

# Hydrography, Chlorophyll, Zooplankton and Juvenile Pink Salmon Distributions in the Gulf of Alaska: NE Pacific GLOBEC 2001-2004

E. D. Cokelet (NOAA/PMEL), E. V. Farley, Jr., and J. H. Moss (NOAA/ABL)

- 4 Large-Scale Cruises: Summer 2001, 2002, 2003; Autumn 2004

- Scaling: Similar on all plots

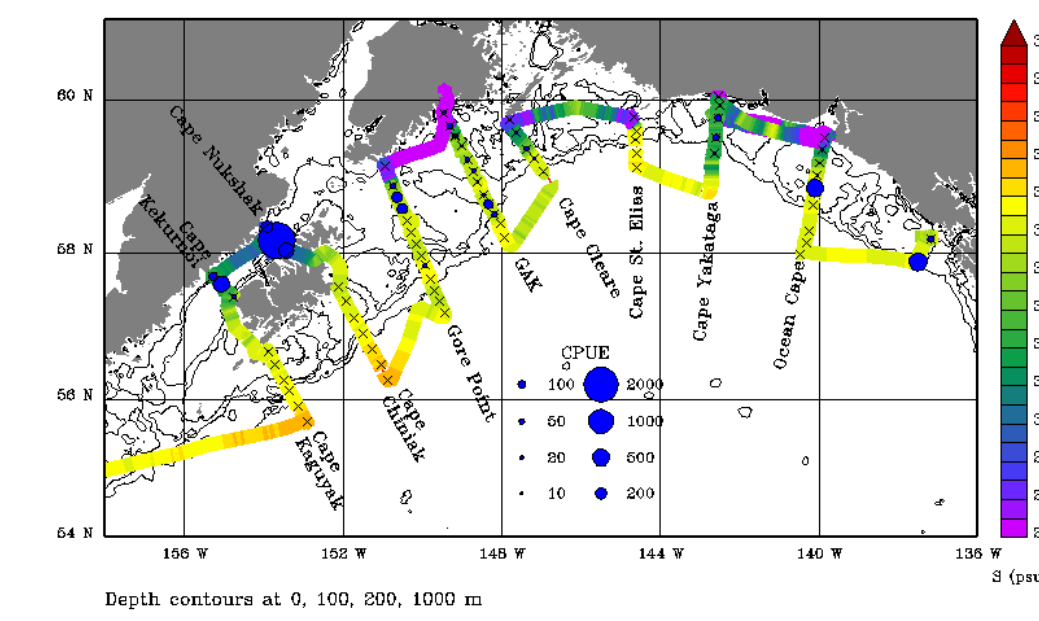
- Hydrography Index: Distribution of salinity — main contributor to water density stratification

- Phytoplankton Index: Chlorophyll from fluorescence calibrated by water bottle samples

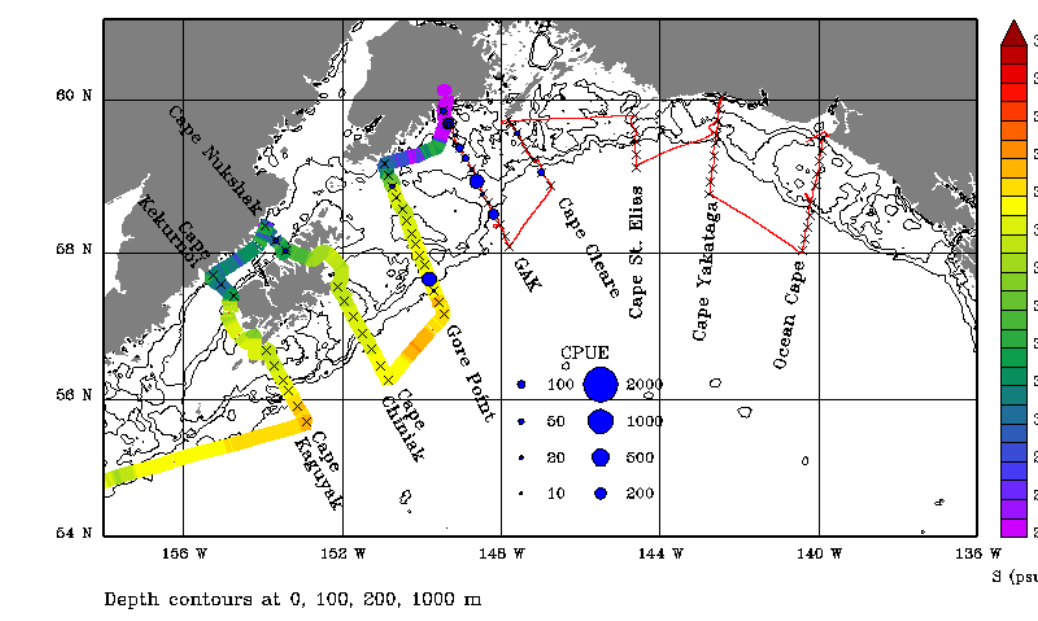
- Zooplankton Index: Zooplankton displacement volume per water volume sampled by 1-square-meter Tucker trawl towed at the sea surface for 5 minutes with 505-micron mesh

