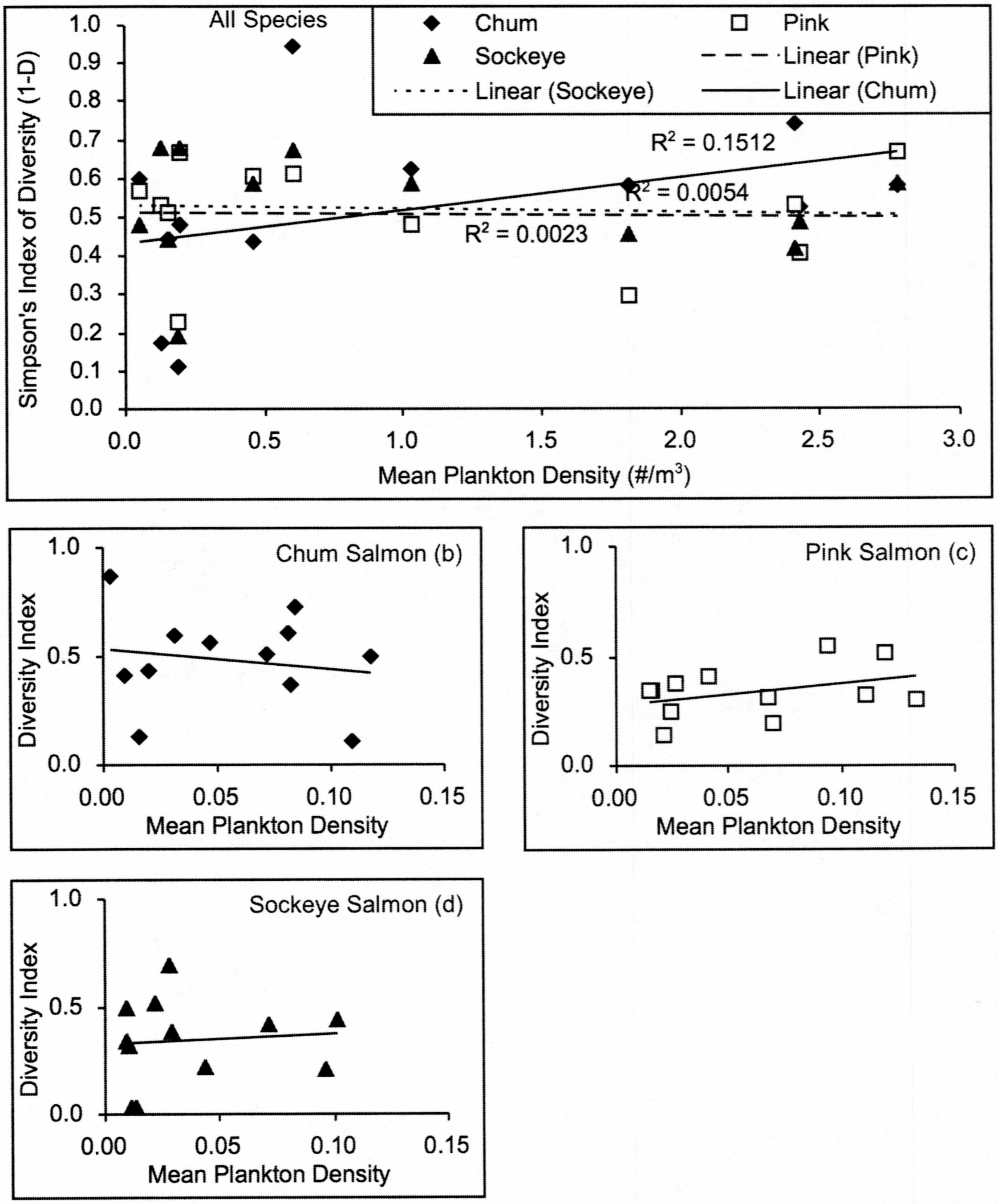


Figure 20. Changes in Simpson's index of diversity (1-D) for juvenile salmon with change in mean zooplankton density. All linear regressions are insignificant. Changes in Simpson's Diversity indices for (a) all fish species vs. mean density of all collected zooplankton, (b) top 6 prey of chum salmon vs. density of those zooplankton, (c) top 6 prey of pink salmon vs. density of those zooplankton, and (d) top 6 prey of sockeye salmon vs. density of those zooplankton.

**DISCUSSION**

Diet preferences of juvenile chum and sockeye salmon in Prince William Sound and northern Gulf of Alaska in summer and fall of 2001 were similar to diets for these species in other studies (Brodeur 1990, Healey 1991). Diet of juvenile chum salmon consisted predominately of gelatinous zooplankton, especially larvaceans. *Limacina* sp. was an important prey in juvenile pink and sockeye salmon, although both species utilized a variety of other prey. The diet composition of juvenile pink salmon in my study differed from those in other studies in the absence of a strong preference by juvenile pink salmon for smaller zooplankton (Okada and Taniguchi 1971, Brodeur 1980).

Juvenile pink and sockeye salmon diets were similar and not as dominated by one prey group as that of chum salmon, although certain prey were more important than others (Table 6). Small prey were found in numerical proportions less than 5% and deemed not important in juvenile pink salmon diet. Previous studies showed that small zooplankton, such as small copepods and invertebrate eggs, were a major prey group in juvenile pink salmon in the North Pacific (Okada and Taniguchi 1971, Brodeur 1980).

Diets of juvenile chum salmon from Prince William Sound and northern Gulf of Alaska were very similar. My study, along with a number of previous works, showed dominance of gelatinous prey in chum salmon, indicating a possible advantage chum salmon could have in utilizing an abundant and easily digestible food source that is not as strongly favored by juvenile pink and sockeye salmon (Manzer 1969, Brodeur 1990, Healey 1991). The unique morphology of chum salmon allow them to consume a greater amount of gelatinous prey, even if some of it is not as nutritious as crustacean prey, the greater quantity consumed probably satisfies their dietary requirements. However, evidence is beginning to emerge that gelatinous prey is as nutritious as small copepods and some, like larvaceans, are comparable in their energetic content to large crustacean zooplankton (Davis et al. 1998). With a large biomass, higher than expected energetic content and a lower amount of energy needed for digestion, gelatinous prey could prove to be a highly important prey. Numerous other prey found in juvenile chum salmon diet make them also opportunists to a certain degree.

With some exceptions, the diet overlap of juvenile chum, pink, and sockeye salmon in my study was high. Likewise, the overall diets of the three species of juvenile salmon were similar in other studies (Okada and Taniguchi 1971, Healey 1991). Although important differences exist in diets of juvenile salmon, they all preyed on many of the same zooplankton. Common prey groups, such as larvaceans, *Limacina* sp., large copepods and hyperiid amphipods were shared by the three species.

Prey selectivity shifted towards larger prey with juvenile salmon growth. On the PWS transect, all three species exhibited a sharp increase in the numbers of large prey consumed between July and September (Fig. 18). The shift towards larger prey was not as discernable on the GAK transect. Overall, there was a decrease in selectivity for smaller prey (< 4 mm) and an increase in selectivity for larger zooplankton (> 4 mm) between months. Perhaps the most obvious shift in prey selectivity with fish growth was seen with the top prey. There was a sharp decrease in selectivity between months for *Parathemisto pacifica*, a smaller amphipod and an increase in selectivity for *Primno macropa*, a larger amphipod (Fig. 16). Similarly, between August and September, there was a decrease in selectivity for *Calanus* sp. (smaller copepods) and an increase for *Eucalanus bungii* (larger copepods) (Fig. 17).

Selectivity between months was similar for juvenile pink, chum and sockeye salmon. Larvaceans were the only major prey whose selectivity was different between chum salmon and pink and sockeye salmon. It therefore seems that the variability in the diets of juvenile salmon might be accounted for as much by the availability of plankton prey in the environment as by their selectivity preferences. This conclusion is consistent with other studies, suggesting that juvenile salmon are mainly opportunists, feeding predominantly on what is available in the environment, but tending to select for larger prey (Peterson et al. 1982, Healey 1991).

I found a lack of correlation between larvacean density in zooplankton samples and their proportions in juvenile chum diet. When larvacean density was high in the environment, few were observed in the diet. In other cases, when larvacean density was low, they appeared to be very important in chum salmon diet. This could suggest active selection by juvenile chum salmon for or against this prey.

On the other hand, as a general rule, when larvacean mean numerical density was low, they were also found in small numbers in diets of pink and sockeye salmon. At a higher density level in zooplankton samples on the PWS transect in July, they were the second most abundant prey in pink and sockeye salmon diets. This level of correlation suggests that pink and sockeye salmon were less actively selecting for larvaceans, but rather preyed on them when they were more abundant. This contrasts with larvacean selectivity by juvenile chum salmon.

One of the objectives of this study was to evaluate potential for competition among juvenile salmon. Competition occurs when two or more species consume the same resource in the same geographical area and that resource is limiting. Determining whether a prey resource *in situ* is limiting is very challenging. An indirect indicator of competition is to determine whether there is an increase in diet overlap among juvenile salmon with increase in zooplankton abundance. Concurrently, an increase in prey abundance with a decrease in diet diversity would indicate that juvenile salmon are exhibiting optimal foraging. I did not observe an increase in prey overlap (Fig. 5) or a decrease in diet diversity (Fig. 20) with an increase in prey abundance.

A problem that might have hindered discerning selectivity patterns in juvenile salmon in my study was the type of net used for plankton sampling. Later comparison between the NIO net used on our three cruises and a Bongo net used on subsequent GLOBEC cruises revealed that the NIO net was not capturing a very representative sample of the upper 10-m zooplankton composition. Therefore, the zooplankton samples used for comparison with the fish diets might not have been as representative as originally thought.

Another problem with juvenile salmon diet, especially those of chum salmon, concerned the gelatinous prey. Most of the gelatinous material in fish stomachs was probably underestimated because of its high rate of digestion. Larvaceans presented a different challenge as they were easy to identify in some samples but almost uncountable in others. Therefore, the proportion of larvaceans in fish stomachs should be considered only as an estimate. All larvaceans were weighed as gelatinous prey, and those that were identifiable, counted. Some of the other gelatinous zooplankton groups, like medusae and ctenophores, were not identifiable at all and were estimated indirectly as gelatinous prey.

It is apparent from this and previous studies that there is a large diet overlap between juvenile chum, pink and sockeye salmon. Juvenile chum salmon relied heavily on gelatinous prey, especially larvaceans. *Limacina* sp. was especially important in juvenile pink and sockeye salmon diets. Pink and sockeye salmon showed the greatest diet overlap, and their diets were more diverse than that of chum salmon, suggesting a higher probability of competition between them.

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Table A-1. Locations of stations sampled in 2001. PWS stations were on the PWS transect (Prince William Sound) and GAK stations were on the GAK transect (the Seward Line).

| Cruise | Station | Date | Time | Latitude | Longitude |
|---|---|---|---|---|---|
| July | PWS 1 | 12 Jul | 15:24 | 60° 11.712' | 147° 59.535' |
| | PWS 2 | 12 Jul | 12:39 | 60° 06.089' | 147° 50.045' |
| August | GAK 2 | 15 Aug | 10:02 | 59° 41.534' | 149° 19.051' |
| | GAK 3 | 19 Aug | 08:34 | 59° 33.060' | 149° 11.470' |
| | GAK 4 | 13 Aug | 12:20 | 59° 24.045' | 149° 03.102' |
| | GAK 5 | 13 Aug | 15:27 | 59° 15.919' | 148° 55.144' |
| September | PWS 1 | 23 Sep | 08:18 | 60° 10.930' | 147° 57.500' |
| | PWS 3 | 21 Sep | 18:56 | 60° 02.550' | 147° 41.430' |
| | GAK 3 | 20 Sep | 17:58 | 59° 32.750' | 149° 11.280' |
| | GAK 4 | 20 Sep | 16:30 | 59° 24.484' | 149° 03.282' |
| | GAK 5 | 20 Sep | 13:22 | 59° 15.220' | 148° 55.040' |
| | GAK 6 | 20 Sep | 09:52 | 59° 06.641' | 148° 45.757' |

Table A-2. Zooplankton densities (#/m^3) of the NIO/Tucker trawl samples collected in July of 2001 from PWS 1 and PWS 2 stations.

| Cruise<br>Station<br>Replica | July<br>PWS 1<br>1 | July<br>PWS 1<br>2 | July<br>PWS 2<br>1 | July<br>PWS 2<br>2 | July<br>PWS 2<br>3 |
|---|---|---|---|---|---|
| **Copepods, Large** | | | | | |
| *Calanus & Neocalanus* spp. | 0.171 | 0.057 | 0.055 | 0.053 | 0.036 |
| *Epilabidocera longipedata* | 0.217 | 0.120 | 0.017 | 0.053 | 0.029 |
| *Eucalanus bungii* | | | | | |
| *Candacia* sp. | | | | | |
| *Tartanus* sp. | 0.014 | | | | 0.018 |
| **Copepods, Small** | | | | | |
| *Centropages* sp. | 2.674 | 3.082 | 0.930 | 2.109 | 2.900 |
| *Acartia* sp. | 0.042 | 0.219 | 0.048 | 0.024 | 0.016 |
| *Metridia* sp. | 0.005 | 0.005 | 0.005 | 0.011 | 0.002 |
| *Oithona* sp. | 0.009 | | 0.005 | | 0.011 |
| *Pseudocalanus* sp. | 0.005 | 0.005 | 0.002 | | |
| *Harpacticoid* sp. | | | | | |
| Unidentified | 0.028 | 0.016 | 0.005 | 0.040 | 0.009 |
| **Copepods, Partial** | 0.018 | 0.010 | | 0.053 | 0.002 |
| **Amphipods** | | | | | |
| *Parathemisto pacifica* | | | | | |
| *Caleiopus* sp. | | | 0.002 | | |
| *Cyphocaris challengeri* | 0.005 | | | | |
| **Gelatinous** | | | | | |
| Medusa | 0.078 | 0.213 | 0.076 | 0.099 | 0.059 |
| Ctenophore | | | | | |
| Siphonophores | | | | 0.003 | |
| Larvacean | 0.051 | 0.125 | 0.060 | 0.099 | 0.341 |
| Chaetognaths | | | 0.007 | 0.003 | |
| *Limacina* sp | 0.037 | 0.052 | 0.012 | 0.011 | 0.011 |
| Evadne | | | | | |
| Podon | 0.053 | 0.029 | 0.029 | 0.067 | 0.036 |
| Polychaete trochophore | 0.014 | 0.016 | | 0.008 | 0.011 |
| Polychaete | | | 0.055 | | |
| Terrestrial worms | | | | | |
| Snails | | 0.005 | 0.091 | | |
| Snail veliger | | | | | |
| Bivalve | | | | | |
| Siphonophore, partial | | | | 0.032 | |
| Gelatinous, partial | | | | 0.008 | |

Table A-2 (Continued). Zooplankton densities (#/m3) of the NIO/Tucker trawl samples collected in July of 2001 from PWS 1 and PWS 2 stations.

| | Cruise<br>Station<br>Replica | July<br>PWS 1<br>1 | July<br>PWS 1<br>2 | July<br>PWS 2<br>1 | July<br>PWS 2<br>2 | July<br>PWS 2<br>3 |
|---|---|---|---|---|---|---|
| **Crustacean** | | | | | | |
| Barnacle | | | | | | |
| Barnacle nauplii | | 0.005 | 0.026 | 0.024 | 0.027 | 0.014 |
| Barancle cyprid | | | | | | |
| Barnacle exuvia | | | | 0.021 | 0.184 | 0.043 |
| Caridean shrimp | | 0.016 | 0.005 | 0.002 | | 0.068 |
| Shrimp larvae | | | | | | |
| Crab megalopa | | 0.016 | | 0.002 | | 0.007 |
| Crab zoea | | 0.023 | | 0.014 | 0.016 | 0.005 |
| *Euphasid* sp. adult | | | | | | |
| *Euphasid* sp. larvae | | | | | | |
| Nauplii | | 0.005 | | 0.002 | | |
| Zoea | | 0.005 | | | | |
| Isopod | | | | | | |
| Chiton, juv. | | | | | | |
| Crustacean molt | | | | | 0.005 | |
| Crustacean, partial | | | | | | 0.002 |
| Unidentified | | | | | | 0.002 |
| **Other** | | | | | | |
| Fish larvae | | 0.005 | | 0.002 | | 0.014 |
| Fish eggs | | 0.023 | 0.013 | 0.033 | 0.021 | 0.009 |
| Sticklebacks, juv. | | | | | | |
| Flies, partial | | 0.012 | 0.010 | | | |
| Insect molt | | 0.044 | 0.021 | 0.007 | 0.008 | |
| Terrestrial insects | | 0.030 | 0.021 | 0.005 | 0.003 | 0.009 |
| Unidentified | | 0.009 | | | | |

Table A-3. Zooplankton densities (#/m^3) of the NIO/Tucker trawl samples collected in August of 2001 from GAK 2 and GAK 3 stations.

| Cruise | August | August | August | August | August | August |
|---|---|---|---|---|---|---|
| Station | GAK 2 | GAK 2 | GAK 2 | GAK 3 | GAK 3 | GAK 3 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Copepods, Large** | | | | | | |
| *Calanus & Neocalanus* spp. | 4.656 | 2.412 | 3.027 | 14.282 | 4.974 | 6.484 |
| *Epilabidocera longipedata* | 4.045 | 3.398 | 2.859 | 0.366 | 0.557 | 1.225 |
| *Eucalanus bungii* | | | | | | |
| *Candacia* sp. | | | | | | |
| *Tartanus* sp. | | | | | 0.003 | |
| **Copepods, Small** | | | | | | |
| *Centropages* sp. | 4.656 | 2.466 | 3.666 | 33.507 | 39.967 | 49.220 |
| *Acartia* sp. | | | | | | 0.102 |
| *Metridia* sp. | | | 0.034 | 0.092 | 0.129 | |
| *Oithona* sp. | | | | | | |
| *Pseudocalanus* sp. | | | | | 0.043 | 0.051 |
| *Harpacticoid* sp. | | 0.018 | 0.002 | | | 0.051 |
| Unidentified | 0.153 | 0.110 | 0.067 | 0.183 | 0.300 | 0.408 |
| **Copepods, Partial** | 0.038 | 0.146 | 0.101 | | 0.257 | 0.357 |
| **Amphipods** | | | | | | |
| *Parathemisto pacifica* | 0.002 | | 0.002 | 0.014 | 0.013 | 0.010 |
| *Caleiopus* sp. | 0.072 | 0.274 | 0.319 | 0.020 | 0.011 | |
| *Cyphocaris challengeri* | | | | | | |
| **Gelatinous** | | | | | | |
| Medusa | 0.217 | 0.644 | 0.338 | 0.154 | 0.332 | 0.198 |
| Ctenophore | 0.055 | 0.039 | 0.141 | 2.472 | 1.193 | 0.795 |
| Siphonophores | | | | | | |
| Larvacean | | | 0.002 | | | |
| Chaetognaths | | | 0.002 | 0.003 | | |
| *Limacina* sp | 0.141 | 0.148 | 0.135 | | 0.043 | 0.153 |
| Evadne | | | | | | |
| Podon | 0.057 | 0.174 | 0.099 | 0.092 | 0.043 | 0.051 |
| Polychaete trochophore | 0.012 | 0.041 | 0.048 | 0.409 | 0.137 | |
| Polychaete | | 0.048 | | | | 0.006 |
| Terrestrial worms | | | 0.004 | | | |
| Snails | | | | 0.092 | | 0.051 |
| Snail veliger | 0.031 | 0.096 | 0.034 | 1.739 | 1.914 | 1.379 |
| Bivalve | | 0.002 | | | | |
| Siphonophore, partial | 0.052 | 0.089 | 0.114 | 0.009 | 0.003 | 0.006 |
| Gelatinous, partial | | | | | | |

Table A-3 (Continued). Zooplankton densities (#/m3) of the NIO/Tucker trawl samples collected in August of 2001 from GAK 2 and GAK 3 stations.

| Cruise | August | August | August | August | August | August |
|---|---|---|---|---|---|---|
| Station | GAK 2 | GAK 2 | GAK 2 | GAK 3 | GAK 3 | GAK 3 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Crustacean** | | | | | | |
| Barnacle | | | | | | |
| Barnacle nauplii | 0.012 | 0.053 | 0.053 | 0.092 | | |
| Barancle cyprid | 0.002 | 0.011 | 0.004 | 0.003 | | 0.003 |
| Barnacle exuvia | 0.002 | | | 0.014 | 0.137 | 0.003 |
| Caridean shrimp | | | | | | |
| Shrimp larvae | | | | | | |
| Crab megalopa | | | | 0.003 | | 0.003 |
| Crab zoea | | 0.005 | 0.004 | 0.014 | | 0.003 |
| *Euphasid* sp. adult | | | 0.002 | | 0.003 | |
| *Euphasid* sp. larvae | | 0.002 | | | | |
| Nauplii | | | 0.004 | | | |
| Zoea | 0.002 | | 0.004 | 0.006 | | 0.003 |
| Isopod | | 0.002 | | | | |
| Chiton, juv. | | | 0.002 | | | |
| Crustacean molt | | | | | 0.005 | |
| Crustacean, partial | | | | | | |
| Unidentified | | | | 0.003 | | |
| **Other** | | | | | | |
| Fish larvae | 0.007 | | 0.013 | 0.003 | 0.003 | 0.010 |
| Fish eggs | 0.064 | 0.580 | 0.513 | 0.003 | | 0.006 |
| Sticklebacks, juv. | 0.007 | | 0.006 | | | |
| Flies, partial | 0.002 | 0.002 | 0.002 | 0.014 | | |
| Insect molt | | | | 0.103 | 0.008 | 0.003 |
| Terrestrial insects | 0.005 | 0.005 | 0.013 | | 0.046 | |
| Unidentified | 0.005 | 0.018 | 0.034 | | | 0.102 |

Table A-4. Zooplankton densities (#/m^3) of the NIO/Tucker trawl samples collected in August of 2001 from GAK 4 and GAK 5 stations.

| Cruise | August | August | August | August | August | August |
|---|---|---|---|---|---|---|
| Station | GAK 4 | GAK 4 | GAK 4 | GAK 5 | GAK 5 | GAK 5 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Copepods, Large** | | | | | | |
| *Calanus & Neocalanus* spp. | 0.154 | 0.077 | 0.202 | 0.148 | 0.131 | 0.404 |
| *Epilabidocera longipedata* | 0.832 | 0.983 | 0.762 | 0.078 | 0.226 | 0.843 |
| *Eucalanus bungii* | 0.002 | 0.005 | | | 0.004 | |
| *Candacia* sp. | | | | | | |
| *Tartanus* sp. | | | | | | |
| **Copepods, Small** | | | | | | |
| *Centropages* sp. | 0.922 | 3.625 | 2.503 | 0.087 | 1.263 | 4.752 |
| *Acartia* sp. | 0.027 | | 0.049 | 0.004 | 0.035 | 0.027 |
| *Metridia* sp. | | 0.231 | 0.005 | | | 0.009 |
| *Oithona* sp. | | | | | | |
| *Pseudocalanus* sp. | | | | | | |
| *Harpacticoid* sp. | | | | 0.020 | 0.002 | |
| Unidentified | 0.226 | 0.019 | 0.010 | 0.002 | | 0.018 |
| **Copepods, Partial** | 0.515 | 0.019 | 0.059 | 0.022 | 0.017 | 0.009 |
| **Amphipods** | | | | | | |
| *Parathemisto pacifica* | 0.007 | 0.019 | | 0.024 | | 0.011 |
| *Caleiopus* sp. | | | | 0.213 | 0.002 | |
| *Cyphocaris challengeri* | | | | | | |
| **Gelatinous** | | | | | | |
| Medusa | 0.249 | 0.496 | 0.280 | 6.100 | 1.219 | 0.493 |
| Ctenophore | | 0.027 | 0.551 | 0.004 | 0.139 | |
| Siphonophores | | | | | | |
| Larvacean | | 0.002 | 0.005 | | | |
| Chaetognaths | | | 0.005 | | | |
| *Limacina* sp | 0.009 | 0.007 | 0.007 | 0.011 | | 0.011 |
| Evadne | | 0.010 | | 0.002 | 0.002 | |
| Podon | | 0.002 | 0.037 | 0.004 | | |
| Polychaete trochophore | | | | 0.007 | | |
| Polychaete | | | 0.002 | | | |
| Terrestrial worms | | | | | | |
| Snails | | | | 0.015 | 0.011 | 0.002 |
| Snail veliger | | | | | | |
| Bivalve | | | | | | |
| Siphonophore, partial | 0.066 | 0.096 | 0.093 | 1.354 | 0.394 | 0.269 |
| Gelatinous, partial | | | 0.010 | | | |

Table A-4 (Continued). Zooplankton densities (#/m3) of the NIO/Tucker trawl samples collected in August of 2001 from GAK 4 and GAK 5 stations.

| Cruise<br>Station<br>Replica | August<br>GAK 4<br>1 | August<br>GAK 4<br>2 | August<br>GAK 4<br>3 | August<br>GAK 5<br>1 | August<br>GAK 5<br>2 | August<br>GAK 5<br>3 |
|---|---|---|---|---|---|---|
| **Crustacean** | | | | | | |
| Barnacle | 0.009 | | | 0.002 | | |
| Barnacle nauplii | | | | | | |
| Barancle cyprid | | | | | | |
| Barnacle exuvia | 0.111 | | | | | |
| Caridean shrimp | | | | | | |
| Shrimp larvae | | | | | | |
| Crab megalopa | | | | | | |
| Crab zoea | | | 0.005 | | | |
| *Euphasid* sp. adult | 0.002 | | | | | |
| *Euphasid* sp. larvae | | | | | | |
| Nauplii | | | | | | |
| Zoea | | | 0.002 | | | |
| Isopod | | | | | | |
| Chiton, juv. | | | | | | |
| Crustacean molt | | | | 0.002 | | |
| Crustacean, partial | | | | | | |
| Unidentified | | 0.019 | | | | |
| **Other** | | | | | | |
| Fish larvae | | 0.005 | | | | |
| Fish eggs | 0.002 | | 0.012 | 0.087 | 0.009 | 0.004 |
| Sticklebacks, juv. | | | | 0.063 | | |
| Flies, partial | 0.011 | 0.002 | 0.017 | 0.041 | 0.002 | 0.011 |
| Insect molt | | | | | | |
| Terrestrial insects | 0.052 | 0.060 | 0.034 | 0.096 | 0.046 | 0.016 |
| Unidentified | 0.002 | | | 0.011 | 0.009 | 0.002 |

Table A-5. Zooplankton densities (#/m^3) of the NIO/Tucker trawl samples collected in September of 2001 from PWS 1 and PWS 3 stations.

| Cruise<br>Station<br>Replica | September<br>PWS 1<br>1 | September<br>PWS 1<br>2 | September<br>PWS 1<br>3 | September<br>PWS 3<br>1 | September<br>PWS 3<br>2 | September<br>PWS 3<br>3 |
|---|---|---|---|---|---|---|
| **Copepods, Large** | | | | | | |
| *Calanus & Neocalanus* spp. | | 0.100 | 0.043 | 0.331 | 0.266 | 0.486 |
| *Epilabidocera longipedata* | 0.002 | 0.713 | 0.275 | 3.609 | 8.435 | 7.066 |
| *Eucalanus bungii* | | | | | | |
| *Candacia* sp. | 0.038 | | | | | |
| *Tartanus* sp. | 0.040 | | | 0.028 | | |
| **Copepods, Small** | 0.002 | | | | | |
| *Centropages* sp. | 0.011 | 0.167 | 0.101 | 0.454 | 0.257 | 0.152 |
| *Acartia* sp. | | 0.020 | 0.026 | 0.076 | 0.037 | 0.010 |
| *Metridia* sp. | | 0.120 | 0.032 | 0.019 | 0.018 | |
| *Oithona* sp. | | | | | | |
| *Pseudocalanus* sp. | | | | | | |
| *Harpacticoid* sp. | | | | | | |
| Unidentified | | 0.004 | 0.006 | 0.009 | 0.009 | 0.030 |
| **Copepods, Partial** | | 0.011 | 0.013 | 0.094 | 0.092 | 0.182 |
| **Amphipods** | | | | | | |
| *Parathemisto pacifica* | | 0.056 | 0.019 | 0.690 | 1.082 | 1.164 |
| *Caleiopus* sp. | 0.066 | | | | 0.014 | 0.035 |
| *Cyphocaris challengeri* | 0.002 | 0.004 | 0.002 | 0.005 | 0.005 | 0.005 |
| **Gelatinous** | 0.004 | | | | | |
| Medusa | | 0.078 | 0.082 | 0.959 | 0.656 | 0.762 |
| Ctenophore | 0.002 | 0.341 | 0.322 | 0.085 | 0.009 | |
| Siphonophores | 0.002 | | | | | |
| Larvacean | | 0.013 | 0.021 | 0.142 | 0.064 | 0.010 |
| Chaetognaths | | | | | | |
| *Limacina* sp | | 0.002 | 0.011 | 0.132 | 0.037 | 0.020 |
| Evadne | | | | | | |
| Podon | | | | | | |
| Polychaete trochophore | | 0.002 | | 0.002 | | |
| Polychaete | | | | | | |
| Terrestrial worms | | | | | | |
| Snails | | | 0.002 | 0.009 | | 0.010 |
| Snail veliger | | | | | | |
| Bivalve | | | | | | 0.020 |
| Siphonophore, partial | | 0.002 | | 0.002 | 0.009 | 0.013 |
| Gelatinous, partial | | | | 0.002 | 0.009 | |

Table A-5 (Continued). Zooplankton densities (#/m3) of the NIO/Tucker trawl samples collected in September of 2001 from PWS 1 and PWS 3 stations.

| Cruise | September | September | September | September | September | September |
|---|---|---|---|---|---|---|
| Station | PWS 1 | PWS 1 | PWS 1 | PWS 3 | PWS 3 | PWS 3 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Crustacean** | | | | | | |
| Barnacle | | | | | | |
| Barnacle nauplii | | | | 0.170 | 0.119 | 0.071 |
| Barancle cyprid | | | | | | |
| Barnacle exuvia | | 0.036 | 0.028 | 0.002 | | 0.040 |
| Caridean shrimp | | 0.022 | 0.006 | 0.014 | 0.018 | 0.058 |
| Shrimp larvae | | | | | | |
| Crab megalopa | | | | | 0.039 | 0.058 |
| Crab zoea | | 0.009 | | 0.083 | 0.018 | 0.051 |
| *Euphasid* sp. adult | | 0.002 | 0.004 | 0.005 | | |
| *Euphasid* sp. larvae | | | | | | 0.003 |
| Nauplii | | | | 0.009 | | 0.040 |
| Zoea | | | | 0.009 | | 0.003 |
| Isopod | | | | | | |
| Chiton, juv. | | | | | | |
| Crustacean molt | | | | | | |
| Crustacean, partial | | 0.004 | | | | |
| Unidentified | | | | 0.002 | | 0.010 |
| **Other** | | | | | | |
| Fish larvae | | 0.029 | 0.006 | 0.423 | 0.099 | 0.124 |
| Fish eggs | | 0.002 | | 0.019 | 0.009 | |
| Sticklebacks, juv. | | | | | 0.011 | |
| Flies, partial | | 0.004 | 0.002 | | | 0.020 |
| Insect molt | | | | | | |
| Terrestrial insects | | 0.007 | 0.004 | 0.007 | 0.016 | 0.025 |
| Unidentified | | 0.002 | | 0.012 | 0.046 | |

Table A-6. Zooplankton densities (#/m^3) of the NIO/Tucker trawl samples collected in September of 2001 from GAK 3 and GAK 4 stations.

| Cruise | September | September | September | September | September | September |
|---|---|---|---|---|---|---|
| Station | GAK 3 | GAK 3 | GAK 3 | GAK 4 | GAK 4 | GAK 4 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Copepods, Large** | | | | | | |
| *Calanus & Neocalanus* spp. | | 22.406 | 39.515 | 2.716 | 10.310 | 12.817 |
| *Epilabidocera longipedata* | 0.042 | 13.561 | 8.429 | 0.254 | 0.778 | 0.166 |
| *Eucalanus bungii* | | 0.011 | 0.065 | | 0.008 | |
| *Candacia* sp. | | | | | | |
| *Tartanus* sp. | 0.079 | | | | | |
| **Copepods, Small** | | | | | | |
| *Centropages* sp. | 0.021 | 1.878 | 2.402 | 10.179 | 16.373 | 5.754 |
| *Acartia* sp. | 0.005 | 0.524 | 0.498 | 1.877 | 0.908 | 0.647 |
| *Metridia* sp. | | | | | 0.324 | 0.033 |
| *Oithona* sp. | | 0.022 | | 0.254 | 0.421 | 0.166 |
| *Pseudocalanus* sp. | | | | | | |
| *Harpacticoid* sp. | 0.003 | | | | 0.292 | |
| Unidentified | | 0.066 | 0.091 | 0.254 | 0.065 | 0.017 |
| **Copepods, Partial** | 0.021 | 0.218 | 0.589 | 0.431 | 0.875 | 0.182 |
| **Amphipods** | | | | | | |
| *Parathemisto pacifica* | | 5.591 | 2.945 | 0.276 | 0.369 | 0.149 |
| *Caleiopus* sp. | 0.019 | | 0.003 | | 0.357 | |
| *Cyphocaris challengeri* | 0.003 | | | | | |
| **Gelatinous** | | | | | | |
| Medusa | | 5.503 | 2.402 | 0.232 | 0.584 | 0.133 |
| Ctenophore | 0.021 | 0.022 | 0.091 | 0.276 | 0.357 | 0.282 |
| Siphonophores | 0.005 | | | | | |
| Larvacean | | 0.044 | 0.136 | 10.690 | 11.477 | 9.899 |
| Chaetognaths | | | 0.048 | | 0.004 | |
| *Limacina* sp | | 2.708 | 2.039 | 1.292 | 2.237 | 2.006 |
| Evadne | | | | | | |
| Podon | | | | | | |
| Polychaete trochophore | | 0.055 | 0.054 | | | |
| Polychaete | | | | | | |
| Terrestrial worms | | | | | | |
| Snails | | 0.093 | 0.045 | | | |
| Snail veliger | | | | | | |
| Bivalve | | | | | 0.004 | |
| Siphonophore, partial | | 0.014 | 0.034 | 0.022 | 0.045 | 0.079 |
| Gelatinous, partial | | 0.393 | 0.045 | | 0.032 | |

Table A-6 (Continued). Zooplankton densities (#/m3) of the NIO/Tucker trawl samples collected in September of 2001 from GAK 3 and GAK 4 stations.

| Cruise | September | September | September | September | September | September |
|---|---|---|---|---|---|---|
| Station | GAK 3 | GAK 3 | GAK 3 | GAK 4 | GAK 4 | GAK 4 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Crustacean** | | | | | | |
| Barnacle | | | | | | |
| Barnacle nauplii | | 0.044 | 0.091 | | | |
| Barancle cyprid | | | | | | |
| Barnacle exuvia | | | | | | |
| Caridean shrimp | | 0.052 | | 0.003 | | |
| Shrimp larvae | | | 0.142 | | | |
| Crab megalopa | | | | | | |
| Crab zoea | | 0.027 | | | | |
| *Euphasid* sp. adult | | | 0.045 | 0.006 | 0.004 | |
| *Euphasid* sp. larvae | | | | | | |
| Nauplii | | | | 0.011 | | |
| Zoea | | | | | | |
| Isopod | | 0.022 | | | | |
| Chiton, juv. | | | | | | |
| Crustacean molt | | | | | | |
| Crustacean, partial | | | | | | |
| Unidentified | | 0.022 | | | | |
| **Other** | | | | | | |
| Fish larvae | | 0.049 | 0.011 | 0.006 | | |
| Fish eggs | | | 0.011 | 0.014 | 0.008 | |
| Sticklebacks, juv. | | 0.003 | 0.003 | 0.028 | | 0.004 |
| Flies, partial | | | | 0.011 | | |
| Insect molt | | | | | | |
| Terrestrial insects | | | | | 0.004 | 0.004 |
| Unidentified | | | 0.045 | | | |

Table A-7. Zooplankton densities (#/m^3) of the NIO/Tucker trawl samples collected in September of 2001 from GAK 5 and GAK 6 stations.

| Cruise | September | September | September | September | September | September |
|---|---|---|---|---|---|---|
| Station | GAK 5 | GAK 5 | GAK 5 | GAK 6 | GAK 6 | GAK 6 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Copepods, Large** | | | | | | |
| *Calanus & Neocalanus* spp. | | 4.958 | 3.009 | 13.502 | 20.889 | 12.751 |
| *Epilabidocera longipedata* | | 0.156 | 0.201 | 0.885 | 0.742 | 0.547 |
| *Eucalanus bungii* | | 0.037 | 0.002 | 0.009 | 0.026 | |
| *Candacia* sp. | | | | | | |
| *Tartanus* sp. | | | | | | |
| **Copepods, Small** | | | | | | |
| *Centropages* sp. | | 1.808 | 2.691 | 1.107 | 1.039 | 1.151 |
| *Acartia* sp. | | 1.122 | 0.886 | 0.055 | 0.056 | 0.057 |
| *Metridia* sp. | | | | 0.018 | | |
| *Oithona* sp. | | 0.218 | 0.017 | | | |
| *Pseudocalanus* sp. | | | | | | |
| *Harpacticoid* sp. | | | | | | |
| Unidentified | | 0.187 | 0.067 | | 0.019 | 0.019 |
| **Copepods, Partial** | | 0.062 | 0.050 | 0.129 | 0.130 | 0.094 |
| **Amphipods** | | | | | | |
| *Parathemisto pacifica* | | 0.045 | 0.002 | 1.439 | 1.224 | 1.264 |
| *Caleiopus* sp. | | | 0.002 | 0.002 | | |
| *Cyphocaris challengeri* | | | | | | |
| **Gelatinous** | | | | | | |
| Medusa | | 0.043 | 0.054 | 0.406 | 0.519 | 0.755 |
| Ctenophore | | | 0.033 | 0.018 | 0.241 | 0.170 |
| Siphonophores | | | | | | |
| Larvacean | | 13.751 | 3.176 | | | 0.019 |
| Chaetognaths | | 0.033 | 0.004 | 0.129 | 0.093 | 0.132 |
| *Limacina* sp | | 0.033 | 0.036 | 0.719 | 0.427 | 0.264 |
| Evadne | | | | | | |
| Podon | | | | | | |
| Polychaete trochophore | | | | 0.002 | | |
| Polychaete | | | | | | |
| Terrestrial worms | | | | | | |
| Snails | | | | | | |
| Snail veliger | | | | | | |
| Bivalve | | | | | | |
| Siphonophore, partial | | 0.004 | 0.017 | 0.007 | | 0.042 |
| Gelatinous, partial | | | | | | |

Table A-7 (Continued). Zooplankton densities (#/m3) of the NIO/Tucker trawl samples collected in September of 2001 from GAK 5 and GAK 6 stations.

| Cruise | September | September | September | September | September | September |
|---|---|---|---|---|---|---|
| Station | GAK 5 | GAK 5 | GAK 5 | GAK 6 | GAK 6 | GAK 6 |
| Replica | 1 | 2 | 3 | 1 | 2 | 3 |
| **Crustacean** | | | | | | |
| Barnacle | | | | | | |
| Barnacle nauplii | | | | | | |
| Barancle cyprid | | | | 0.007 | | |
| Barnacle exuvia | | | | 0.018 | 0.056 | |
| Caridean shrimp | | | | | | |
| Shrimp larvae | | | | | | |
| Crab megalopa | | | | | | |
| Crab zoea | | | | 0.018 | 0.042 | |
| *Euphasid* sp. adult | | | | | 0.002 | 0.002 |
| *Euphasid* sp. larvae | | | | | | |
| Nauplii | | | | | | |
| Zoea | | | | | | |
| Isopod | | | | | | |
| Chiton, juv. | | | | | | |
| Crustacean molt | | | | | | |
| Crustacean, partial | | | | | | |
| Unidentified | | | | | | |
| **Other** | | | | | | |
| Fish larvae | | 0.004 | 0.002 | 0.005 | 0.026 | 0.002 |
| Fish eggs | | 0.004 | 0.004 | 0.002 | | |
| Sticklebacks, juv. | | | | | | |
| Flies, partial | | | | | | 0.012 |
| Insect molt | | | | | | |
| Terrestrial insects | | 0.039 | 0.084 | 0.005 | 0.012 | |
| Unidentified | | | | 0.005 | | |