- Juvenile Pink Salmon Index (CPUE): number of individuals caught in midwater rope trawl (198x40x14 m) for 30 minutes at 5 knots with 1.2-cm mesh codend

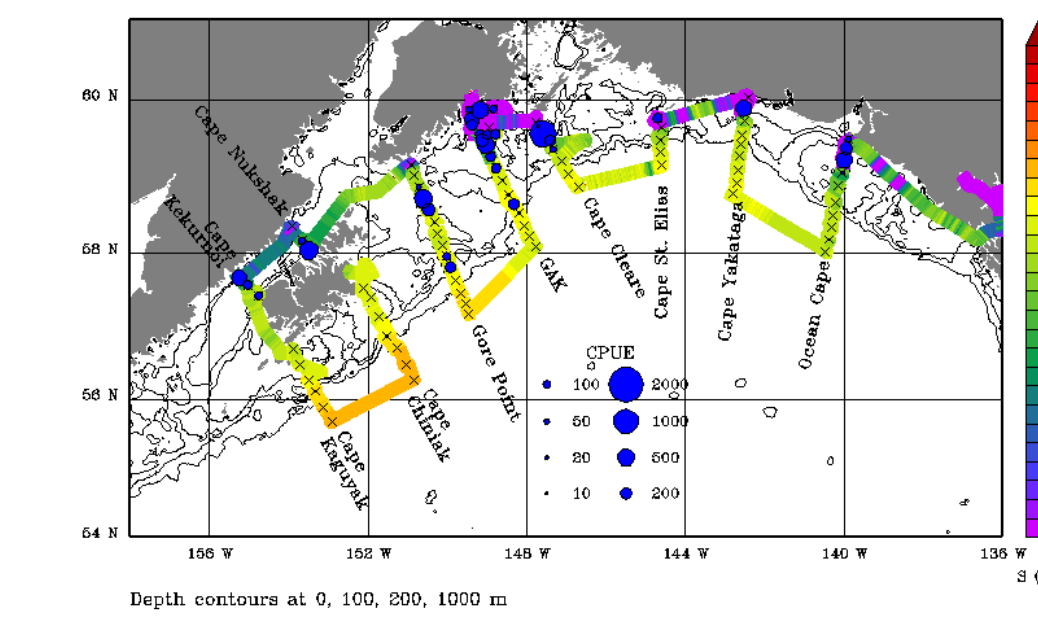
Surface Salinity & Juv. Pink Salmon CPUE, Great Pacific GP-01-01, 17 July-8 Aug 2001