Table A-8. Juvenile chum salmon prey count from PWS 1, PWS 2 stations (July cruise) and GAK 2, GAK 3 stations (August cruise).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Candacia sp.* | *Centropages* sp. | *E. longi-pedata* | *Acartia* sp. | *Metridia* sp. | *Oithona* sp. | *E. bungii* |
|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4233 | | | | | 1 | | | |
| Jul | PWS 1 | G4234 | | | | | 2 | | | |
| Jul | PWS 1 | G4235 | | | 17 | | 3 | | | |
| Jul | PWS 1 | G4236 | | | | | | | | |
| Jul | PWS 1 | G4237 | | | 1 | | 1 | | | |
| Jul | PWS 1 | G4238 | | | | | | | | |
| Jul | PWS 1 | G4239 | | | | | | | | |
| Jul | PWS 1 | G4240 | | | | | | | | |
| Jul | PWS 1 | G4241 | | | | | 1 | | | |
| Jul | PWS 1 | G4242 | | | | | | | | |
| Jul | PWS 1 | G4243 | | | 1 | | | | | |
| Jul | PWS 1 | G4244 | | | | | 2 | | | 1 |
| Jul | PWS 1 | G4245 | | | | | | | | |
| Jul | PWS 1 | G4246 | 1 | | | 1 | | | | |
| Jul | PWS 1 | G4247 | | | 2 | | 1 | | | |
| Jul | PWS 2 | G4268 | | | | | | | | |
| Jul | PWS 2 | G4269 | | | 1 | | | | | |
| Jul | PWS 2 | G4270 | | | | | | | | |
| Jul | PWS 2 | G4271 | | | 4 | | | | | |
| Jul | PWS 2 | G4272 | 1 | | | | | | | |
| Jul | PWS 2 | G4273 | | | | | | | | |
| Jul | PWS 2 | G4274 | | | | | | | | |
| Jul | PWS 2 | G4275 | | | 1 | 1 | 2 | | | |
| Jul | PWS 2 | G4276 | | | | | | 1 | | |
| Jul | PWS 2 | G4277 | | | 5 | | 2 | | | |
| Jul | PWS 2 | G4278 | | | | | | | | |
| Jul | PWS 2 | G4279 | 2 | | 16 | | 1 | | | |
| Aug | GAK 2 | G4254 | | | | | | | | |
| Aug | GAK 2 | G4255 | | | | | | | | |
| Aug | GAK 2 | G4256 | | | | | | | | |
| Aug | GAK 2 | G4257 | | | | | 1 | | | |
| Aug | GAK 2 | G4258 | | | | | | | | |
| Aug | GAK 2 | G4259 | | | | | | | | |
| Aug | GAK 2 | G4260 | | | | | | | | 3 |
| Aug | GAK 2 | G4261 | | | | | | | | |
| Aug | GAK 2 | G4262 | | | | | | | | |
| Aug | GAK 2 | G4263 | | | | | | | | |
| Aug | GAK 2 | G4264 | | | | | | | | |
| Aug | GAK 3 | G4201 | | | 1 | | | | | |
| Aug | GAK 3 | G4202 | | | | | | | | |
| Aug | GAK 3 | G4203 | 2 | | | | | | | |
| Aug | GAK 3 | G4204 | | | | | | | | |
| Aug | GAK 3 | G4205 | 3 | | 2 | | | 1 | | |
| Aug | GAK 3 | G4206 | 2 | | 1 | | | | | |
| Aug | GAK 3 | G4207 | 1 | | | | | | | |
| Aug | GAK 3 | G4208 | | | | | | | | |
| Aug | GAK 3 | G4209 | | | | | | | | |
| Aug | GAK 3 | G4210 | | | | | | | | |
| Aug | GAK 3 | G4211 | 1 | | | | | | | |

Table A-8 (Continued). Juvenile chum salmon prey count from PWS 1, PWS 2 stations (July cruise) and GAK 2, GAK 3 stations (August cruise).

| Cruise | Station | Unique Fish # | *E. elongata* | *Harpacti-coid* sp. | Other copep. | *P. pacifica* | *Caleiopus* sp. | *P. macropa* | Other amphipod | Larvaceans |
|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4233 | | | | 3 | | | | 545 |
| Jul | PWS 1 | G4234 | 14 | | 4 | 2 | | | | 1467 |
| Jul | PWS 1 | G4235 | | | 11 | 3 | | | | 995 |
| Jul | PWS 1 | G4236 | | | | 1 | | | | 23 |
| Jul | PWS 1 | G4237 | | | | 1 | | | | 1515 |
| Jul | PWS 1 | G4238 | | | 3 | 7 | | | | 1129 |
| Jul | PWS 1 | G4239 | | | | 10 | | | | 861 |
| Jul | PWS 1 | G4240 | | | 2 | 1 | | | | 549 |
| Jul | PWS 1 | G4241 | | | 1 | | | | | 249 |
| Jul | PWS 1 | G4242 | | 1 | | | | | | |
| Jul | PWS 1 | G4243 | | | 5 | | | | | 1648 |
| Jul | PWS 1 | G4244 | | | 2 | 7 | | | | 287 |
| Jul | PWS 1 | G4245 | | | 3 | 3 | | | | 1500 |
| Jul | PWS 1 | G4246 | | | 6 | 6 | | | | 233 |
| Jul | PWS 1 | G4247 | | | 4 | 1 | | | | 827 |
| Jul | PWS 2 | G4268 | | | 1 | 2 | | | | 399 |
| Jul | PWS 2 | G4269 | | | 1 | 2 | | | | 484 |
| Jul | PWS 2 | G4270 | | | 2 | 3 | | | | 900 |
| Jul | PWS 2 | G4271 | | | 2 | 2 | | | | 901 |
| Jul | PWS 2 | G4272 | | | 3 | 1 | | | | 59 |
| Jul | PWS 2 | G4273 | | | 2 | 1 | | | | 405 |
| Jul | PWS 2 | G4274 | | | 1 | 2 | | | | 130 |
| Jul | PWS 2 | G4275 | | | 1 | 16 | | | | |
| Jul | PWS 2 | G4276 | | | 1 | 10 | | 3 | | |
| Jul | PWS 2 | G4277 | | | 2 | 2 | | | | 1050 |
| Jul | PWS 2 | G4278 | | | 1 | | | | | 1025 |
| Jul | PWS 2 | G4279 | | | 8 | 4 | | | | 246 |
| Aug | GAK 2 | G4254 | | | | | | | | |
| Aug | GAK 2 | G4255 | | | | | | | | |
| Aug | GAK 2 | G4256 | | | | | | | | |
| Aug | GAK 2 | G4257 | | | | | | | | |
| Aug | GAK 2 | G4258 | | | | 1 | | | | |
| Aug | GAK 2 | G4259 | | | 1 | | | | | 1 |
| Aug | GAK 2 | G4260 | | | 3 | | | 1 | | |
| Aug | GAK 2 | G4261 | | | | | | | | 1 |
| Aug | GAK 2 | G4262 | | | | | | | | 1 |
| Aug | GAK 2 | G4263 | | | | | | | | 1 |
| Aug | GAK 2 | G4264 | | | | | | | | |
| Aug | GAK 3 | G4201 | | | | | | | | |
| Aug | GAK 3 | G4202 | | | 3 | | | | | |
| Aug | GAK 3 | G4203 | | | | | | | | 2 |
| Aug | GAK 3 | G4204 | | | | | | | | 3 |
| Aug | GAK 3 | G4205 | | | | | | | | |
| Aug | GAK 3 | G4206 | | | 2 | | | | | |
| Aug | GAK 3 | G4207 | | | | | | | | |
| Aug | GAK 3 | G4208 | | | | | | | | |
| Aug | GAK 3 | G4209 | | | | | | | | |
| Aug | GAK 3 | G4210 | | | | | | | | |
| Aug | GAK 3 | G4211 | | | | 1 | | | | 2 |

Table A-8 (Continued). Juvenile chum salmon prey count from PWS 1, PWS 2 stations (July cruise) and GAK 2, GAK 3 stations (August cruise).

| Cruise | Station | Unique Fish # | Chaetog-naths | *Limacina* sp. | Podon | Poly-chaetes | Barnacle nauplii | Barnacle cyprid | Shrimp | Crab megalop. |
|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4233 | | 356 | | | | | | |
| Jul | PWS 1 | G4234 | | | | | | | 2 | |
| Jul | PWS 1 | G4235 | | 30 | 1 | | 1 | 3 | 1 | |
| Jul | PWS 1 | G4236 | | 2 | | | | | | |
| Jul | PWS 1 | G4237 | | 3 | | | | | | |
| Jul | PWS 1 | G4238 | | 91 | | | | | 3 | |
| Jul | PWS 1 | G4239 | | 2 | | | | | 2 | |
| Jul | PWS 1 | G4240 | | 2 | 1 | | | | | |
| Jul | PWS 1 | G4241 | | | | | | | | |
| Jul | PWS 1 | G4242 | | 277 | | | | | | |
| Jul | PWS 1 | G4243 | | 1 | | | | | 1 | |
| Jul | PWS 1 | G4244 | | 10 | | | | 1 | 1 | |
| Jul | PWS 1 | G4245 | | 106 | | | | | | |
| Jul | PWS 1 | G4246 | | 27 | | | | | | |
| Jul | PWS 1 | G4247 | | 7 | | | | | | |
| Jul | PWS 2 | G4268 | | | | | | | | |
| Jul | PWS 2 | G4269 | | | | | | | | 7 |
| Jul | PWS 2 | G4270 | | | | | | 1 | | |
| Jul | PWS 2 | G4271 | | | | | | | | |
| Jul | PWS 2 | G4272 | | | | | 1 | | | 3 |
| Jul | PWS 2 | G4273 | | | | | | 1 | 1 | |
| Jul | PWS 2 | G4274 | | 1 | | | | | | |
| Jul | PWS 2 | G4275 | | | 2 | 1 | | | 1 | 5 |
| Jul | PWS 2 | G4276 | | | 1 | | | | | |
| Jul | PWS 2 | G4277 | | | | | | | 1 | 1 |
| Jul | PWS 2 | G4278 | | | | | 1 | | 1 | |
| Jul | PWS 2 | G4279 | | | | | 2 | | 7 | |
| Aug | GAK 2 | G4254 | | | | | | | | |
| Aug | GAK 2 | G4255 | | | | | | | | |
| Aug | GAK 2 | G4256 | | | | | | | | |
| Aug | GAK 2 | G4257 | | | 1 | | | | | |
| Aug | GAK 2 | G4258 | | | | | | | | |
| Aug | GAK 2 | G4259 | | | | | | | | |
| Aug | GAK 2 | G4260 | | 1 | | | | | 1 | |
| Aug | GAK 2 | G4261 | | | | | | | | |
| Aug | GAK 2 | G4262 | | | | | | | | |
| Aug | GAK 2 | G4263 | | | | | | | | |
| Aug | GAK 2 | G4264 | | | | | | | | |
| Aug | GAK 3 | G4201 | | | | | | | | |
| Aug | GAK 3 | G4202 | | | | | | | | |
| Aug | GAK 3 | G4203 | | | | | | | | |
| Aug | GAK 3 | G4204 | | | | | | | | |
| Aug | GAK 3 | G4205 | | | 1 | | | | | |
| Aug | GAK 3 | G4206 | | | | | | | | |
| Aug | GAK 3 | G4207 | | | 1 | | | | | |
| Aug | GAK 3 | G4208 | | | | | | | | |
| Aug | GAK 3 | G4209 | | | | | | | | |
| Aug | GAK 3 | G4210 | | | | | | | 1 | |
| Aug | GAK 3 | G4211 | | | | | | | | |

Table A-8 (Continued). Juvenile chum salmon prey count from PWS 1, PWS 2 stations (July cruise) and GAK 2, GAK 3 stations (August cruise).

| Cruise | Station | Unique Fish # | Crab zoea | *Euphasid* sp. adult | Crusta-cean | Crustacean zoea | Nauplii | Snails | Bivalves | Fish larvae | Flies |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4233 | | | | | | | | | |
| Jul | PWS 1 | G4234 | | | | | | | | | |
| Jul | PWS 1 | G4235 | | | | | | | 2 | | |
| Jul | PWS 1 | G4236 | | | | | | | | | |
| Jul | PWS 1 | G4237 | | | | | | | | | |
| Jul | PWS 1 | G4238 | 14 | | | | | | | | |
| Jul | PWS 1 | G4239 | | | | | | | | | |
| Jul | PWS 1 | G4240 | | | | | | | | | |
| Jul | PWS 1 | G4241 | | | | | | | | | |
| Jul | PWS 1 | G4242 | 6 | | | | | | | | |
| Jul | PWS 1 | G4243 | | | | 1 | | | | | |
| Jul | PWS 1 | G4244 | 1 | | | | | | | | |
| Jul | PWS 1 | G4245 | | | | 1 | | | | | |
| Jul | PWS 1 | G4246 | 2 | | | | | | | | |
| Jul | PWS 1 | G4247 | | | | | | | | 1 | |
| Jul | PWS 2 | G4268 | | | | | | | | | |
| Jul | PWS 2 | G4269 | | | | | | | | | |
| Jul | PWS 2 | G4270 | 1 | | | | | | | | |
| Jul | PWS 2 | G4271 | | | | | | | | | |
| Jul | PWS 2 | G4272 | 2 | | | | | | | | |
| Jul | PWS 2 | G4273 | | | | | | | | | |
| Jul | PWS 2 | G4274 | | | | | | | | | |
| Jul | PWS 2 | G4275 | 1 | | | 1 | | | | | 2 |
| Jul | PWS 2 | G4276 | 1 | 1 | | | | | | | 1 |
| Jul | PWS 2 | G4277 | 1 | | | | | | | | |
| Jul | PWS 2 | G4278 | | | | | | | | | |
| Jul | PWS 2 | G4279 | 24 | | | 2 | | | | | |
| Aug | GAK 2 | G4254 | | | | | | | | | |
| Aug | GAK 2 | G4255 | | | | | | | | | |
| Aug | GAK 2 | G4256 | | | | | | | | | |
| Aug | GAK 2 | G4257 | | | | | | | | | |
| Aug | GAK 2 | G4258 | | | | | | | | | |
| Aug | GAK 2 | G4259 | | | | | | | | | |
| Aug | GAK 2 | G4260 | 1 | | | | | | | | |
| Aug | GAK 2 | G4261 | | | | | | | | | |
| Aug | GAK 2 | G4262 | | | | | | | | | |
| Aug | GAK 2 | G4263 | | | | | | | | | |
| Aug | GAK 2 | G4264 | | | | | | | | | |
| Aug | GAK 3 | G4201 | | | | | | | | | |
| Aug | GAK 3 | G4202 | | | | | | | | | |
| Aug | GAK 3 | G4203 | | | | | | | | | |
| Aug | GAK 3 | G4204 | | | | | | | | | |
| Aug | GAK 3 | G4205 | | | | | | | | | |
| Aug | GAK 3 | G4206 | | | | | | | | | |
| Aug | GAK 3 | G4207 | | 1 | | | | | | | |
| Aug | GAK 3 | G4208 | | | | | | | | | |
| Aug | GAK 3 | G4209 | | | | | | | | | |
| Aug | GAK 3 | G4210 | | | | | | | | | |
| Aug | GAK 3 | G4211 | | | | | | | | | |

Table A-9. Juvenile chum salmon prey count from GAK 3, GAK 4 stations (August cruise) and PWS 1, PWS 3, GAK 3 stations (September cruise).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Candacia sp.* | *Centropages* sp. | *E. longi-pedata* | *Acartia* sp. | *Metridia* sp. | *Oithona* sp. | *E. bungii* |
|---|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G4212 | | | | | | | | |
| Aug | GAK 3 | G4213 | 2 | | | | | | | |
| Aug | GAK 3 | G4214 | 2 | | | | | | | |
| Aug | GAK 3 | G4215 | 1 | | | | | | | |
| Aug | GAK 4 | G4186 | | | | | | | | |
| Aug | GAK 4 | G4187 | | | | | 1 | | | |
| Aug | GAK 4 | G4188 | 1 | | 4 | 2 | | | | 1 |
| Aug | GAK 4 | G4189 | 3 | | | 1 | | | | |
| Aug | GAK 4 | G4190 | | | | | | | | 6 |
| Aug | GAK 4 | G4191 | 2 | | 11 | 2 | | | | |
| Aug | GAK 4 | G4192 | 2 | | 1 | | | | | |
| Aug | GAK 4 | G4193 | | | | | | | | 1 |
| Aug | GAK 4 | G4194 | | | 1 | 1 | | | | 1 |
| Aug | GAK 4 | G4195 | | | | | | | | |
| Aug | GAK 4 | G4196 | | | 1 | | | | | |
| Aug | GAK 4 | G4197 | 3 | | 2 | 6 | | | | |
| Aug | GAK 4 | G4198 | 2 | | 1 | | 1 | | | |
| Aug | GAK 4 | G4199 | | | 1 | | | | | |
| Aug | GAK 4 | G4200 | | | 3 | 1 | | | | |
| Aug | GAK 5 | G4159 | 1 | | | | | | | |
| Aug | GAK 5 | G4160 | 4 | | | | | | | |
| Aug | GAK 5 | G4161 | 2 | | | | | | | |
| Aug | GAK 5 | G4162 | 14 | | 1 | | | | | |
| Aug | GAK 5 | G4163 | | | | | | | | |
| Aug | GAK 5 | G4164 | 40 | | | | | | | |
| Aug | GAK 5 | G4165 | 1 | | | | | | | 4 |
| Aug | GAK 5 | G4166 | 18 | | | | | | | |
| Aug | GAK 5 | G4167 | 1 | | | | | | | |
| Aug | GAK 5 | G4168 | 11 | | | 1 | | | | |
| Aug | GAK 5 | G4169 | 6 | | | | | | | |
| Aug | GAK 5 | G4170 | 47 | | | | | | | 1 |
| Aug | GAK 5 | G4171 | 37 | | | 1 | | | | 33 |
| Aug | GAK 5 | G4172 | 4 | | | 3 | | | | 1 |
| Aug | GAK 5 | G4173 | | | | | | | | 61 |
| Sep | PWS 1 | G4104 | | | | | | | | |
| Sep | PWS 1 | G4105 | | | | | | | | |
| Sep | PWS 1 | G4106 | | | | | | | | |
| Sep | PWS 1 | G4107 | | | | | 1 | | | |
| Sep | PWS 1 | G4108 | | | | | 1 | | | |
| Sep | PWS 1 | G4109 | | | | | | | | |
| Sep | PWS 3 | G4103 | | | 1 | | 1 | | 1 | |
| Sep | PWS 3 | G4111 | 3 | | 2 | | 2 | | | 2 |
| Sep | PWS 3 | G4112 | 1 | | | | | | | 2 |
| Sep | PWS 3 | G4113 | | | 1 | | 3 | | | 1 |
| Sep | PWS 3 | G4114 | | | 1 | | | | | 1 |
| Sep | PWS 3 | G4115 | | | | | 2 | | 2 | 1 |
| Sep | GAK 3 | G4031 | 9 | | | | 6 | | | 1 |
| Sep | GAK 3 | G4032 | 3 | | | | 4 | | | 1 |
| Sep | GAK 3 | G4033 | 6 | | | | 3 | | | 3 |
| Sep | GAK 3 | G4034 | 3 | | 1 | 2 | 13 | 2 | 1 | 4 |

Table A-9 (Continued). Juvenile chum salmon prey count from GAK 3, GAK 4 stations (August cruise) and PWS 1, PWS 3, GAK 3 stations (September cruise).

| Cruise | Station | Unique Fish # | *E. elongata* | *Harpacticoid* sp. | Other copep. | *P. pacifica* | *Caleiopus* sp. | *P. macropa* | Other amphipod | Larvaceans |
|---|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G4212 | | | | | | | | |
| Aug | GAK 3 | G4213 | | | 1 | | | | | |
| Aug | GAK 3 | G4214 | | | | | | | | |
| Aug | GAK 3 | G4215 | | | 1 | 1 | | | | |
| Aug | GAK 4 | G4186 | | | | | | | | |
| Aug | GAK 4 | G4187 | | | 1 | | | | | 3 |
| Aug | GAK 4 | G4188 | | | 1 | 2 | | | | 3 |
| Aug | GAK 4 | G4189 | | | | 1 | | | | 7 |
| Aug | GAK 4 | G4190 | | | | | | | | |
| Aug | GAK 4 | G4191 | | | 3 | | | | | |
| Aug | GAK 4 | G4192 | | | 1 | | | | | 22 |
| Aug | GAK 4 | G4193 | | | | | | | | 13 |
| Aug | GAK 4 | G4194 | | | | 1 | | | | 23 |
| Aug | GAK 4 | G4195 | | | | | | | | 30 |
| Aug | GAK 4 | G4196 | | | | | | | | 53 |
| Aug | GAK 4 | G4197 | | | 1 | | | | | 60 |
| Aug | GAK 4 | G4198 | | | | | | | | 15 |
| Aug | GAK 4 | G4199 | | | | | | | | 13 |
| Aug | GAK 4 | G4200 | | | 2 | | | | | 186 |
| Aug | GAK 5 | G4159 | | | | 2 | | | | 1 |
| Aug | GAK 5 | G4160 | | | | | | | | |
| Aug | GAK 5 | G4161 | | | | | | | | |
| Aug | GAK 5 | G4162 | | | | 1 | | | | |
| Aug | GAK 5 | G4163 | | | | | | | | 1 |
| Aug | GAK 5 | G4164 | | | | 4 | | | | |
| Aug | GAK 5 | G4165 | | | | 5 | | | | |
| Aug | GAK 5 | G4166 | | | | | | | | |
| Aug | GAK 5 | G4167 | | | | 2 | | | | |
| Aug | GAK 5 | G4168 | | | | 2 | | | | |
| Aug | GAK 5 | G4169 | | | | | | | | |
| Aug | GAK 5 | G4170 | | | | 4 | | | | |
| Aug | GAK 5 | G4171 | | | | 2 | | | | |
| Aug | GAK 5 | G4172 | | | | 2 | | | | 1 |
| Aug | GAK 5 | G4173 | | | | 3 | | | | |
| Sep | PWS 1 | G4104 | | | | 3 | | 9 | | 10 |
| Sep | PWS 1 | G4105 | | | | 21 | | 14 | | |
| Sep | PWS 1 | G4106 | | | | 9 | | 7 | | 7 |
| Sep | PWS 1 | G4107 | | | | 37 | | 20 | | 5 |
| Sep | PWS 1 | G4108 | | | 1 | 27 | | 39 | | 1 |
| Sep | PWS 1 | G4109 | | | | 2 | | | | 6 |
| Sep | PWS 3 | G4103 | | | | 43 | | 30 | 1 | 697 |
| Sep | PWS 3 | G4111 | | | 5 | 441 | | 72 | | 474 |
| Sep | PWS 3 | G4112 | | | | 133 | | 74 | | 261 |
| Sep | PWS 3 | G4113 | | | | 77 | | 39 | | 341 |
| Sep | PWS 3 | G4114 | | | | 199 | | 23 | | 519 |
| Sep | PWS 3 | G4115 | | | 3 | 91 | | 56 | | 811 |
| Sep | GAK 3 | G4031 | | | 9 | | | | | 9 |
| Sep | GAK 3 | G4032 | | | 8 | 1 | | 1 | | 8 |
| Sep | GAK 3 | G4033 | | | 6 | 3 | | | | 8 |
| Sep | GAK 3 | G4034 | | | 10 | 2 | | | | 8 |

Table A-9 (Continued). Juvenile chum salmon prey count from GAK 3, GAK 4 stations (August cruise) and PWS 1, PWS 3, GAK 3 stations (September cruise).

| Cruise | Station | Unique Fish # | Chaetog-naths | *Limacina* sp. | Podon | Poly-chaetes | Barnacle nauplii | Barnacle cyprid | Shrimp | Crab megalop. |
|---|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G4212 | | | | | 1 | | | |
| Aug | GAK 3 | G4213 | | | | | | | | |
| Aug | GAK 3 | G4214 | | | | | | | | |
| Aug | GAK 3 | G4215 | | | | | | | | |
| Aug | GAK 4 | G4186 | | | | | | | | |
| Aug | GAK 4 | G4187 | | | | | | | 1 | |
| Aug | GAK 4 | G4188 | | 1 | 4 | | | | 6 | 3 |
| Aug | GAK 4 | G4189 | | | | | | | 17 | |
| Aug | GAK 4 | G4190 | | 1 | | | | | 4 | 4 |
| Aug | GAK 4 | G4191 | | | | | | | | |
| Aug | GAK 4 | G4192 | | 1 | | | | | | |
| Aug | GAK 4 | G4193 | | | 1 | | | | 3 | |
| Aug | GAK 4 | G4194 | | | | | | | 45 | 6 |
| Aug | GAK 4 | G4195 | | | 1 | | | | | |
| Aug | GAK 4 | G4196 | | | | | | | 2 | |
| Aug | GAK 4 | G4197 | | | 1 | | | | 2 | |
| Aug | GAK 4 | G4198 | | | | | | | 7 | |
| Aug | GAK 4 | G4199 | | | | | | | | |
| Aug | GAK 4 | G4200 | | | 1 | | 1 | | | |
| Aug | GAK 5 | G4159 | | 4 | | | 1 | | | |
| Aug | GAK 5 | G4160 | | | | | | | | |
| Aug | GAK 5 | G4161 | | | | | | | | |
| Aug | GAK 5 | G4162 | 1 | 11 | | | 1 | | | |
| Aug | GAK 5 | G4163 | | | | | | | | |
| Aug | GAK 5 | G4164 | | 7 | | | 4 | | | |
| Aug | GAK 5 | G4165 | | 34 | 1 | | | | 1 | |
| Aug | GAK 5 | G4166 | | | | | 1 | | | |
| Aug | GAK 5 | G4167 | | 7 | | | 1 | | 1 | |
| Aug | GAK 5 | G4168 | | 8 | | | 1 | | | |
| Aug | GAK 5 | G4169 | | 9 | | | 2 | | | |
| Aug | GAK 5 | G4170 | 1 | 3 | | | 2 | | 2 | |
| Aug | GAK 5 | G4171 | | 50 | | | 1 | | 1 | |
| Aug | GAK 5 | G4172 | | 59 | | | 26 | | 1 | |
| Aug | GAK 5 | G4173 | | 2 | | | | | 1 | |
| Sep | PWS 1 | G4104 | | | | | | | 6 | |
| Sep | PWS 1 | G4105 | | | | | | | | |
| Sep | PWS 1 | G4106 | | | | | | | 1 | |
| Sep | PWS 1 | G4107 | | | | | | | 8 | |
| Sep | PWS 1 | G4108 | | | | | | | 1 | |
| Sep | PWS 1 | G4109 | | | | | | | | |
| Sep | PWS 3 | G4103 | | 9 | | | | | 4 | |
| Sep | PWS 3 | G4111 | | 1 | | | 2 | | 46 | 2 |
| Sep | PWS 3 | G4112 | | | | | | | 14 | |
| Sep | PWS 3 | G4113 | | 1 | | | | | 7 | |
| Sep | PWS 3 | G4114 | | 1 | | | | | 10 | |
| Sep | PWS 3 | G4115 | | | | | | | 7 | 1 |
| Sep | GAK 3 | G4031 | | 2 | | | | | | |
| Sep | GAK 3 | G4032 | | 6 | | | | | | |
| Sep | GAK 3 | G4033 | | | | | | | | |
| Sep | GAK 3 | G4034 | | | | | | | 3 | |

Table A-9 (Continued). Juvenile chum salmon prey count from GAK 3, GAK 4 stations (August cruise) and PWS 1, PWS 3, GAK 3 stations (September cruise).

| Cruise | Station | Unique Fish # | Crab zoea | *Euphasid* sp. adult | Crusta-cean | Crustacean zoea | Nauplii | Snails | Bivalves | Fish larvae | Flies |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G4212 | | | | | | | | | |
| Aug | GAK 3 | G4213 | | | | | | | | | |
| Aug | GAK 3 | G4214 | | | | | | | | | |
| Aug | GAK 3 | G4215 | | | | | | | | | |
| Aug | GAK 4 | G4186 | | | | | | | | | |
| Aug | GAK 4 | G4187 | | | | | | | | | |
| Aug | GAK 4 | G4188 | | | | | | | | | |
| Aug | GAK 4 | G4189 | | | | | | | | | |
| Aug | GAK 4 | G4190 | | | | | | | | | |
| Aug | GAK 4 | G4191 | | | | | | | | | |
| Aug | GAK 4 | G4192 | | | | | | | | | 14 |
| Aug | GAK 4 | G4193 | | | | | | | | | 1 |
| Aug | GAK 4 | G4194 | | | | | | | | | |
| Aug | GAK 4 | G4195 | | | | | | | | | |
| Aug | GAK 4 | G4196 | | | | | | | | | 15 |
| Aug | GAK 4 | G4197 | | | | | | | | 1 | 2 |
| Aug | GAK 4 | G4198 | | 1 | | | | | | | |
| Aug | GAK 4 | G4199 | | | | | | | | | |
| Aug | GAK 4 | G4200 | 2 | | | | | | | | |
| Aug | GAK 5 | G4159 | | | | | | | | | |
| Aug | GAK 5 | G4160 | | | | | | | | | |
| Aug | GAK 5 | G4161 | | | | | | | | | |
| Aug | GAK 5 | G4162 | | | | | | | | | |
| Aug | GAK 5 | G4163 | | | | | | | | | |
| Aug | GAK 5 | G4164 | 8 | | | | | | | | |
| Aug | GAK 5 | G4165 | 12 | | | | | 1 | | | |
| Aug | GAK 5 | G4166 | | | | | | | | | |
| Aug | GAK 5 | G4167 | | | | | | | | | |
| Aug | GAK 5 | G4168 | 1 | | | | | | | | |
| Aug | GAK 5 | G4169 | | | | | | | | | |
| Aug | GAK 5 | G4170 | 2 | | | | | | | | |
| Aug | GAK 5 | G4171 | 2 | | | | | 1 | | | |
| Aug | GAK 5 | G4172 | | | | | | | | | |
| Aug | GAK 5 | G4173 | 1 | | | | | | | | |
| Sep | PWS 1 | G4104 | | | | | | | | | |
| Sep | PWS 1 | G4105 | | | | | | | | | |
| Sep | PWS 1 | G4106 | | | | | | | | | |
| Sep | PWS 1 | G4107 | | | | | | | | 1 | |
| Sep | PWS 1 | G4108 | | | | | | | | | |
| Sep | PWS 1 | G4109 | | | | | | | | | |
| Sep | PWS 3 | G4103 | | | 2 | | | | | | |
| Sep | PWS 3 | G4111 | | | | | | | | 1 | |
| Sep | PWS 3 | G4112 | | | | | | | | 1 | |
| Sep | PWS 3 | G4113 | | | | | | | | | |
| Sep | PWS 3 | G4114 | | | | | | 2 | | | |
| Sep | PWS 3 | G4115 | | | | | | 1 | | | |
| Sep | GAK 3 | G4031 | | | | | | | | | |
| Sep | GAK 3 | G4032 | | | 1 | | | | | | |
| Sep | GAK 3 | G4033 | | | | | | | | | |
| Sep | GAK 3 | G4034 | | | | | | | | | |

Table A-10. Juvenile chum salmon prey count from GAK 3, GAK 4, GAK 5, GAK 6 stations (September cruise).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Candacia sp.* | *Centropages* sp. | *E. longi-pedata* | *Acartia* sp. | *Metridia* sp. | *Oithona* sp. | *E. bungii* |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4035 | 4 | | | 1 | 15 | | 2 | 6 |
| Sep | GAK 3 | G4036 | 3 | | | | 88 | | | 13 |
| Sep | GAK 3 | G4037 | 3 | | | | 70 | | 17 | 11 |
| Sep | GAK 3 | G4038 | 11 | | 1 | | 38 | | 5 | 32 |
| Sep | GAK 3 | G4039 | 12 | | | | 18 | | 6 | 1 |
| Sep | GAK 3 | G4040 | 9 | | | | 9 | | 5 | |
| Sep | GAK 3 | G4041 | 17 | | | | 18 | | 7 | 3 |
| Sep | GAK 3 | G4042 | 10 | | | | 11 | | 4 | 4 |
| Sep | GAK 4 | G4081 | 1 | | | | | | | 3 |
| Sep | GAK 4 | G4082 | 1 | | | | 2 | | | |
| Sep | GAK 4 | G4083 | | | | | 8 | | 2 | 2 |
| Sep | GAK 4 | G4084 | 1 | | | | 1 | | 1 | 27 |
| Sep | GAK 4 | G4085 | 4 | | | | | | 1 | 60 |
| Sep | GAK 4 | G4086 | 2 | | | | 2 | | | 19 |
| Sep | GAK 4 | G4087 | 4 | | | | 6 | | 1 | 19 |
| Sep | GAK 4 | G4088 | 4 | | | | 3 | | | 77 |
| Sep | GAK 4 | G4089 | 1 | | | | 2 | | | 1 |
| Sep | GAK 4 | G4090 | 1 | | | | | | | 21 |
| Sep | GAK 4 | G4091 | | | | | 8 | | | 5 |
| Sep | GAK 4 | G4092 | | | | | 3 | | | 12 |
| Sep | GAK 4 | G4093 | | | | | 4 | | 1 | |
| Sep | GAK 4 | G4094 | | | | | 7 | | 2 | |
| Sep | GAK 5 | G4000 | 1 | | | | 113 | 10 | | |
| Sep | GAK 5 | G4001 | | | | 77 | 5 | | 1 | |
| Sep | GAK 5 | G4002 | 4 | | | | 17 | | | 103 |
| Sep | GAK 5 | G4003 | | | 1 | | 11 | | | 82 |
| Sep | GAK 5 | G4004 | 4 | | | | 20 | | 1 | 24 |
| Sep | GAK 5 | G4005 | 2 | | | | 15 | | 2 | 90 |
| Sep | GAK 5 | G4006 | 5 | | | | 14 | | 1 | 14 |
| Sep | GAK 5 | G4007 | | 1 | | | 6 | | 1 | 120 |
| Sep | GAK 5 | G4008 | 6 | | | | 12 | | 4 | 75 |
| Sep | GAK 5 | G4009 | 3 | | | | 5 | | | 17 |
| Sep | GAK 5 | G4010 | 8 | | | | 25 | | 5 | 2 |
| Sep | GAK 5 | G4011 | 1 | | | | 23 | | 3 | 11 |
| Sep | GAK 5 | G4012 | 2 | | | | 12 | | 1 | 84 |
| Sep | GAK 5 | G4013 | | | | | 16 | | | 95 |
| Sep | GAK 5 | G4014 | | | | | 11 | | 2 | 159 |
| Sep | GAK 6 | G4148 | | | | | 7 | | | |
| Sep | GAK 6 | G4149 | | | | | 1 | | 1 | |
| Sep | GAK 6 | G4150 | 1 | | | | 12 | | 2 | |
| Sep | GAK 6 | G4151 | | | | | 1 | | | |
| Sep | GAK 6 | G4152 | | | | | | | 1 | 1 |
| Sep | GAK 6 | G4153 | | | | | 2 | | | 1 |
| Sep | GAK 6 | G4154 | | | | | 3 | | 1 | 1 |
| Sep | GAK 6 | G4155 | 1 | | | | 10 | | 3 | |
| Sep | GAK 6 | G4156 | 2 | | | | 6 | | | 1 |
| Sep | GAK 6 | G4157 | 2 | | | | 13 | | 1 | |
| Sep | GAK 6 | G4158 | 7 | | | | 10 | | | 1 |

Table A-10 (Continued). Juvenile chum salmon prey count from GAK 3, GAK 4, GAK 5, GAK 6 stations (September cruise).

| Cruise | Station | Unique Fish # | *E. elongata* | *Harpacti-coid* sp. | Other copep. | *P. pacifica* | *Caleiopus* sp. | *P. macropa* | Other amphipod | Larvaceans |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4035 | | | 12 | 3 | | | | 13 |
| Sep | GAK 3 | G4036 | | | 6 | | | | | |
| Sep | GAK 3 | G4037 | | | 5 | 2 | | | | |
| Sep | GAK 3 | G4038 | | | 11 | 4 | | | | 7 |
| Sep | GAK 3 | G4039 | | | 7 | | | | | 19 |
| Sep | GAK 3 | G4040 | | | 19 | 1 | | | | 20 |
| Sep | GAK 3 | G4041 | | | 3 | 1 | | | | 7 |
| Sep | GAK 3 | G4042 | | | 8 | 4 | | | | 11 |
| Sep | GAK 4 | G4081 | | | 9 | | | | | 35 |
| Sep | GAK 4 | G4082 | | | 14 | | | | | 4 |
| Sep | GAK 4 | G4083 | | | 17 | 3 | | | | 15 |
| Sep | GAK 4 | G4084 | | | 5 | 1 | | | | 48 |
| Sep | GAK 4 | G4085 | | | 7 | 2 | 1 | | | 2 |
| Sep | GAK 4 | G4086 | | | 4 | 3 | | | | 8 |
| Sep | GAK 4 | G4087 | | | 13 | 2 | | | | 16 |
| Sep | GAK 4 | G4088 | | | 12 | | | | | 5 |
| Sep | GAK 4 | G4089 | | | 4 | 2 | | | | 4 |
| Sep | GAK 4 | G4090 | | | 5 | 5 | | | | 2 |
| Sep | GAK 4 | G4091 | | | 5 | 2 | | | | |
| Sep | GAK 4 | G4092 | | | 8 | 1 | | | | 3 |
| Sep | GAK 4 | G4093 | | | 9 | 4 | | | | 3 |
| Sep | GAK 4 | G4094 | | | 8 | 3 | | | | 10 |
| Sep | GAK 5 | G4000 | | | 7 | | | | | 6 |
| Sep | GAK 5 | G4001 | | | 5 | | | | | 2 |
| Sep | GAK 5 | G4002 | | | 4 | 1 | | | | 1 |
| Sep | GAK 5 | G4003 | | | 4 | 1 | | | | 2 |
| Sep | GAK 5 | G4004 | | | 14 | | | | | 1 |
| Sep | GAK 5 | G4005 | | | 8 | | | | | 14 |
| Sep | GAK 5 | G4006 | | | 8 | 1 | | | | 4 |
| Sep | GAK 5 | G4007 | | | 8 | | | | | 4 |
| Sep | GAK 5 | G4008 | | | 10 | 9 | | | | 9 |
| Sep | GAK 5 | G4009 | | | 7 | 2 | | | | 15 |
| Sep | GAK 5 | G4010 | | | 19 | | | | | 1 |
| Sep | GAK 5 | G4011 | | | 15 | | | | | |
| Sep | GAK 5 | G4012 | | | 13 | | | | | 9 |
| Sep | GAK 5 | G4013 | | | 7 | 1 | | | | 39 |
| Sep | GAK 5 | G4014 | | | 13 | | | | | 42 |
| Sep | GAK 6 | G4148 | | | 1 | | | | | |
| Sep | GAK 6 | G4149 | | | 3 | | | | | |
| Sep | GAK 6 | G4150 | | | 5 | 1 | | | | |
| Sep | GAK 6 | G4151 | | | | 1 | | | | |
| Sep | GAK 6 | G4152 | | | 1 | 9 | | | | |
| Sep | GAK 6 | G4153 | | | 1 | 46 | | | | |
| Sep | GAK 6 | G4154 | | | 3 | | | | | |
| Sep | GAK 6 | G4155 | | | 5 | 1 | | | | |
| Sep | GAK 6 | G4156 | | | 1 | 1 | | | | |
| Sep | GAK 6 | G4157 | | | 5 | | | | | |
| Sep | GAK 6 | G4158 | | | 3 | 2 | | | | |

Table A-10 (Continued). Juvenile chum salmon prey count from GAK 3, GAK 4, GAK 5, GAK 6 stations (September cruise).

| Cruise | Station | Unique Fish # | Chaetog-naths | *Limacina* sp. | Podon | Poly-chaetes | Barnacle nauplii | Barnacle cyprid | Shrimp | Crab megalop. |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4035 | | | | | | | | |
| Sep | GAK 3 | G4036 | | | | | | | | |
| Sep | GAK 3 | G4037 | | 1 | | | | | | |
| Sep | GAK 3 | G4038 | | 2 | | | | | | |
| Sep | GAK 3 | G4039 | | | | | | | | |
| Sep | GAK 3 | G4040 | | | | | | | | |
| Sep | GAK 3 | G4041 | | | | | | | 1 | |
| Sep | GAK 3 | G4042 | | 2 | | | | | | |
| Sep | GAK 4 | G4081 | | 47 | | | | | | |
| Sep | GAK 4 | G4082 | | 15 | | | | | | |
| Sep | GAK 4 | G4083 | | 8 | | | | | | |
| Sep | GAK 4 | G4084 | | 1 | | | | | | |
| Sep | GAK 4 | G4085 | | 107 | | | | | 2 | |
| Sep | GAK 4 | G4086 | | 127 | | | | | | |
| Sep | GAK 4 | G4087 | | 45 | | | | | 1 | |
| Sep | GAK 4 | G4088 | | | | | | | | |
| Sep | GAK 4 | G4089 | | 29 | | | | | | |
| Sep | GAK 4 | G4090 | | 220 | | | | | | |
| Sep | GAK 4 | G4091 | | | | | | | | |
| Sep | GAK 4 | G4092 | | 19 | | | | | | |
| Sep | GAK 4 | G4093 | | 92 | | | | | 1 | |
| Sep | GAK 4 | G4094 | | 1 | | | | | | |
| Sep | GAK 5 | G4000 | | | | | | | | |
| Sep | GAK 5 | G4001 | | | | | | | | |
| Sep | GAK 5 | G4002 | | 1 | | | | | 1 | |
| Sep | GAK 5 | G4003 | | | | | | | | |
| Sep | GAK 5 | G4004 | | | | | | | | |
| Sep | GAK 5 | G4005 | | | | | | | | |
| Sep | GAK 5 | G4006 | | | | | | | 1 | |
| Sep | GAK 5 | G4007 | | 3 | | | | | | |
| Sep | GAK 5 | G4008 | | 3 | | | | | | |
| Sep | GAK 5 | G4009 | | | | | | | | |
| Sep | GAK 5 | G4010 | | | | | | | | |
| Sep | GAK 5 | G4011 | | | | | | | | |
| Sep | GAK 5 | G4012 | | | | | | | | |
| Sep | GAK 5 | G4013 | | | | | | | | |
| Sep | GAK 5 | G4014 | 4 | | | | | | | |
| Sep | GAK 6 | G4148 | | | | | | | | |
| Sep | GAK 6 | G4149 | | | | | | | | |
| Sep | GAK 6 | G4150 | | | | | | | | |
| Sep | GAK 6 | G4151 | | | | | | | | |
| Sep | GAK 6 | G4152 | | 3 | | | | | 2 | |
| Sep | GAK 6 | G4153 | | 27 | | | | | | |
| Sep | GAK 6 | G4154 | | | | | | | | |
| Sep | GAK 6 | G4155 | | | | | | | | |
| Sep | GAK 6 | G4156 | | 1 | | | | | | |
| Sep | GAK 6 | G4157 | | | | | | | | |
| Sep | GAK 6 | G4158 | | | | | | 1 | 1 | |

Table A-10 (Continued). Juvenile chum salmon prey count from GAK 3, GAK 4, GAK 5, GAK 6 stations (September cruise).