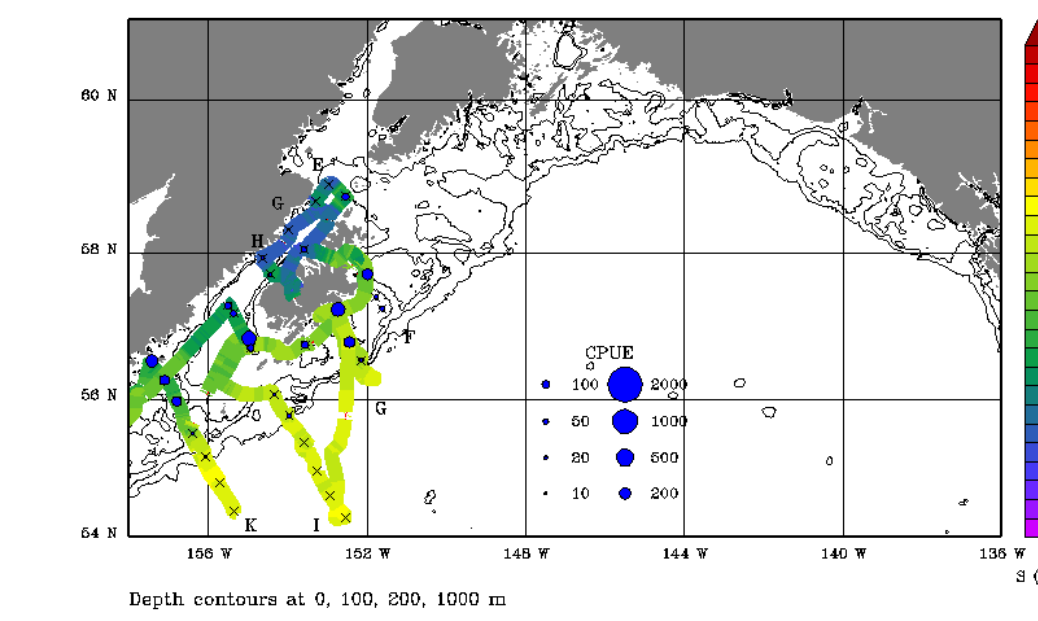
Surface Salinity & Juv. Pink Salmon CPUE, Great Pacific GP-02-01, 11 July-8 Aug 2002



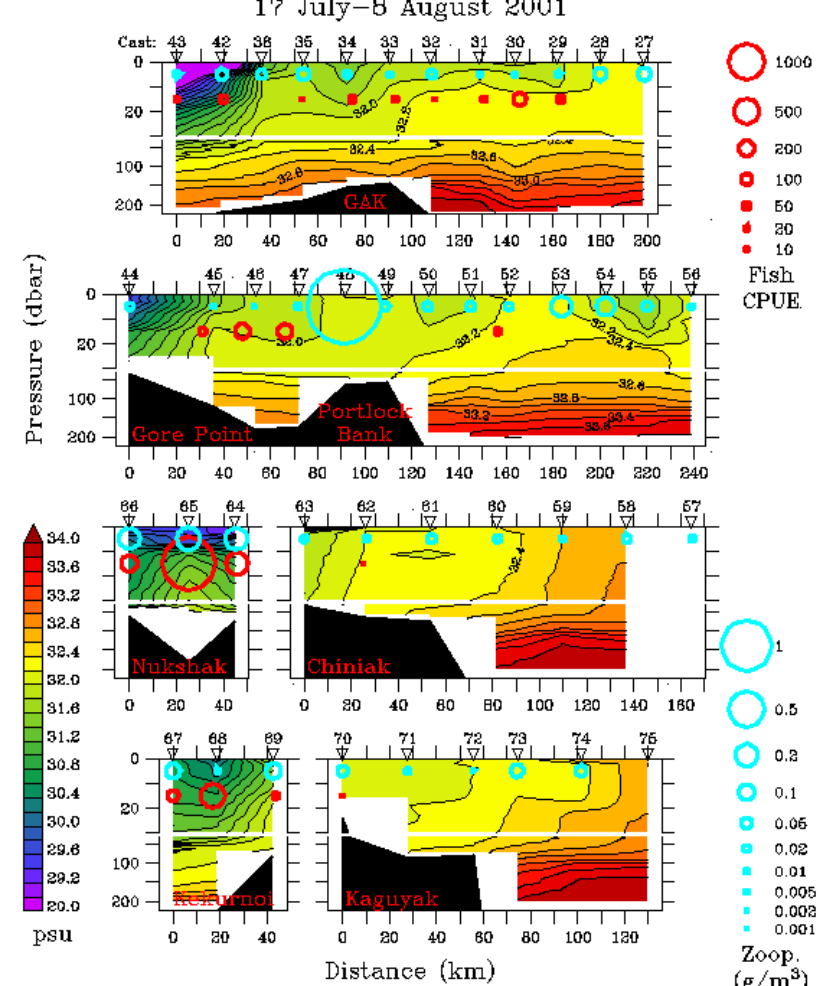
Surface Salinity & Juv. Pink Salmon CPUE, Miller Freeman MF-03-10, 19 July-9 Aug 2003