| Cruise | Station | Unique Fish # | Crab zoea | *Euphasid* sp. adult | Crusta-cean | Crustacean zoea | Nauplii | Snails | Bivalves | Fish larvae | Flies |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4035 | | | | | 2 | | | | |
| Sep | GAK 3 | G4036 | | | | | | | | | |
| Sep | GAK 3 | G4037 | | | | | | | | | |
| Sep | GAK 3 | G4038 | | | | | | | | | |
| Sep | GAK 3 | G4039 | | | | | | | | | |
| Sep | GAK 3 | G4040 | | | | | | | | | |
| Sep | GAK 3 | G4041 | | | | | | | | | |
| Sep | GAK 3 | G4042 | | | | | | | | | |
| Sep | GAK 4 | G4081 | | | | | | | | | |
| Sep | GAK 4 | G4082 | | | 1 | | | | | | |
| Sep | GAK 4 | G4083 | | | | | | | | | |
| Sep | GAK 4 | G4084 | | | | | | | | | |
| Sep | GAK 4 | G4085 | | | | | | | | | |
| Sep | GAK 4 | G4086 | | | | | | | | | |
| Sep | GAK 4 | G4087 | | | | | | | | | |
| Sep | GAK 4 | G4088 | | | | | | | | | |
| Sep | GAK 4 | G4089 | | | | | | | | | |
| Sep | GAK 4 | G4090 | | | | | | | | | |
| Sep | GAK 4 | G4091 | | | 1 | | | | | | |
| Sep | GAK 4 | G4092 | | | | | | | | | |
| Sep | GAK 4 | G4093 | | | | | | | | | |
| Sep | GAK 4 | G4094 | | | | | | | | | |
| Sep | GAK 5 | G4000 | | | | | | | | | |
| Sep | GAK 5 | G4001 | | | | | | | | | |
| Sep | GAK 5 | G4002 | | | | | | | | | |
| Sep | GAK 5 | G4003 | | | | | | | | | |
| Sep | GAK 5 | G4004 | | | | | | | | | |
| Sep | GAK 5 | G4005 | | | | | | | | | |
| Sep | GAK 5 | G4006 | | | | | | | | | |
| Sep | GAK 5 | G4007 | | | | | | | | | |
| Sep | GAK 5 | G4008 | | | | | | | | | |
| Sep | GAK 5 | G4009 | | | | | | | | | 1 |
| Sep | GAK 5 | G4010 | | | | | 1 | | | | |
| Sep | GAK 5 | G4011 | | | | | | | | | |
| Sep | GAK 5 | G4012 | | | | | | | | | |
| Sep | GAK 5 | G4013 | | | | | | | | | |
| Sep | GAK 5 | G4014 | | | | | | | | | |
| Sep | GAK 6 | G4148 | | | | | | | | | |
| Sep | GAK 6 | G4149 | | | | | | | | | |
| Sep | GAK 6 | G4150 | | | | | | | | | |
| Sep | GAK 6 | G4151 | | | | | | | | | |
| Sep | GAK 6 | G4152 | | | | | | | | | |
| Sep | GAK 6 | G4153 | | | | | | | | | |
| Sep | GAK 6 | G4154 | | | | | | | | | |
| Sep | GAK 6 | G4155 | | | | | | | | | |
| Sep | GAK 6 | G4156 | | | | | | | | | 4 |
| Sep | GAK 6 | G4157 | | | | | 1 | | | | |
| Sep | GAK 6 | G4158 | | | | | | | | | |

Table A-11. Juvenile sockeye salmon prey count from PWS 1, PWS 2 (July), GAKs 2, 3, 4, 5 (August), PWS 1, 3 and GAK 3 (September).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Canda-cia* sp. | *Centropa-ges* sp. | *E. longi-pedata* | *Acar-tia* sp. | *Metri-dia* sp. | *Oitho-na* sp. | *E. bungii* | *Harpacti-coid* sp. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4248 | | | 1 | | | | | | |
| Jul | PWS 1 | G4249 | 1 | | | 3 | | | | | |
| Jul | PWS 1 | G4250 | 3 | | | 2 | 1 | | | | |
| Jul | PWS 1 | G4251 | | | | | | | | | |
| Jul | PWS 1 | G4252 | | | | | | | | | |
| Jul | PWS 1 | G4253 | 2 | | | | 1 | | | | 1 |
| Jul | PWS 2 | G4265 | | | | | 4 | | | | |
| Jul | PWS 2 | G4266 | 4 | | 7 | 3 | 4 | | | | |
| Jul | PWS 2 | G4267 | | | | | | | | | |
| Aug | GAK 2 | G4116 | | | | | | | | | |
| Aug | GAK 2 | G4117 | | | | | | | | | |
| Aug | GAK 2 | G4118 | | | | | | | | | |
| Aug | GAK 2 | G4119 | | | | | | | | | |
| Aug | GAK 2 | G4120 | | | | | | | | 4 | |
| Aug | GAK 2 | G4121 | 3 | | | | | | | | |
| Aug | GAK 2 | G4122 | | | | 4 | | | | | |
| Aug | GAK 2 | G4123 | | | | | | | | | |
| Aug | GAK 2 | G4124 | | | | | | | | 1 | |
| Aug | GAK 3 | G4175 | | | | | | | | | |
| Aug | GAK 3 | G4176 | | | 6 | | | | | | |
| Aug | GAK 3 | G4177 | | | | | | | | | |
| Aug | GAK 3 | G4178 | 11 | | 1 | 83 | | | | | |
| Aug | GAK 3 | G4179 | 19 | | 1 | 9 | | | | | |
| Aug | GAK 4 | G4180 | 1 | | | | | | | 2 | |
| Aug | GAK 4 | G4181 | 2 | | 1 | | | | | 1 | |
| Aug | GAK 4 | G4182 | 9 | | | 5 | | | | | |
| Aug | GAK 4 | G4183 | 21 | | 6 | 67 | | 1 | | | |
| Aug | GAK 4 | G4184 | | | | | | | | | |
| Aug | GAK 4 | G4185 | 1 | | | 1 | | | | 2 | |
| Aug | GAK 5 | G4125 | 6 | | | 1 | | | | | |
| Aug | GAK 5 | G4126 | 64 | | | 2 | | | | | |
| Aug | GAK 5 | G4127 | 99 | | | | | | | | |
| Aug | GAK 5 | G4128 | 65 | | | 7 | | | | 1 | |
| Aug | GAK 5 | G4129 | | | | | | | | | |
| Aug | GAK 5 | G4130 | 47 | | 1 | 2 | | | | 2 | |
| Aug | GAK 5 | G4131 | 13 | | | | | | | 1 | |
| Aug | GAK 5 | G4132 | 30 | | | 2 | | | | | |
| Sep | PWS 1 | G4095 | | | | | | | | | |
| Sep | PWS 1 | G4096 | | | | | | | | | |
| Sep | PWS 1 | G4097 | | | | | | | | | |
| Sep | PWS 1 | G4098 | | | | | | | | | |
| Sep | PWS 1 | G4099 | | | | | | | | | |
| Sep | PWS 1 | G4100 | | | | | | | | | |
| Sep | PWS 3 | G4101 | 2 | | | 1 | | | | | |
| Sep | PWS 3 | G4102 | | | | | 1 | | | | |
| Sep | GAK 3 | G4043 | 417 | | | 1 | | | | 32 | |
| Sep | GAK 3 | G4044 | 91 | | 1 | | | | | 119 | |
| Sep | GAK 3 | G4045 | 27 | | | | | 1 | | 6 | |
| Sep | GAK 3 | G4047 | 422 | | | | | | | 90 | |
| Sep | GAK 3 | G4048 | 132 | | | | 1 | | | 58 | |

Table A-11 (Continued). Juvenile sockeye salmon prey count from PWS 1, PWS 2 (July), GAKs 2, 3, 4, 5 (August), PWS 1, 3 and GAK 3 (September).

| Cruise | Station | Unique Fish # | Other copepod | Partial copepod | *P. pacifica* | *P. macropa* | Medusa | Siphono-phore, partial | Larvacean | Chaeto-gnath |
|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4248 | | | 5 | | | | 1 | |
| Jul | PWS 1 | G4249 | | | 8 | | | | 189 | |
| Jul | PWS 1 | G4250 | | | 6 | | | | | |
| Jul | PWS 1 | G4251 | | | 13 | | | | | |
| Jul | PWS 1 | G4252 | | | 2 | | | | 9 | |
| Jul | PWS 1 | G4253 | 1 | | 8 | 1 | | | 718 | |
| Jul | PWS 2 | G4265 | 1 | | 6 | 6 | | | | |
| Jul | PWS 2 | G4266 | 6 | | 8 | | | | 433 | |
| Jul | PWS 2 | G4267 | 1 | | | 1 | | | 2 | 1 |
| Aug | GAK 2 | G4116 | | | | | | | 2 | |
| Aug | GAK 2 | G4117 | | | 3 | 1 | | | | |
| Aug | GAK 2 | G4118 | | | | 1 | | | | |
| Aug | GAK 2 | G4119 | | | | | | | | |
| Aug | GAK 2 | G4120 | | | | | | | | |
| Aug | GAK 2 | G4121 | | | | | | | | |
| Aug | GAK 2 | G4122 | 1 | | | | | | 5 | |
| Aug | GAK 2 | G4123 | | | | | | | | |
| Aug | GAK 2 | G4124 | | | | | | | 1 | |
| Aug | GAK 3 | G4175 | 1 | | | | | | | |
| Aug | GAK 3 | G4176 | 5 | | | | | | | |
| Aug | GAK 3 | G4177 | | | 3 | 3 | | | 7 | |
| Aug | GAK 3 | G4178 | 6 | | 2 | | | | | |
| Aug | GAK 3 | G4179 | 2 | | 2 | | | | | |
| Aug | GAK 4 | G4180 | | | 1 | | | | | |
| Aug | GAK 4 | G4181 | | | 1 | | | | 73 | |
| Aug | GAK 4 | G4182 | 3 | | | | | | 4 | |
| Aug | GAK 4 | G4183 | 16 | | 2 | | | | 7 | |
| Aug | GAK 4 | G4184 | | | | | | | | |
| Aug | GAK 4 | G4185 | | | | | | | | |
| Aug | GAK 5 | G4125 | 5 | | 7 | | | | 2 | |
| Aug | GAK 5 | G4126 | 4 | | 7 | | | | | |
| Aug | GAK 5 | G4127 | 3 | | 4 | 1 | | | | |
| Aug | GAK 5 | G4128 | 5 | | 2 | | | | | |
| Aug | GAK 5 | G4129 | | | 3 | | | | | |
| Aug | GAK 5 | G4130 | 3 | | 4 | | | | | |
| Aug | GAK 5 | G4131 | 8 | | 1 | | | | | |
| Aug | GAK 5 | G4132 | 9 | | 1 | | | | | |
| Sep | PWS 1 | G4095 | | | 2 | 23 | | | | |
| Sep | PWS 1 | G4096 | | | 1 | 36 | | | | |
| Sep | PWS 1 | G4097 | | | 7 | 11 | | | | |
| Sep | PWS 1 | G4098 | | | 28 | 8 | | | | |
| Sep | PWS 1 | G4099 | | | 6 | 38 | | | | |
| Sep | PWS 1 | G4100 | 3 | | 3 | 8 | | | | |
| Sep | PWS 3 | G4101 | 3 | | 122 | 84 | | | 1 | |
| Sep | PWS 3 | G4102 | 2 | | 1 | 22 | | | 8 | |
| Sep | GAK 3 | G4043 | 10 | | 1 | | | | | |
| Sep | GAK 3 | G4044 | 7 | | 2 | | | | 10 | |
| Sep | GAK 3 | G4045 | 1 | | 1 | | | | 801 | |
| Sep | GAK 3 | G4047 | 1 | | 5 | | | | | |
| Sep | GAK 3 | G4048 | 4 | | | | | | 10 | |

Table A-11 (Continued). Juvenile sockeye salmon prey count from PWS 1, PWS 2 (July), GAKs 2, 3, 4, 5 (August), PWS 1, 3 and GAK 3 (September).

| Cruise | Station | Unique Fish # | *Limacina* sp. | Podon | Polychaete | Barnacle nauplii | Barnacle cyprid | Crab megalopa | Crab zoea | *Euphasid* sp. adult | Crust., other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4248 | 194 | | | | | | | | |
| Jul | PWS 1 | G4249 | 120 | | | 1 | 2 | | | | |
| Jul | PWS 1 | G4250 | 622 | | | | | | | | |
| Jul | PWS 1 | G4251 | 856 | | | | | | | | |
| Jul | PWS 1 | G4252 | 40 | | | | | | | | |
| Jul | PWS 1 | G4253 | 16 | | | | | | | | |
| Jul | PWS 2 | G4265 | | | | | | | 1 | | |
| Jul | PWS 2 | G4266 | 1 | | | 3 | 2 | 2 | 44 | | |
| Jul | PWS 2 | G4267 | | | | | | | | | |
| Aug | GAK 2 | G4116 | | | | | | | | | |
| Aug | GAK 2 | G4117 | 1 | | | | | | | | |
| Aug | GAK 2 | G4118 | | | | | | 1 | | | |
| Aug | GAK 2 | G4119 | | | | | | | | | |
| Aug | GAK 2 | G4120 | | | | | | | | | |
| Aug | GAK 2 | G4121 | | 1 | | | | | | | |
| Aug | GAK 2 | G4122 | | | | | | 8 | | | |
| Aug | GAK 2 | G4123 | | 1 | | | | 1 | | | |
| Aug | GAK 2 | G4124 | | | | | | 2 | | | |
| Aug | GAK 3 | G4175 | | | | | | | | | |
| Aug | GAK 3 | G4176 | | | | | | | | | |
| Aug | GAK 3 | G4177 | | | | | | | | | |
| Aug | GAK 3 | G4178 | 3 | 1 | | | | 3 | 1 | | |
| Aug | GAK 3 | G4179 | 40 | 1 | | | | | | | |
| Aug | GAK 4 | G4180 | | | | | | 4 | 2 | | |
| Aug | GAK 4 | G4181 | 3 | 1 | | | | | | | |
| Aug | GAK 4 | G4182 | 1 | 7 | | | | 1 | | | |
| Aug | GAK 4 | G4183 | 5 | 14 | | | 2 | | 7 | | |
| Aug | GAK 4 | G4184 | | | | | | | | | |
| Aug | GAK 4 | G4185 | | | | | | | | | |
| Aug | GAK 5 | G4125 | 180 | | | 2 | | 61 | | | |
| Aug | GAK 5 | G4126 | 493 | | | | | 11 | | | |
| Aug | GAK 5 | G4127 | 218 | | | 161 | | 9 | | | |
| Aug | GAK 5 | G4128 | 253 | 2 | | 32 | | 9 | | | |
| Aug | GAK 5 | G4129 | 20 | | | 75 | | 3 | | | |
| Aug | GAK 5 | G4130 | 1565 | | | 114 | | 31 | | | |
| Aug | GAK 5 | G4131 | 93 | | | 1 | | | | | |
| Aug | GAK 5 | G4132 | 217 | | | 112 | | 5 | | | |
| Sep | PWS 1 | G4095 | | | | | | 1 | | | |
| Sep | PWS 1 | G4096 | | | | | | 2 | | | |
| Sep | PWS 1 | G4097 | | | | | | | | | |
| Sep | PWS 1 | G4098 | | | | | | 2 | | | |
| Sep | PWS 1 | G4099 | 1 | | | | | 2 | | | |
| Sep | PWS 1 | G4100 | | | | | | 1 | | | |
| Sep | PWS 3 | G4101 | | | | | | | | | |
| Sep | PWS 3 | G4102 | | | | | | | | | |
| Sep | GAK 3 | G4043 | 9 | | | | | 1 | | | |
| Sep | GAK 3 | G4044 | 324 | | | | | | | | |
| Sep | GAK 3 | G4045 | 3 | | | | | | | | |
| Sep | GAK 3 | G4047 | 7 | | | | | | | | |
| Sep | GAK 3 | G4048 | | | | | | | | | |

Table A-11 (Continued). Juvenile sockeye salmon prey count from PWS 1, PWS 2 (July), GAKs 2, 3, 4, 5 (August), PWS 1, 3 and GAK 3 (September).

| Cruise | Station | Unique Fish # | Crust. zoea | Nauplii | Shrimp | Snail | Crust., partial | Fish larvae | Fish eggs | Flies | Cephalo-poda |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4248 | 1 | | | | | | | | |
| Jul | PWS 1 | G4249 | | | | | | | | | |
| Jul | PWS 1 | G4250 | | | 4 | | | | | | |
| Jul | PWS 1 | G4251 | | | 1 | 1 | | | | | |
| Jul | PWS 1 | G4252 | | | 1 | | | | | | |
| Jul | PWS 1 | G4253 | | | 6 | | | | | 1 | |
| Jul | PWS 2 | G4265 | | | 1 | | | | | | |
| Jul | PWS 2 | G4266 | | | 13 | | | | | | |
| Jul | PWS 2 | G4267 | | | | | | 1 | | | |
| Aug | GAK 2 | G4116 | | | 1 | | | 2 | | | |
| Aug | GAK 2 | G4117 | | | 49 | | | | | | |
| Aug | GAK 2 | G4118 | | | 2 | | 1 | | | | |
| Aug | GAK 2 | G4119 | | | | | | | | | |
| Aug | GAK 2 | G4120 | | | 1 | | | | | | |
| Aug | GAK 2 | G4121 | | | | | | | | | |
| Aug | GAK 2 | G4122 | | | | | | | | | 1 |
| Aug | GAK 2 | G4123 | | | | | | | | | |
| Aug | GAK 2 | G4124 | | | 2 | | | 1 | | | |
| Aug | GAK 3 | G4175 | | | | | | | | | |
| Aug | GAK 3 | G4176 | | | | | | | | | |
| Aug | GAK 3 | G4177 | | | | | | 12 | | | |
| Aug | GAK 3 | G4178 | | | 1 | 3 | | | | | |
| Aug | GAK 3 | G4179 | | | | | | | | | |
| Aug | GAK 4 | G4180 | | | 3 | | | 12 | | | |
| Aug | GAK 4 | G4181 | | | | | | | | | |
| Aug | GAK 4 | G4182 | | | 2 | | | | | 1 | |
| Aug | GAK 4 | G4183 | | | 7 | | | | | | |
| Aug | GAK 4 | G4184 | | | | | | | | | |
| Aug | GAK 4 | G4185 | | | | | | | | | |
| Aug | GAK 5 | G4125 | | | | 2 | | 3 | | | |
| Aug | GAK 5 | G4126 | | | 1 | | | 6 | | | |
| Aug | GAK 5 | G4127 | | | 1 | 1 | | | | | |
| Aug | GAK 5 | G4128 | | | | 1 | | | | | |
| Aug | GAK 5 | G4129 | | | | | | | | | |
| Aug | GAK 5 | G4130 | | | | 2 | | | | | 1 |
| Aug | GAK 5 | G4131 | | | 2 | | | | | | |
| Aug | GAK 5 | G4132 | | | | 3 | | | | | |
| Sep | PWS 1 | G4095 | | | | | | 2 | | | |
| Sep | PWS 1 | G4096 | | | 3 | | | 3 | | | |
| Sep | PWS 1 | G4097 | | | | | | | | | |
| Sep | PWS 1 | G4098 | | | 3 | | | | | | |
| Sep | PWS 1 | G4099 | | | 4 | | | | | | |
| Sep | PWS 1 | G4100 | | | 8 | | | | | | |
| Sep | PWS 3 | G4101 | | | 10 | 1 | | 37 | | | |
| Sep | PWS 3 | G4102 | | | 2 | | | 73 | | | |
| Sep | GAK 3 | G4043 | | | 1 | | | | | | |
| Sep | GAK 3 | G4044 | | | 8 | | | | | | |
| Sep | GAK 3 | G4045 | | | | | | | | | |
| Sep | GAK 3 | G4047 | | | 3 | | | | | | |
| Sep | GAK 3 | G4048 | | | 3 | | | | | | |

Table A-12. Juvenile sockeye salmon prey count from GAKs 3, 4, 5, and 6 (September).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Canda-cia* sp. | *Centropa-ges* sp. | *E. longi-pedata* | *Acar-tia* sp. | *Metri-dia* sp. | *Oitho-na* sp. | *E. bungii* | *Harpacti-coid* sp. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4046 | 317 | | 2 | | | | | 23 | |
| Sep | GAK 3 | G4049 | 160 | | | | 4 | | | 83 | |
| Sep | GAK 3 | G4050 | 321 | | | | | | | 36 | |
| Sep | GAK 3 | G4051 | 83 | | | | | | | 69 | |
| Sep | GAK 3 | G4052 | 19 | | | | | | | 12 | |
| Sep | GAK 3 | G4053 | 6 | | | | 1 | | | 12 | |
| Sep | GAK 3 | G4054 | 42 | | | | 6 | | | 11 | |
| Sep | GAK 3 | G4055 | 468 | | | | | | | 26 | |
| Sep | GAK 3 | G4056 | 409 | | | | | | | 45 | |
| Sep | GAK 3 | G4057 | 101 | | | | | | | 19 | |
| Sep | GAK 4 | G4133 | 75 | | | | 1 | | | 36 | |
| Sep | GAK 4 | G4134 | 3 | | | | | | | 87 | |
| Sep | GAK 4 | G4135 | 11 | | | | 1 | | | 62 | |
| Sep | GAK 4 | G4136 | | | | | | | | 33 | |
| Sep | GAK 4 | G4137 | 1 | | | | 1 | | | 89 | 1 |
| Sep | GAK 4 | G4138 | 15 | | | | 1 | | | 76 | |
| Sep | GAK 4 | G4139 | 18 | | | | 1 | | | 15 | |
| Sep | GAK 4 | G4140 | 2 | | | | 1 | | | 7 | |
| Sep | GAK 4 | G4141 | 2 | | | | 1 | | 1 | 314 | |
| Sep | GAK 4 | G4142 | 4 | | | | 1 | | | | |
| Sep | GAK 4 | G4143 | 81 | | | | 3 | | | 27 | |
| Sep | GAK 4 | G4144 | 13 | | | | | | | 49 | |
| Sep | GAK 4 | G4145 | 9 | | | | | | | 12 | |
| Sep | GAK 4 | G4146 | 2 | | | | | | | | |
| Sep | GAK 4 | G4147 | 1 | | | | | | | 29 | |
| Sep | GAK 5 | G4020 | 1 | | | | 1 | | | 143 | |
| Sep | GAK 5 | G4021 | | | | | | | | 2 | |
| Sep | GAK 5 | G4022 | | 1 | | | | | | 112 | |
| Sep | GAK 5 | G4023 | | | | | | | | 145 | |
| Sep | GAK 5 | G4024 | 2 | | | | | | | 5 | |
| Sep | GAK 5 | G4025 | 7 | | | | 2 | | | 28 | |
| Sep | GAK 5 | G4026 | 2 | | | | | | | 14 | |
| Sep | GAK 5 | G4027 | | | | | | | | 2 | |
| Sep | GAK 5 | G4028 | | | | | | | | | |
| Sep | GAK 5 | G4029 | | | | | | | | 4 | |
| Sep | GAK 6 | G4067 | | | | | | | | | |
| Sep | GAK 6 | G4068 | | | | | | 1 | | 1 | |
| Sep | GAK 6 | G4069 | | | | | | | | | |
| Sep | GAK 6 | G4070 | 39 | | | | | | | 4 | |
| Sep | GAK 6 | G4071 | | | | | | | | 1 | |
| Sep | GAK 6 | G4072 | | | | | | | | | |
| Sep | GAK 6 | G4073 | | | | | | | | 1 | |
| Sep | GAK 6 | G4074 | | | | | | | | 3 | |
| Sep | GAK 6 | G4075 | | | | | | | | | |
| Sep | GAK 6 | G4076 | | | | | | | | 10 | |
| Sep | GAK 6 | G4077 | | | | | | | | | |
| Sep | GAK 6 | G4078 | | | | | | | | 5 | |
| Sep | GAK 6 | G4079 | | | | | 1 | | | | |
| Sep | GAK 6 | G4080 | | | | | | | | | |

Table A-12 (Continued). Juvenile sockeye salmon prey count from GAKs 3, 4, 5, and 6 (September).

| Cruise | Station | Unique Fish # | Other copepod | Partial copepod | *P. pacifica* | *P. macropa* | Medusa | Siphono-phore, partial | Larvacean | Chaeto-gnath |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4046 | | | | | | | | |
| Sep | GAK 3 | G4049 | 2 | | 6 | | | | 27 | |
| Sep | GAK 3 | G4050 | | | | | | | | |
| Sep | GAK 3 | G4051 | 2 | | 4 | 3 | | | | |
| Sep | GAK 3 | G4052 | | | 33 | | | | | |
| Sep | GAK 3 | G4053 | 9 | | 2 | | | | 26 | |
| Sep | GAK 3 | G4054 | 6 | | | | | | 323 | |
| Sep | GAK 3 | G4055 | 1 | | 3 | | | | | |
| Sep | GAK 3 | G4056 | | | 10 | | | | | |
| Sep | GAK 3 | G4057 | | | 7 | | | | | |
| Sep | GAK 4 | G4133 | 22 | | 12 | | | | 2 | |
| Sep | GAK 4 | G4134 | 7 | | 12 | | | | 2 | |
| Sep | GAK 4 | G4135 | 13 | | 5 | | | | 14 | |
| Sep | GAK 4 | G4136 | 5 | | 25 | | | | 56 | |
| Sep | GAK 4 | G4137 | 4 | | 12 | | | | 38 | |
| Sep | GAK 4 | G4138 | 10 | | 3 | | | | 32 | |
| Sep | GAK 4 | G4139 | 5 | | 26 | | | | 5 | |
| Sep | GAK 4 | G4140 | 10 | | 5 | | | | 47 | |
| Sep | GAK 4 | G4141 | 9 | | | | | | 117 | |
| Sep | GAK 4 | G4142 | 13 | | | | | | 1380 | |
| Sep | GAK 4 | G4143 | 2 | | | | | | 305 | |
| Sep | GAK 4 | G4144 | | | 1 | | | | 8 | |
| Sep | GAK 4 | G4145 | 3 | | 2 | | | | 25 | |
| Sep | GAK 4 | G4146 | 13 | | | | | | 458 | |
| Sep | GAK 4 | G4147 | 14 | | | | | | 794 | |
| Sep | GAK 5 | G4020 | 2 | | 4 | | | | | |
| Sep | GAK 5 | G4021 | | | 6 | | | | | |
| Sep | GAK 5 | G4022 | 1 | | 25 | | | | | |
| Sep | GAK 5 | G4023 | 1 | | 5 | | | | | |
| Sep | GAK 5 | G4024 | | | 10 | | | | | |
| Sep | GAK 5 | G4025 | | | 1 | | | | | |
| Sep | GAK 5 | G4026 | | | | | | | | |
| Sep | GAK 5 | G4027 | | | 238 | | | | | |
| Sep | GAK 5 | G4028 | | | | | | | | |
| Sep | GAK 5 | G4029 | 1 | | 24 | | | | | |
| Sep | GAK 6 | G4067 | | | | | | | | |
| Sep | GAK 6 | G4068 | | 1 | 1 | | 4 | 1 | | |
| Sep | GAK 6 | G4069 | | | | | | | | |
| Sep | GAK 6 | G4070 | 1 | 2 | | | | | | |
| Sep | GAK 6 | G4071 | | | | | | | | |
| Sep | GAK 6 | G4072 | | | | | | | | |
| Sep | GAK 6 | G4073 | | | | | | | | |
| Sep | GAK 6 | G4074 | | | 50 | | | | | |
| Sep | GAK 6 | G4075 | | | 3 | | | | | |
| Sep | GAK 6 | G4076 | | 2 | 1 | | | | | |
| Sep | GAK 6 | G4077 | | | | | | | | |
| Sep | GAK 6 | G4078 | 1 | | 154 | | | | | |
| Sep | GAK 6 | G4079 | | | | | | | | |
| Sep | GAK 6 | G4080 | | | 2 | | | | | |

Table A-12 (Continued). Juvenile sockeye salmon prey count from GAKs 3, 4, 5, and 6 (September).

| Cruise | Station | Unique Fish # | *Limacina* sp. | Podon | Poly-chaete | Barnacle nauplii | Barnacle cyprid | Crab megalopa | Crab zoea | *Euphasid* sp. adult | Crust., other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4046 | 55 | | | | | | | | |
| Sep | GAK 3 | G4049 | 59 | | | | | 1 | | | |
| Sep | GAK 3 | G4050 | 2 | | | | | | | | |
| Sep | GAK 3 | G4051 | 281 | | | | | 1 | | | |
| Sep | GAK 3 | G4052 | 17 | | | | | 34 | | | |
| Sep | GAK 3 | G4053 | 143 | | | | | 1 | | | |
| Sep | GAK 3 | G4054 | 1 | | | | | 1 | | | |
| Sep | GAK 3 | G4055 | 103 | | | | | | | | |
| Sep | GAK 3 | G4056 | 259 | | | | | | | | |
| Sep | GAK 3 | G4057 | 772 | | | | | | | | |
| Sep | GAK 4 | G4133 | 347 | | | | | | | | |
| Sep | GAK 4 | G4134 | 617 | | | | | | | | |
| Sep | GAK 4 | G4135 | 142 | | | | | | | | |
| Sep | GAK 4 | G4136 | 184 | | | | | | | | |
| Sep | GAK 4 | G4137 | 259 | | | | | | | | |
| Sep | GAK 4 | G4138 | 67 | | | | | | | | |
| Sep | GAK 4 | G4139 | 367 | | | | | | | | |
| Sep | GAK 4 | G4140 | 91 | | | | | | | | |
| Sep | GAK 4 | G4141 | | | | | | | | | |
| Sep | GAK 4 | G4142 | | | | | | | | | |
| Sep | GAK 4 | G4143 | 4 | | | | | | | | |
| Sep | GAK 4 | G4144 | 47 | | | | | 2 | | | |
| Sep | GAK 4 | G4145 | 36 | | 1 | | | | 1 | | |
| Sep | GAK 4 | G4146 | | | | | | | | | |
| Sep | GAK 4 | G4147 | 58 | | | | | | | | |
| Sep | GAK 5 | G4020 | | | | | | | | | |
| Sep | GAK 5 | G4021 | | | | | | | | | |
| Sep | GAK 5 | G4022 | 623 | | | | | | | | |
| Sep | GAK 5 | G4023 | 125 | | | | | | | | |
| Sep | GAK 5 | G4024 | 11 | | | | | | | | |
| Sep | GAK 5 | G4025 | 8 | | | | | | | | |
| Sep | GAK 5 | G4026 | | | | | | | | | |
| Sep | GAK 5 | G4027 | 123 | | | | | | | | |
| Sep | GAK 5 | G4028 | | | | | | 2 | | | |
| Sep | GAK 5 | G4029 | 79 | | | | | | 1 | | |
| Sep | GAK 6 | G4067 | | | | | | | | | |
| Sep | GAK 6 | G4068 | 2 | | | | | | | | 1 |
| Sep | GAK 6 | G4069 | | | | | | | | | |
| Sep | GAK 6 | G4070 | | | | | | | | | 2 |
| Sep | GAK 6 | G4071 | | | | | | | | | |
| Sep | GAK 6 | G4072 | | | | | | 1 | | | |
| Sep | GAK 6 | G4073 | | | | | | | | | |
| Sep | GAK 6 | G4074 | 60 | | | | | | | | |
| Sep | GAK 6 | G4075 | 2 | | | | | | | 1 | |
| Sep | GAK 6 | G4076 | 1 | | | | | | | | |
| Sep | GAK 6 | G4077 | | | | | | | | | |
| Sep | GAK 6 | G4078 | 64 | | | | | | | | |
| Sep | GAK 6 | G4079 | | | | | | | | | |
| Sep | GAK 6 | G4080 | | | | | | | | | |

Table A-12 (Continued). Juvenile sockeye salmon prey count from GAKs 3, 4, 5, and 6 (September).

| Cruise | Station | Unique Fish # | Crust. zoea | Nauplii | Shrimp | Snail | Crust., partial | Fish larvae | Fish eggs | Flies | Cephalo-poda |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sep | GAK 3 | G4046 | | | 1 | | | | | | |
| Sep | GAK 3 | G4049 | | | 5 | 1 | | | | | |
| Sep | GAK 3 | G4050 | | | 7 | | | | | | |
| Sep | GAK 3 | G4051 | | | 2 | | | | | | |
| Sep | GAK 3 | G4052 | | | 1 | | | | | | |
| Sep | GAK 3 | G4053 | | | | | | | | | |
| Sep | GAK 3 | G4054 | | | | | | | | | |
| Sep | GAK 3 | G4055 | | | 5 | | | | | | |
| Sep | GAK 3 | G4056 | | | 4 | 2 | | | | | |
| Sep | GAK 3 | G4057 | | | 5 | 5 | | | | | |
| Sep | GAK 4 | G4133 | | | 9 | | | | | | |
| Sep | GAK 4 | G4134 | | | 2 | | | | | | |
| Sep | GAK 4 | G4135 | | | 2 | | | | | | |
| Sep | GAK 4 | G4136 | | | 5 | | | | | | |
| Sep | GAK 4 | G4137 | | | 4 | 2 | | | | | |
| Sep | GAK 4 | G4138 | | | 16 | | | | | | |
| Sep | GAK 4 | G4139 | | | 2 | 1 | | | | | |
| Sep | GAK 4 | G4140 | | | | 2 | | | | | |
| Sep | GAK 4 | G4141 | | | 4 | | | | | | |
| Sep | GAK 4 | G4142 | | | 1 | | | | | | |
| Sep | GAK 4 | G4143 | | | 1 | | | | | | |
| Sep | GAK 4 | G4144 | | | 7 | 1 | | | | | |
| Sep | GAK 4 | G4145 | | | 3 | | | | | | |
| Sep | GAK 4 | G4146 | | | 7 | | | | | | |
| Sep | GAK 4 | G4147 | | | | 1 | | | | | |
| Sep | GAK 5 | G4020 | | | 2 | | | | | | |
| Sep | GAK 5 | G4021 | | | 4 | | | | | | |
| Sep | GAK 5 | G4022 | | | 2 | | | | | | |
| Sep | GAK 5 | G4023 | | | | | | | | | |
| Sep | GAK 5 | G4024 | | | 2 | | | | | | 1 |
| Sep | GAK 5 | G4025 | | | | | | 6 | 3 | | |
| Sep | GAK 5 | G4026 | | | | | | | | | |
| Sep | GAK 5 | G4027 | | | | | | | | | |
| Sep | GAK 5 | G4028 | | | | | | 5 | 2 | | |
| Sep | GAK 5 | G4029 | | | 1 | | | 1 | | | |
| Sep | GAK 6 | G4067 | | | | | | | | | |
| Sep | GAK 6 | G4068 | | | 5 | | | 1 | | | |
| Sep | GAK 6 | G4069 | | | | | | | | | |
| Sep | GAK 6 | G4070 | | | 4 | | | | | | |
| Sep | GAK 6 | G4071 | | | | | | | | | |
| Sep | GAK 6 | G4072 | | | 1 | | | | | | 3 |
| Sep | GAK 6 | G4073 | | | 1 | | | | | | |
| Sep | GAK 6 | G4074 | | 1 | 9 | | | | | | |
| Sep | GAK 6 | G4075 | | | 1 | | | | | | |
| Sep | GAK 6 | G4076 | | | 1 | | | | | | |
| Sep | GAK 6 | G4077 | | | 2 | | | | | | |
| Sep | GAK 6 | G4078 | | | 1 | | | | | | |
| Sep | GAK 6 | G4079 | | | | | | | | | |
| Sep | GAK 6 | G4080 | | | | | | | | | 2 |

Table A-13. Juvenile pink salmon prey count from stations PWS 1 and 2 (July), GAK 2 and 3 (August).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Centropa-ges* sp. | *E. longi-pedata* | *Acar-tia* sp. | *Metri-dia* sp. | *Oitho-na* sp. | *E. bungii* | *Harpacti-coid* sp. |
|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4218 | | | | | | | | |
| Jul | PWS 1 | G4219 | | | | | | | | |
| Jul | PWS 1 | G4220 | 1 | | 3 | | | | | |
| Jul | PWS 1 | G4221 | | | 2 | 2 | | | | |
| Jul | PWS 1 | G4222 | | | 1 | 1 | | | | |
| Jul | PWS 1 | G4223 | 1 | | 5 | | | | | |
| Jul | PWS 1 | G4224 | | | 3 | | | | | |
| Jul | PWS 1 | G4225 | | | | | | | | |
| Jul | PWS 1 | G4226 | | | | | | | | |
| Jul | PWS 1 | G4227 | | 467 | 1 | | | | | |
| Jul | PWS 1 | G4228 | | 2 | 22 | | | | | |
| Jul | PWS 1 | G4229 | | | 3 | 1 | | | | |
| Jul | PWS 1 | G4230 | | 1 | | | | | | |
| Jul | PWS 1 | G4231 | | | 4 | | | | | |
| Jul | PWS 1 | G4232 | | | | | | | | |
| Jul | PWS 2 | G551 | | 1 | 4 | 2 | | | | |
| Jul | PWS 2 | G552 | | | | | | | | |
| Jul | PWS 2 | G553 | | | 1 | | 1 | | | |
| Jul | PWS 2 | G554 | | | 1 | | | | | |
| Jul | PWS 2 | G555 | 1 | | | | | | | |
| Jul | PWS 2 | G556 | | 1 | 7 | | | | | |
| Jul | PWS 2 | G557 | 1 | | | | | | | |
| Jul | PWS 2 | G558 | | | | 4 | | | | |
| Jul | PWS 2 | G559 | | | 1 | | | | | 1 |
| Jul | PWS 2 | G560 | | | | 1 | | | | |
| Jul | PWS 2 | G561 | | | 1 | | | | | |
| Jul | PWS 2 | G562 | | 1 | | | | | | |
| Jul | PWS 2 | G563 | | 2 | | | | | | |
| Jul | PWS 2 | G564 | | | 5 | 2 | | | | 1 |
| Jul | PWS 2 | G565 | | | | 3 | | | | |
| Aug | GAK 2 | G696 | 2 | 7 | 35 | | | | | |
| Aug | GAK 2 | G697 | | 1 | 19 | | | | | |
| Aug | GAK 2 | G698 | | | | | | | 4 | |
| Aug | GAK 2 | G699 | | | 18 | | | | | |
| Aug | GAK 2 | G700 | | | | | | | 1 | |
| Aug | GAK 2 | G701 | 1 | 9 | 11 | | | | | |
| Aug | GAK 2 | G702 | 2 | 2 | 31 | | | | | |
| Aug | GAK 2 | G703 | | | | | | | | |
| Aug | GAK 2 | G704 | 3 | 4 | 24 | | | | | |
| Aug | GAK 2 | G705 | | | 38 | | | | | |
| Aug | GAK 2 | G706 | | | 1 | | | | | |
| Aug | GAK 2 | G707 | 16 | | 297 | | 1 | | | |
| Aug | GAK 2 | G708 | 2 | 2 | 13 | | | | | |
| Aug | GAK 2 | G709 | 1 | | 14 | | | | 1 | |
| Aug | GAK 2 | G710 | 1 | | 31 | | | | | |
| Aug | GAK 3 | G752 | 13 | 1 | 36 | | | | | |
| Aug | GAK 3 | G753 | | | | | | | 10 | |
| Aug | GAK 3 | G754 | | | 2 | | | | | |
| Aug | GAK 3 | G755 | | | 1 | | | | | |
| Aug | GAK 3 | G756 | 56 | 1 | 34 | | | | 1 | |

Table A-13 (Continued). Juvenile pink salmon prey count from stations PWS 1 and 2 (July), GAK 2 and 3 (August).

| Cruise | Station | Unique Fish # | Other copepod | *P. pacifica* | *Calei-opus* sp. | *Cyphocaris challengeri* | *P. macropa* | Other amphipod | Larvacean |
|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4218 | | 10 | | | 4 | | |
| Jul | PWS 1 | G4219 | | | | | | | 14 |
| Jul | PWS 1 | G4220 | 1 | 5 | | | | | |
| Jul | PWS 1 | G4221 | 1 | 3 | | | 1 | | |
| Jul | PWS 1 | G4222 | | | | | | | 1 |
| Jul | PWS 1 | G4223 | 2 | 21 | | | 16 | | |
| Jul | PWS 1 | G4224 | 2 | 3 | | | 1 | | |
| Jul | PWS 1 | G4225 | 2 | 5 | | | | | |
| Jul | PWS 1 | G4226 | 2 | | | | | | 173 |
| Jul | PWS 1 | G4227 | 3 | 8 | | | | | 1 |
| Jul | PWS 1 | G4228 | 5 | 9 | | | 1 | | |
| Jul | PWS 1 | G4229 | | 3 | | | | | 1 |
| Jul | PWS 1 | G4230 | | 1 | | | | | 7 |
| Jul | PWS 1 | G4231 | | 6 | | | 1 | | 1 |
| Jul | PWS 1 | G4232 | | 11 | | | | | |
| Jul | PWS 2 | G551 | 1 | 7 | | | 7 | | |
| Jul | PWS 2 | G552 | | 9 | | | | | |
| Jul | PWS 2 | G553 | | 10 | | | | | 72 |
| Jul | PWS 2 | G554 | | 2 | | | 3 | | 3 |
| Jul | PWS 2 | G555 | | 2 | | | 4 | | 2 |
| Jul | PWS 2 | G556 | 1 | 18 | | | 2 | | |
| Jul | PWS 2 | G557 | | 1 | | | | | 4 |
| Jul | PWS 2 | G558 | 1 | 4 | | | 3 | | 3 |
| Jul | PWS 2 | G559 | 1 | 7 | | | 4 | | |
| Jul | PWS 2 | G560 | 1 | 2 | | | 1 | | |
| Jul | PWS 2 | G561 | 1 | | | | 1 | | |
| Jul | PWS 2 | G562 | 1 | 9 | | | | | |
| Jul | PWS 2 | G563 | 2 | 7 | | | | | 149 |
| Jul | PWS 2 | G564 | | 3 | | | 1 | | 32 |
| Jul | PWS 2 | G565 | 4 | | | | 3 | | |
| Aug | GAK 2 | G696 | 2 | | | | | | 1 |
| Aug | GAK 2 | G697 | | | | | | | |
| Aug | GAK 2 | G698 | 1 | 2 | | | 1 | | |
| Aug | GAK 2 | G699 | 2 | | | | | | |
| Aug | GAK 2 | G700 | | | | | 1 | 2 | |
| Aug | GAK 2 | G701 | 11 | 2 | | | | | 10 |
| Aug | GAK 2 | G702 | 5 | 1 | | | | | 1 |
| Aug | GAK 2 | G703 | 2 | 1 | | | 1 | | |
| Aug | GAK 2 | G704 | 1 | 1 | | | | | 4 |
| Aug | GAK 2 | G705 | 1 | | | | | | 2 |
| Aug | GAK 2 | G706 | 1 | | | | | | |
| Aug | GAK 2 | G707 | 68 | 2 | | | | | 6 |
| Aug | GAK 2 | G708 | 4 | | | | | | 6 |
| Aug | GAK 2 | G709 | 1 | | | | | | 4 |
| Aug | GAK 2 | G710 | 8 | 2 | | | | | |
| Aug | GAK 3 | G752 | 3 | 4 | | | | | |
| Aug | GAK 3 | G753 | 2 | | 1 | | | | 1 |
| Aug | GAK 3 | G754 | 1 | | | | | | |
| Aug | GAK 3 | G755 | | | | | | | |
| Aug | GAK 3 | G756 | 1 | 3 | | | | | 2 |