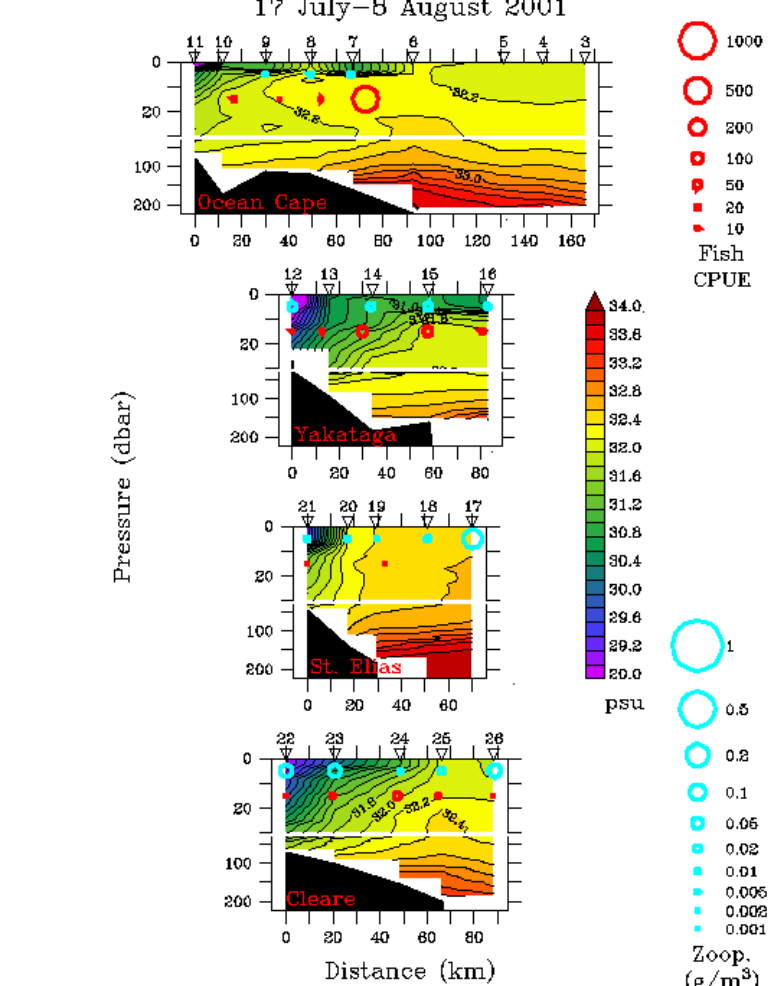
Surface Salinity & Juv. Pink Salmon CPUE, Great Pacific GP-04-01, 16 Oct-11 Nov 2004