Table A-13 (Continued). Juvenile pink salmon prey count from stations PWS 1 and 2 (July), GAK 2 and 3 (Augsut).

| Cruise | Station | Unique Fish # | Chaeto-gnath | Podon | *Limacina* sp. | Poly-chaete | Barnacle nauplii | Barnacle cyprid | Crab megalopa | Crab zoea |
|---|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4218 | | 1 | 68 | | | | | |
| Jul | PWS 1 | G4219 | | | 208 | | | | | |
| Jul | PWS 1 | G4220 | | | | | | | | |
| Jul | PWS 1 | G4221 | | | 134 | | | | 1 | |
| Jul | PWS 1 | G4222 | | | 79 | | | | | |
| Jul | PWS 1 | G4223 | | | 589 | | | | 4 | |
| Jul | PWS 1 | G4224 | | | 105 | | | | 8 | |
| Jul | PWS 1 | G4225 | | | 153 | | | | | |
| Jul | PWS 1 | G4226 | | | 1 | | | 1 | | |
| Jul | PWS 1 | G4227 | | | | | | 6 | | |
| Jul | PWS 1 | G4228 | | 1 | 24 | | | 6 | 1 | |
| Jul | PWS 1 | G4229 | | | 118 | | | | 4 | |
| Jul | PWS 1 | G4230 | | | 226 | | | | | |
| Jul | PWS 1 | G4231 | | | 156 | | | 1 | 3 | |
| Jul | PWS 1 | G4232 | | | 2740 | | | | | |
| Jul | PWS 2 | G551 | | | 34 | | | | 2 | |
| Jul | PWS 2 | G552 | | 3 | | | | | 44 | |
| Jul | PWS 2 | G553 | | | 2 | | | | 4 | |
| Jul | PWS 2 | G554 | | | 25 | | | | 3 | |
| Jul | PWS 2 | G555 | | | 19 | | | | 2 | 1 |
| Jul | PWS 2 | G556 | | | | | 2 | | | |
| Jul | PWS 2 | G557 | | | 13 | | | | | |
| Jul | PWS 2 | G558 | | | 29 | | | | | |
| Jul | PWS 2 | G559 | | | 36 | | | 1 | 1 | |
| Jul | PWS 2 | G560 | | | 18 | | | | 2 | |
| Jul | PWS 2 | G561 | | | 2 | | 1 | | 1 | 1 |
| Jul | PWS 2 | G562 | | | 278 | | 1 | | | |
| Jul | PWS 2 | G563 | | | 6 | | 1 | | 1 | 1 |
| Jul | PWS 2 | G564 | | | 126 | | 2 | | 6 | |
| Jul | PWS 2 | G565 | | | 14 | | | | 3 | |
| Aug | GAK 2 | G696 | | 4 | 1 | | | | 6 | 1 |
| Aug | GAK 2 | G697 | | | | | | | 25 | |
| Aug | GAK 2 | G698 | | | 1 | | | | 18 | |
| Aug | GAK 2 | G699 | | | | | | | 20 | |
| Aug | GAK 2 | G700 | | | | | | | 5 | |
| Aug | GAK 2 | G701 | | 12 | 4 | 230 | 2 | | | |
| Aug | GAK 2 | G702 | | 1 | 7 | 1 | 1 | | 26 | |
| Aug | GAK 2 | G703 | | | 7 | | | | 12 | |
| Aug | GAK 2 | G704 | | 1 | 9 | 3 | | | 9 | |
| Aug | GAK 2 | G705 | | | | | | | 1 | |
| Aug | GAK 2 | G706 | | 1 | 1 | | | | 13 | |
| Aug | GAK 2 | G707 | | 1 | | 1 | 1 | | 7 | |
| Aug | GAK 2 | G708 | | 10 | 10 | 6 | | 2 | 9 | |
| Aug | GAK 2 | G709 | | | | | | | 4 | |
| Aug | GAK 2 | G710 | | | | | | | 2 | |
| Aug | GAK 3 | G752 | | 2 | 14 | | | | | 1 |
| Aug | GAK 3 | G753 | | | | | | | | |
| Aug | GAK 3 | G754 | | | 1 | | 3 | | | |
| Aug | GAK 3 | G755 | | | | | | | | |
| Aug | GAK 3 | G756 | | 2 | 37 | | 1 | | | 10 |

Table A-13 (Continued). Juvenile pink salmon prey count from stations PWS 1 and 2 (July), GAK 2 and 3 (August).

| Cruise | Station | Unique Fish # | *Euphasid* sp. adult | Crustacean | Isopod | Bivalve | Fish larvae | Flies | Flies, partial |
|---|---|---|---|---|---|---|---|---|---|
| Jul | PWS 1 | G4218 | | | | | 1 | | |
| Jul | PWS 1 | G4219 | | | | | | | |
| Jul | PWS 1 | G4220 | | | | | | 4 | |
| Jul | PWS 1 | G4221 | | | | | | | |
| Jul | PWS 1 | G4222 | | | | | | | |
| Jul | PWS 1 | G4223 | | | | | | | |
| Jul | PWS 1 | G4224 | | | | | | | |
| Jul | PWS 1 | G4225 | | | | | | | |
| Jul | PWS 1 | G4226 | | | | | | | |
| Jul | PWS 1 | G4227 | | | | | | | |
| Jul | PWS 1 | G4228 | | | | | | | |
| Jul | PWS 1 | G4229 | | | | | | | |
| Jul | PWS 1 | G4230 | | | | | | 1 | |
| Jul | PWS 1 | G4231 | | | | | | | |
| Jul | PWS 1 | G4232 | | | | | | | |
| Jul | PWS 2 | G551 | | | 1 | | | | |
| Jul | PWS 2 | G552 | | | | | | | |
| Jul | PWS 2 | G553 | | | | | | | |
| Jul | PWS 2 | G554 | | | | | | | |
| Jul | PWS 2 | G555 | | | | | | | |
| Jul | PWS 2 | G556 | | | | | | | |
| Jul | PWS 2 | G557 | | | | | | | |
| Jul | PWS 2 | G558 | | | | | | | |
| Jul | PWS 2 | G559 | | | | | 1 | | |
| Jul | PWS 2 | G560 | | | | | | | |
| Jul | PWS 2 | G561 | | | | | | | |
| Jul | PWS 2 | G562 | | | | | | | |
| Jul | PWS 2 | G563 | | | | | | | |
| Jul | PWS 2 | G564 | | | | | 1 | | |
| Jul | PWS 2 | G565 | | | | | 1 | | |
| Aug | GAK 2 | G696 | | | | | | 2 | |
| Aug | GAK 2 | G697 | | | | | | | |
| Aug | GAK 2 | G698 | | | | | | | |
| Aug | GAK 2 | G699 | | | | | | | |
| Aug | GAK 2 | G700 | | | | | | | |
| Aug | GAK 2 | G701 | | | | | | 1 | |
| Aug | GAK 2 | G702 | | | | | | | |
| Aug | GAK 2 | G703 | | | | | | | |
| Aug | GAK 2 | G704 | | | | | | | |
| Aug | GAK 2 | G705 | | | | | | 4 | |
| Aug | GAK 2 | G706 | | | | | | | |
| Aug | GAK 2 | G707 | | | | | | 3 | |
| Aug | GAK 2 | G708 | | | | | | 2 | |
| Aug | GAK 2 | G709 | | | | | | 2 | |
| Aug | GAK 2 | G710 | | | | | | 2 | |
| Aug | GAK 3 | G752 | | | | | 1 | | |
| Aug | GAK 3 | G753 | | | | | 1 | 1 | |
| Aug | GAK 3 | G754 | | | | | | | |
| Aug | GAK 3 | G755 | | | | | | | |
| Aug | GAK 3 | G756 | | | | | | | |

Table A-14. Juvenile pink salmon prey count from stations GAK 3, 4, 5, 6 (August) and PWS 1 and 3 (September).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Centropa-ges* sp. | *E. longi-pedata* | *Acar-tia* sp. | *Metri-dia* sp. | *Oitho-na* sp. | *E. bungii* | *Harpacti-coid* sp. |
|---|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G757 | 2 | 252 | 4 | | | | | |
| Aug | GAK 3 | G758 | 3 | 1 | | | | | 4 | |
| Aug | GAK 3 | G759 | 6 | 2 | | | | | | |
| Aug | GAK 3 | G760 | | 1 | 2 | | | | | |
| Aug | GAK 3 | G761 | 2 | 5 | 27 | | | | | |
| Aug | GAK 3 | G762 | 3 | | | | | | 2 | |
| Aug | GAK 3 | G763 | | | | | | | 1 | |
| Aug | GAK 3 | G764 | | | | | | | | |
| Aug | GAK 3 | G765 | 14 | 2 | 18 | | | | | |
| Aug | GAK 3 | G766 | | | | | | | 1 | |
| Aug | GAK 4 | G785 | 17 | 4 | 118 | | | | | |
| Aug | GAK 4 | G786 | 7 | | 29 | | | | 1 | 1 |
| Aug | GAK 4 | G787 | 13 | | 4 | | | | | |
| Aug | GAK 4 | G788 | 39 | 19 | 43 | | | | 1 | |
| Aug | GAK 4 | G789 | 11 | | 132 | | | | | |
| Aug | GAK 4 | G790 | 59 | 2 | 70 | | | | | |
| Aug | GAK 4 | G791 | 43 | 2 | 146 | | | | 1 | |
| Aug | GAK 4 | G792 | 83 | 44 | 146 | | | | | |
| Aug | GAK 4 | G793 | 30 | 20 | 326 | | | | 1 | |
| Aug | GAK 4 | G794 | 22 | | 101 | | | | 1 | |
| Aug | GAK 4 | G795 | 10 | | 34 | | | | | |
| Aug | GAK 4 | G796 | 21 | 54 | 82 | | | | 1 | |
| Aug | GAK 4 | G797 | 14 | | 3 | 1 | | | | |
| Aug | GAK 4 | G798 | 16 | 16 | 15 | | | | | |
| Aug | GAK 4 | G799 | 18 | | 143 | | | | | |
| Aug | GAK 5 | G734 | 38 | 3 | 47 | | | | | |
| Aug | GAK 5 | G735 | 14 | 1 | 15 | | | | | |
| Aug | GAK 5 | G736 | 13 | | 2 | | | | | |
| Aug | GAK 5 | G737 | 18 | | 4 | | | | 1 | |
| Aug | GAK 5 | G738 | 44 | | 4 | | | | | |
| Aug | GAK 5 | G739 | 66 | | 17 | | | | 1 | |
| Aug | GAK 5 | G740 | 58 | | 6 | | | | 1 | |
| Aug | GAK 5 | G741 | 194 | | 68 | | | | 66 | |
| Aug | GAK 5 | G742 | 4 | | | | | | 5 | |
| Aug | GAK 5 | G743 | 5 | | 2 | | | | | |
| Aug | GAK 5 | G744 | 68 | | 19 | | | | | |
| Aug | GAK 5 | G745 | 116 | | 6 | | | | 1 | |
| Aug | GAK 5 | G746 | 136 | | | | | | 112 | |
| Aug | GAK 5 | G747 | 2 | | | | | | 5 | |
| Aug | GAK 5 | G748 | 26 | | 2 | | | | | |
| Sep | PWS 1 | G974 | | | | | | | | |
| Sep | PWS 1 | G975 | 1 | | | | | | 1 | |
| Sep | PWS 1 | G976 | 1 | | | | | | | |
| Sep | PWS 1 | G977 | 1 | | | | | | | |
| Sep | PWS 1 | G978 | | | | | | | | |
| Sep | PWS 3 | G943 | | | | | | | | |
| Sep | PWS 3 | G944 | | 1 | | | | | | |
| Sep | PWS 3 | G945 | | | 1 | 1 | | | | |
| Sep | PWS 3 | G946 | | | | | | | | |
| Sep | PWS 3 | G947 | | | | | | | | |

Table A-14 (Continued). Juvenile pink salmon prey count from stations GAK 3, 4, 5, 6 (August) and PWS 1 and 3 (September).

| Cruise | Station | Unique Fish # | Other copepod | *P. pacifica* | *Calei-opus* sp. | *Cyphocaris challengeri* | *P. macropa* | Other amphipod | Larvacean |
|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G757 | | | | | | | |
| Aug | GAK 3 | G758 | 1 | | | | | | |
| Aug | GAK 3 | G759 | | | | | | | |
| Aug | GAK 3 | G760 | | 2 | | | | | 1 |
| Aug | GAK 3 | G761 | 2 | 1 | | | | | |
| Aug | GAK 3 | G762 | | | | | | | |
| Aug | GAK 3 | G763 | | | | | | | |
| Aug | GAK 3 | G764 | | | | | | | |
| Aug | GAK 3 | G765 | | 2 | | | | | |
| Aug | GAK 3 | G766 | 1 | | | | | | |
| Aug | GAK 4 | G785 | 10 | | | | | | 4 |
| Aug | GAK 4 | G786 | | 1 | | | | | 2 |
| Aug | GAK 4 | G787 | | 1 | | | | | 1 |
| Aug | GAK 4 | G788 | | 2 | | | | | 83 |
| Aug | GAK 4 | G789 | | 1 | | | 1 | | 1 |
| Aug | GAK 4 | G790 | 1 | 4 | | | | | 2 |
| Aug | GAK 4 | G791 | | 9 | | | | | 205 |
| Aug | GAK 4 | G792 | | | | | | | |
| Aug | GAK 4 | G793 | | 2 | | | | | 3 |
| Aug | GAK 4 | G794 | | 3 | | | | | 1 |
| Aug | GAK 4 | G795 | | 1 | | | | | 6 |
| Aug | GAK 4 | G796 | | 2 | | | | | 30 |
| Aug | GAK 4 | G797 | | 1 | | | | | 31 |
| Aug | GAK 4 | G798 | 1 | | | | | | |
| Aug | GAK 4 | G799 | 10 | 4 | | | | | 12 |
| Aug | GAK 5 | G734 | | 3 | | | | | 17 |
| Aug | GAK 5 | G735 | 1 | 1 | | | | | |
| Aug | GAK 5 | G736 | | 3 | | | | | |
| Aug | GAK 5 | G737 | 2 | 6 | | | | | |
| Aug | GAK 5 | G738 | | | | | | | 1 |
| Aug | GAK 5 | G739 | | 7 | | | | | |
| Aug | GAK 5 | G740 | 1 | 4 | | | | | |
| Aug | GAK 5 | G741 | 2 | 20 | | | | | 1 |
| Aug | GAK 5 | G742 | | 7 | | | | | |
| Aug | GAK 5 | G743 | 1 | 4 | | | | | |
| Aug | GAK 5 | G744 | 2 | 4 | | | | | |
| Aug | GAK 5 | G745 | | 5 | | | | | |
| Aug | GAK 5 | G746 | 2 | 2 | | | | | |
| Aug | GAK 5 | G747 | | 24 | | | | | 1 |
| Aug | GAK 5 | G748 | | 1 | | | | | |
| Sep | PWS 1 | G974 | | 18 | | | | | |
| Sep | PWS 1 | G975 | | 13 | | | | | |
| Sep | PWS 1 | G976 | | 33 | | 1 | 3 | | |
| Sep | PWS 1 | G977 | | 31 | | | 19 | | |
| Sep | PWS 1 | G978 | | 8 | | 1 | 2 | | |
| Sep | PWS 3 | G943 | 2 | 53 | | 50 | 87 | | |
| Sep | PWS 3 | G944 | 1 | 260 | | | 40 | | 1 |
| Sep | PWS 3 | G945 | 1 | 17 | | | 3 | | 3 |
| Sep | PWS 3 | G946 | 1 | 18 | | 2 | 7 | | |
| Sep | PWS 3 | G947 | | 6 | | | 2 | | |

Table A-14 (Continued). Juvenile pink salmon prey count from stations GAK 3, 4, 5, 6 (August) and PWS 1 and 3 (September).

| Cruise | Station | Unique Fish # | Chaeto-gnath | Podon | *Limacina* sp. | Poly-chaete | Barnacle nauplii | Barnacle cyprid | Crab megalopa | Crab zoea |
|---|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G757 | | | 3 | 1 | | | | 1 |
| Aug | GAK 3 | G758 | | | | | | | | |
| Aug | GAK 3 | G759 | | | | | | | | |
| Aug | GAK 3 | G760 | | | | | | | | 5 |
| Aug | GAK 3 | G761 | | 5 | 17 | | | 1 | | 10 |
| Aug | GAK 3 | G762 | | | | | | | | |
| Aug | GAK 3 | G763 | | | 1 | | 1 | | 1 | 2 |
| Aug | GAK 3 | G764 | | | 3 | | | | | |
| Aug | GAK 3 | G765 | | | 21 | | | | | 5 |
| Aug | GAK 3 | G766 | | | | | | | | |
| Aug | GAK 4 | G785 | | 1 | 8 | | | | | |
| Aug | GAK 4 | G786 | | 30 | 44 | | 1 | 1 | | |
| Aug | GAK 4 | G787 | | 2 | 14 | | | | | |
| Aug | GAK 4 | G788 | | 11 | 45 | | | 1 | | |
| Aug | GAK 4 | G789 | | | 3 | | | | | 11 |
| Aug | GAK 4 | G790 | | 1 | 17 | | | | | |
| Aug | GAK 4 | G791 | | 39 | 23 | | | | | |
| Aug | GAK 4 | G792 | | 1 | 24 | | | | | 1 |
| Aug | GAK 4 | G793 | | 1 | 17 | 1 | | | | 7 |
| Aug | GAK 4 | G794 | | 1 | 11 | | | | | |
| Aug | GAK 4 | G795 | | 6 | 12 | | | | | 6 |
| Aug | GAK 4 | G796 | | 17 | 9 | | | | | 6 |
| Aug | GAK 4 | G797 | | | 14 | | | | | 1 |
| Aug | GAK 4 | G798 | | | 4 | | | | | 1 |
| Aug | GAK 4 | G799 | | 23 | 48 | | | 2 | 3 | |
| Aug | GAK 5 | G734 | | 2 | 17 | | 1 | 1 | 1 | |
| Aug | GAK 5 | G735 | | 7 | 647 | | 20 | | | 15 |
| Aug | GAK 5 | G736 | | | 298 | | 231 | | | 7 |
| Aug | GAK 5 | G737 | | | 143 | | 22 | | | 9 |
| Aug | GAK 5 | G738 | | | 139 | | 127 | | | 5 |
| Aug | GAK 5 | G739 | | 1 | 230 | | 10 | | | 8 |
| Aug | GAK 5 | G740 | | 2 | 354 | | 155 | | | 8 |
| Aug | GAK 5 | G741 | | 4 | 556 | | 32 | | | 31 |
| Aug | GAK 5 | G742 | | 2 | 284 | | 74 | | | 41 |
| Aug | GAK 5 | G743 | | | 52 | | 27 | | | 8 |
| Aug | GAK 5 | G744 | | | 409 | | 31 | | | 2 |
| Aug | GAK 5 | G745 | | 1 | 608 | | 29 | | | 5 |
| Aug | GAK 5 | G746 | | 1 | 59 | | | | | 8 |
| Aug | GAK 5 | G747 | | | 492 | | 317 | | | 39 |
| Aug | GAK 5 | G748 | | 2 | 805 | | 34 | | | 9 |
| Sep | PWS 1 | G974 | | | 18 | | 1 | | | |
| Sep | PWS 1 | G975 | | | | | | | | |
| Sep | PWS 1 | G976 | | | | | | | | |
| Sep | PWS 1 | G977 | | | | | | | | 1 |
| Sep | PWS 1 | G978 | | | | | | | | |
| Sep | PWS 3 | G943 | | | | | | | | |
| Sep | PWS 3 | G944 | | | 2 | | | | 1 | |
| Sep | PWS 3 | G945 | 1 | | | | | | 1 | |
| Sep | PWS 3 | G946 | | | | | | | | |
| Sep | PWS 3 | G947 | | | | | | | | |

Table A-14 (Continued). Juvenile pink salmon prey count from stations GAK 3, 4, 5, 6 (August) and PWS 1 and 3 (September).

| Cruise | Station | Unique Fish # | *Euphasid* sp. adult | Crustacean | Isopod | Bivalve | Fish larvae | Flies | Flies, partial |
|---|---|---|---|---|---|---|---|---|---|
| Aug | GAK 3 | G757 | | | | | 1 | | 2 |
| Aug | GAK 3 | G758 | | | | | | | |
| Aug | GAK 3 | G759 | | | | | | | |
| Aug | GAK 3 | G760 | | | | | | | |
| Aug | GAK 3 | G761 | | | | | | | |
| Aug | GAK 3 | G762 | | | | | | | |
| Aug | GAK 3 | G763 | | | | | | | |
| Aug | GAK 3 | G764 | | | | | | | |
| Aug | GAK 3 | G765 | | | | | | | |
| Aug | GAK 3 | G766 | | | | | | | |
| Aug | GAK 4 | G785 | | | | | | 3 | |
| Aug | GAK 4 | G786 | 3 | | | | 1 | 23 | |
| Aug | GAK 4 | G787 | | | | | | 31 | |
| Aug | GAK 4 | G788 | | | | | | 37 | |
| Aug | GAK 4 | G789 | | | | | | | |
| Aug | GAK 4 | G790 | | | | | | 9 | |
| Aug | GAK 4 | G791 | | | | 1 | | 5 | |
| Aug | GAK 4 | G792 | 1 | | | | | | |
| Aug | GAK 4 | G793 | | | | | | 19 | |
| Aug | GAK 4 | G794 | | | | | | 5 | |
| Aug | GAK 4 | G795 | | | | | | | |
| Aug | GAK 4 | G796 | | | | | | | |
| Aug | GAK 4 | G797 | | | | | | 50 | |
| Aug | GAK 4 | G798 | | | | | | 4 | |
| Aug | GAK 4 | G799 | | | | | | | |
| Aug | GAK 5 | G734 | | | | | 1 | 1 | |
| Aug | GAK 5 | G735 | 1 | | | | | | |
| Aug | GAK 5 | G736 | | | | | | | |
| Aug | GAK 5 | G737 | | | | | | | |
| Aug | GAK 5 | G738 | | | | | | | |
| Aug | GAK 5 | G739 | | | | | | | |
| Aug | GAK 5 | G740 | | | | | | | |
| Aug | GAK 5 | G741 | | | | | 8 | | |
| Aug | GAK 5 | G742 | | | | | 1 | 2 | |
| Aug | GAK 5 | G743 | | | | | | | |
| Aug | GAK 5 | G744 | | | | | | | |
| Aug | GAK 5 | G745 | | | | | | | |
| Aug | GAK 5 | G746 | | | | | | 1 | |
| Aug | GAK 5 | G747 | 3 | | | | | | |
| Aug | GAK 5 | G748 | | | | | | | |
| Sep | PWS 1 | G974 | | | | | | | |
| Sep | PWS 1 | G975 | | | | | | | |
| Sep | PWS 1 | G976 | 2 | | | | 2 | | |
| Sep | PWS 1 | G977 | | | | | | | |
| Sep | PWS 1 | G978 | 2 | | | | | | |
| Sep | PWS 3 | G943 | | | | | 9 | 3 | |
| Sep | PWS 3 | G944 | | | | | 10 | 1 | |
| Sep | PWS 3 | G945 | | | | | 27 | | |
| Sep | PWS 3 | G946 | | | | | 15 | 1 | |
| Sep | PWS 3 | G947 | | | | | 33 | | |

Table A-15. Juvenile pink salmon prey count from stations PWS 1 and 3 and GAK 3, 4, 5 and 6 (September).

| Cruise | Station | Unique Fish # | *Calanus* & *Neocal.* spp. | *Centropages* sp. | *E. longipedata* | *Acartia* sp. | *Metridia* sp. | *Oithona* sp. | *E. bungii* | *Harpacticoid* sp. |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep | PWS 3 | G948 | | | | 1 | | | | |
| Sep | PWS 3 | G949 | | 1 | | | | | | |
| Sep | PWS 3 | G950 | 2 | | | | | | | |
| Sep | PWS 3 | G951 | | | 2 | | | | | |
| Sep | PWS 3 | G4110 | | | | | | | | |
| Sep | GAK 3 | G853 | 2 | | 54 | 1 | | | 3 | |
| Sep | GAK 3 | G854 | 66 | | 31 | 2 | | | 9 | |
| Sep | GAK 3 | G855 | 136 | 2 | 3 | | | | 38 | |
| Sep | GAK 3 | G856 | 2 | | 34 | | | | 4 | |
| Sep | GAK 3 | G857 | 5 | 1 | | | | | 361 | |
| Sep | GAK 3 | G858 | 5 | | | 1 | | | 93 | |
| Sep | GAK 3 | G859 | 3 | | 2 | | | | 89 | |
| Sep | GAK 3 | G860 | 4 | | 1 | | | | 27 | |
| Sep | GAK 3 | G861 | 17 | 1 | | | | | 18 | |
| Sep | GAK 4 | G877 | | | | | | | | |
| Sep | GAK 4 | G878 | | | | | | | 1 | |
| Sep | GAK 4 | G879 | | | | | | | 43 | |
| Sep | GAK 4 | G880 | 32 | 1 | | 1 | 1 | 1 | 44 | |
| Sep | GAK 4 | G881 | 17 | | 2 | | | | 2 | |
| Sep | GAK 4 | G882 | 49 | | | | | | 4 | |
| Sep | GAK 4 | G883 | 34 | | | 1 | | | 30 | |
| Sep | GAK 4 | G884 | | | | | | | 1 | |
| Sep | GAK 4 | G885 | | | | 1 | | | 2 | |
| Sep | GAK 4 | G886 | 2 | | | | | | 2 | |
| Sep | GAK 5 | G887 | 1 | | | | | | 38 | |
| Sep | GAK 5 | G888 | 1 | | | 2 | | | 6 | |
| Sep | GAK 5 | G889 | 1 | | | 4 | | | 294 | |
| Sep | GAK 5 | G890 | | | 1 | 1 | | | 210 | |
| Sep | GAK 5 | G891 | 8 | | | | | | 26 | |
| Sep | GAK 5 | G892 | 5 | | | | | | 2 | |
| Sep | GAK 5 | G893 | 3 | | | 1 | | | 334 | |
| Sep | GAK 5 | G894 | | | | 1 | | | 165 | |
| Sep | GAK 5 | G895 | 1 | | 1 | | | | 1 | |
| Sep | GAK 5 | G896 | | | | 1 | | | 282 | |
| Sep | GAK 5 | G897 | 12 | | | 1 | | | 4 | |
| Sep | GAK 5 | G898 | 2 | | | | | | | |
| Sep | GAK 5 | G899 | | | | | | | 40 | |
| Sep | GAK 6 | G915 | 1 | | | 1 | | | | |
| Sep | GAK 6 | G916 | | | | | | | | |
| Sep | GAK 6 | G917 | | | 1 | | | | | |
| Sep | GAK 6 | G918 | | | | | | | | |
| Sep | GAK 6 | G919 | | | | | | | 1 | |
| Sep | GAK 6 | G920 | 6 | | 1 | 1 | | | | |
| Sep | GAK 6 | G921 | | | | | | | | |
| Sep | GAK 6 | G922 | | | | | | | 1 | |
| Sep | GAK 6 | G923 | 1 | | | | | | 13 | |
| Sep | GAK 6 | G924 | | | | | | | | |
| Sep | GAK 6 | G925 | | | | | | | | |
| Sep | GAK 6 | G926 | | | | | | | | |
| Sep | GAK 6 | G927 | | | | | | | | |
| Sep | GAK 6 | G928 | | | | | | | | |

Table A-15 (Continued). Juvenile pink salmon prey count from stations PWS 1 and 3 and GAK 3, 4, 5 and 6 (September).

| Cruise | Station | Unique Fish # | Other copepod | *P. pacifica* | *Calei-opus* sp. | *Cyphocaris challengeri* | *P. macropa* | Other amphipod | Larvacean |
|---|---|---|---|---|---|---|---|---|---|
| Sep | PWS 3 | G948 | 3 | 6 | | | 9 | | |
| Sep | PWS 3 | G949 | | 4 | | | 2 | | |
| Sep | PWS 3 | G950 | | 30 | | | 14 | | |
| Sep | PWS 3 | G951 | 2 | 54 | | | 21 | | |
| Sep | PWS 3 | G4110 | | 43 | | | 8 | | 3 |
| Sep | GAK 3 | G853 | 5 | 2 | | | | | |
| Sep | GAK 3 | G854 | 8 | 13 | | | | | |
| Sep | GAK 3 | G855 | 6 | 32 | | | | | |
| Sep | GAK 3 | G856 | 1 | | | | 1 | | |
| Sep | GAK 3 | G857 | 2 | 6 | | | 1 | | |
| Sep | GAK 3 | G858 | | 7 | | | 1 | | |
| Sep | GAK 3 | G859 | | 29 | | | 2 | | |
| Sep | GAK 3 | G860 | | 8 | | | | | |
| Sep | GAK 3 | G861 | | 15 | | | 16 | | |
| Sep | GAK 4 | G877 | | | | | | | |
| Sep | GAK 4 | G878 | 11 | | | | | | 371 |
| Sep | GAK 4 | G879 | 13 | | | | | | 300 |
| Sep | GAK 4 | G880 | 14 | 2 | 1 | | 1 | | 496 |
| Sep | GAK 4 | G881 | 2 | 4 | 2 | | | | 215 |
| Sep | GAK 4 | G882 | 9 | 1 | | | | | 1 |
| Sep | GAK 4 | G883 | 3 | 42 | | | | | |
| Sep | GAK 4 | G884 | 1 | 7 | | | | | |
| Sep | GAK 4 | G885 | 7 | 6 | | | | | 335 |
| Sep | GAK 4 | G886 | 1 | 21 | | | 1 | | |
| Sep | GAK 5 | G887 | | 7 | | | | | 1 |
| Sep | GAK 5 | G888 | | | | | | | |
| Sep | GAK 5 | G889 | 1 | 1 | | | | | |
| Sep | GAK 5 | G890 | 1 | 4 | | | | | |
| Sep | GAK 5 | G891 | 2 | | | | | | |
| Sep | GAK 5 | G892 | | | | 1 | | | 38 |
| Sep | GAK 5 | G893 | | 6 | | | | | |
| Sep | GAK 5 | G894 | | 1 | | | | | 2 |
| Sep | GAK 5 | G895 | | | | | | | |
| Sep | GAK 5 | G896 | | 1 | | | 1 | | |
| Sep | GAK 5 | G897 | | | | | | | 1 |
| Sep | GAK 5 | G898 | | | | | | | |
| Sep | GAK 5 | G899 | | 9 | | | | | |
| Sep | GAK 6 | G915 | 1 | 10 | | | | | |
| Sep | GAK 6 | G916 | | 1 | | | | | |
| Sep | GAK 6 | G917 | 1 | 58 | | | | | |
| Sep | GAK 6 | G918 | 2 | 5 | | | | | |
| Sep | GAK 6 | G919 | | 243 | | | | | |
| Sep | GAK 6 | G920 | 1 | 61 | | | | | |
| Sep | GAK 6 | G921 | | 33 | | | | | |
| Sep | GAK 6 | G922 | | | | | | | |
| Sep | GAK 6 | G923 | 1 | 19 | | | | | |
| Sep | GAK 6 | G924 | | 1 | | | | | |
| Sep | GAK 6 | G925 | 1 | 50 | | | | | |
| Sep | GAK 6 | G926 | | 2 | | | | | |
| Sep | GAK 6 | G927 | | | | | | | |
| Sep | GAK 6 | G928 | | 162 | | | | | |

Table A-15 (Continued). Juvenile pink salmon prey count from stations PWS 1 and 3 and GAK 3, 4, 5 and 6 (September).

| Cruise | Station | Unique Fish # | Chaeto-gnath | Podon | *Limacina* sp. | Poly-chaete | Barnacle nauplii | Barnacle cyprid | Crab megalopa | Crab zoea |
|---|---|---|---|---|---|---|---|---|---|---|
| Sep | PWS 3 | G948 | | | | | | | | |
| Sep | PWS 3 | G949 | | | | | | | | |
| Sep | PWS 3 | G950 | | | 1 | 1 | | | 1 | |
| Sep | PWS 3 | G951 | 1 | | | 1 | | | | 1 |
| Sep | PWS 3 | G4110 | | | | | | | | 1 |
| Sep | GAK 3 | G853 | | | 40 | | | | 5 | |
| Sep | GAK 3 | G854 | | | 93 | | | | | 1 |
| Sep | GAK 3 | G855 | | | 363 | | | | 1 | |
| Sep | GAK 3 | G856 | | | 482 | | | | 2 | |
| Sep | GAK 3 | G857 | | | 183 | | | | | |
| Sep | GAK 3 | G858 | | | 143 | | | | 30 | |
| Sep | GAK 3 | G859 | | | 555 | | | | 3 | |
| Sep | GAK 3 | G860 | | | 38 | | | 1 | 4 | |
| Sep | GAK 3 | G861 | | | 210 | | | | | |
| Sep | GAK 4 | G877 | | | | | | | | |
| Sep | GAK 4 | G878 | | | | | | | | |
| Sep | GAK 4 | G879 | | | 46 | | | | | |
| Sep | GAK 4 | G880 | | | 45 | | | | | |
| Sep | GAK 4 | G881 | | | 12 | | | | 1 | |
| Sep | GAK 4 | G882 | | | 4 | | | | | |
| Sep | GAK 4 | G883 | | | 1891 | | | | 1 | |
| Sep | GAK 4 | G884 | | | 1507 | | | | | |
| Sep | GAK 4 | G885 | | | 305 | | | | | |
| Sep | GAK 4 | G886 | | | 1702 | | | | 85 | |
| Sep | GAK 5 | G887 | | | 21 | | | | 1 | |
| Sep | GAK 5 | G888 | | | 6 | | | | | |
| Sep | GAK 5 | G889 | | | 8 | | | | | |
| Sep | GAK 5 | G890 | | | 31 | | | | | |
| Sep | GAK 5 | G891 | | | 31 | | | | | |
| Sep | GAK 5 | G892 | | | 3 | | | | | |
| Sep | GAK 5 | G893 | | | 2 | | | | | |
| Sep | GAK 5 | G894 | | | 1 | | | | | |
| Sep | GAK 5 | G895 | | | 1 | | | | | |
| Sep | GAK 5 | G896 | | | | | | | | |
| Sep | GAK 5 | G897 | | | | | | | | |
| Sep | GAK 5 | G898 | | | | | | | | |
| Sep | GAK 5 | G899 | | | 134 | | | | | 2 |
| Sep | GAK 6 | G915 | | | | | | | | |
| Sep | GAK 6 | G916 | | | | | | | | |
| Sep | GAK 6 | G917 | | | 7 | | | | | |
| Sep | GAK 6 | G918 | | | 3 | | | | 1 | |
| Sep | GAK 6 | G919 | | | 70 | | | | | |
| Sep | GAK 6 | G920 | | | 5 | | | | | |
| Sep | GAK 6 | G921 | | | 8 | | | | | |
| Sep | GAK 6 | G922 | | | | | | | | |
| Sep | GAK 6 | G923 | | | 4 | | | | | |
| Sep | GAK 6 | G924 | | | | | | | | |
| Sep | GAK 6 | G925 | | | 24 | | | | | |
| Sep | GAK 6 | G926 | | | | | | | | |
| Sep | GAK 6 | G927 | | | 1 | | | | 4 | |
| Sep | GAK 6 | G928 | | | 56 | | | | | |

Table A-15 (Continued). Juvenile pink salmon prey count from stations PWS 1 and 3 and GAK 3, 4, 5 and 6 (September).

| Cruise | Station | Unique Fish # | *Euphasid* sp. adult | Crustacean | Isopod | Bivalve | Fish larvae | Flies | Flies, partial |
|---|---|---|---|---|---|---|---|---|---|
| Sep | PWS 3 | G948 | 3 | | | | 53 | | |
| Sep | PWS 3 | G949 | 1 | | | | 30 | | |
| Sep | PWS 3 | G950 | | | | | 15 | | |
| Sep | PWS 3 | G951 | 2 | | | | 27 | 4 | |
| Sep | PWS 3 | G4110 | | | | | 11 | | |
| Sep | GAK 3 | G853 | 1 | | | | 5 | | |
| Sep | GAK 3 | G854 | | | | | 1 | | |
| Sep | GAK 3 | G855 | 1 | | | | | | |
| Sep | GAK 3 | G856 | | | | | | | |
| Sep | GAK 3 | G857 | | | | | | | |
| Sep | GAK 3 | G858 | 1 | | | | | | |
| Sep | GAK 3 | G859 | | | | | | | |
| Sep | GAK 3 | G860 | 1 | | | | | 4 | |
| Sep | GAK 3 | G861 | | | | | | | |
| Sep | GAK 4 | G877 | | | | | | | |
| Sep | GAK 4 | G878 | | | | | | | |
| Sep | GAK 4 | G879 | | | | | | | |
| Sep | GAK 4 | G880 | | | | | | | |
| Sep | GAK 4 | G881 | 1 | 1 | | | | 6 | |
| Sep | GAK 4 | G882 | 2 | | | | | 15 | |
| Sep | GAK 4 | G883 | | | | | | | |
| Sep | GAK 4 | G884 | | | | | | | |
| Sep | GAK 4 | G885 | | | | | | | |
| Sep | GAK 4 | G886 | | | | | | | |
| Sep | GAK 5 | G887 | | | | | 4 | 1 | |
| Sep | GAK 5 | G888 | | | | | | | |
| Sep | GAK 5 | G889 | | | | | | | |
| Sep | GAK 5 | G890 | | | | | 1 | | |
| Sep | GAK 5 | G891 | | | | | | 3 | |
| Sep | GAK 5 | G892 | | | | | | 3 | |
| Sep | GAK 5 | G893 | | | | | | | |
| Sep | GAK 5 | G894 | | | | | | | |
| Sep | GAK 5 | G895 | | | | | | 10 | |
| Sep | GAK 5 | G896 | | | | | | | |
| Sep | GAK 5 | G897 | 3 | | | | | | |
| Sep | GAK 5 | G898 | | | | | 2 | | |
| Sep | GAK 5 | G899 | 1 | | | | | | |
| Sep | GAK 6 | G915 | 1 | | | | | 3 | |
| Sep | GAK 6 | G916 | | 1 | | | | | |
| Sep | GAK 6 | G917 | | | | | | 1 | |
| Sep | GAK 6 | G918 | | | | | | | |
| Sep | GAK 6 | G919 | | | | | | | |
| Sep | GAK 6 | G920 | | | | | | | |
| Sep | GAK 6 | G921 | 1 | | | | | | |
| Sep | GAK 6 | G922 | | | | | | | |
| Sep | GAK 6 | G923 | | | | | | 4 | |
| Sep | GAK 6 | G924 | | | | | 7 | 2 | |
| Sep | GAK 6 | G925 | | | | | | | |
| Sep | GAK 6 | G926 | | | | | | | |
| Sep | GAK 6 | G927 | | | | | | | |
| Sep | GAK 6 | G928 | | | | | | | |

Table A-16. Average temperature and salinity from the upper 10 m, reported for each station from the CTD data readings taken at 1-m intervals.

| Cruise | Station | Date | Time | Temperature | Salinity |
|---|---|---|---|---|---|
| July | PWS 1 | 12-Jul | 15:24 | 12.61 | 26.01 |
| | PWS 2 | 12-Jul | 12:39 | 11.47 | 27.51 |
| August | GAK 2 | 15-Aug | 10:02 | 14.28 | 25.34 |
| | GAK 3 | 19-Aug | 8:34 | 14.46 | 30.31 |
| | GAK 4 | 13-Aug | 12:20 | 14.28 | 31.22 |
| | GAK 5 | 13-Aug | 15:27 | 13.69 | 31.47 |
| September | PWS 1 | 23-Sep | 8:18 | 5.50 | 11.38 |
| | PWS 3 | 21-Sep | 18:56 | 11.72 | 27.75 |
| | GAK 3 | 20-Sep | 17:58 | 12.01 | 31.50 |
| | GAK 4 | 20-Sep | 16:30 | 11.42 | 31.73 |
| | GAK 5 | 20-Sep | 13:22 | 11.77 | 31.74 |
| | GAK 6 | 20-Sep | 9:52 | 11.79 | 31.71 |