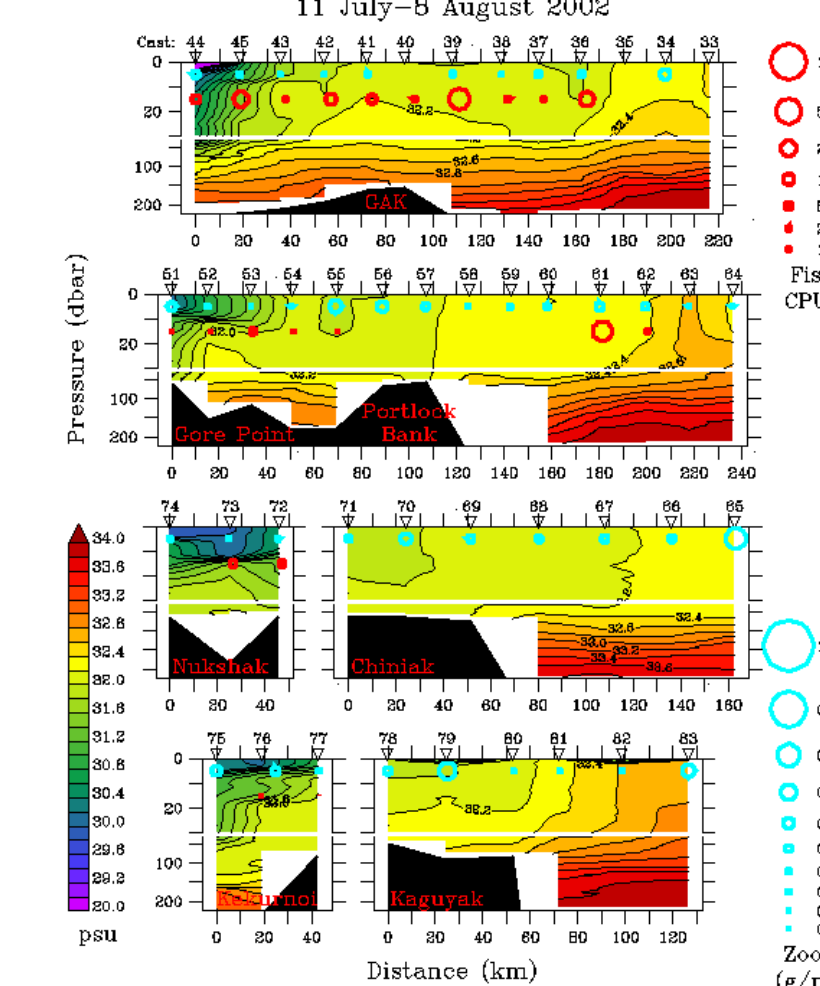
Salinity, Zoop. Conc. and Juv. Pink Salmon CPUE, 17 July-8 August 2001



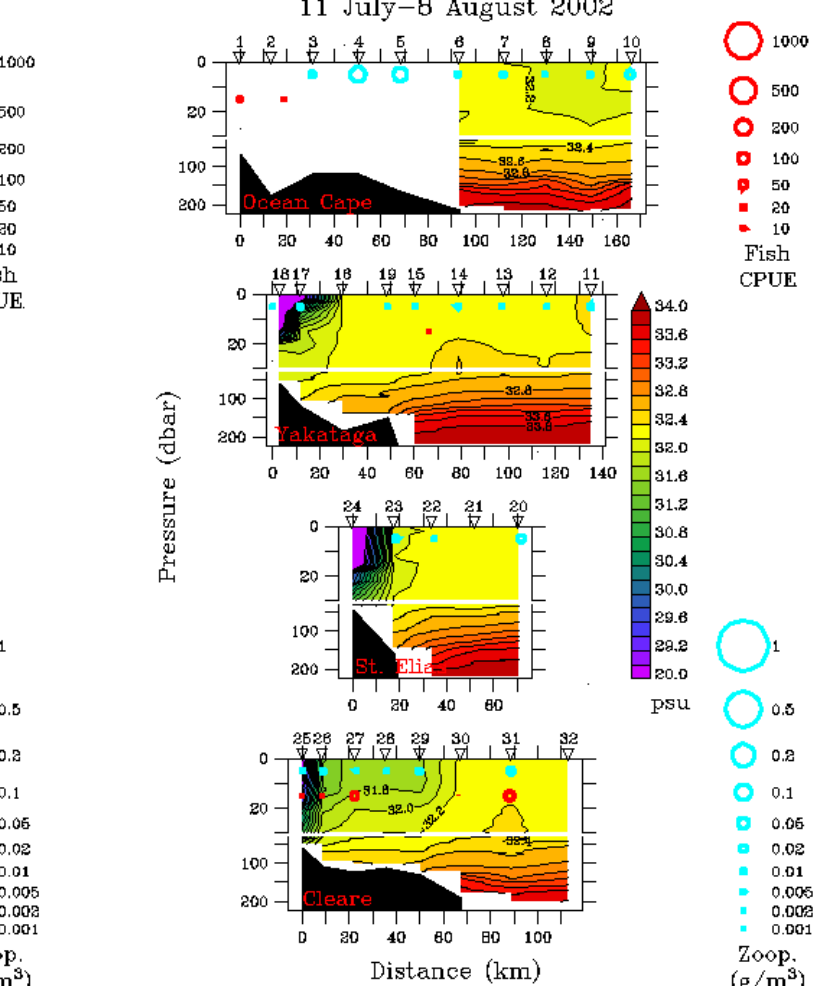
Salinity, Zoop. Conc. and Juv. Pink Salmon CPUE, 17 July-8 August 2001



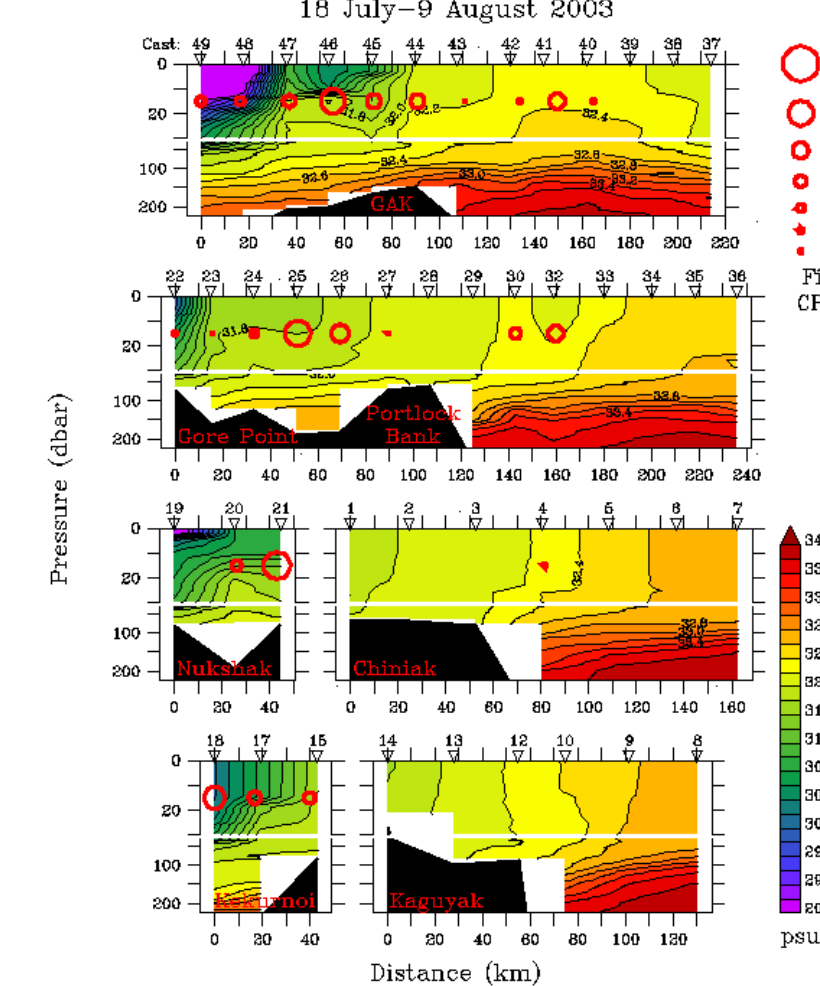
Salinity, Zoop. Conc. and Juv. Pink Salmon CPUE, 11 July-8 August 2002



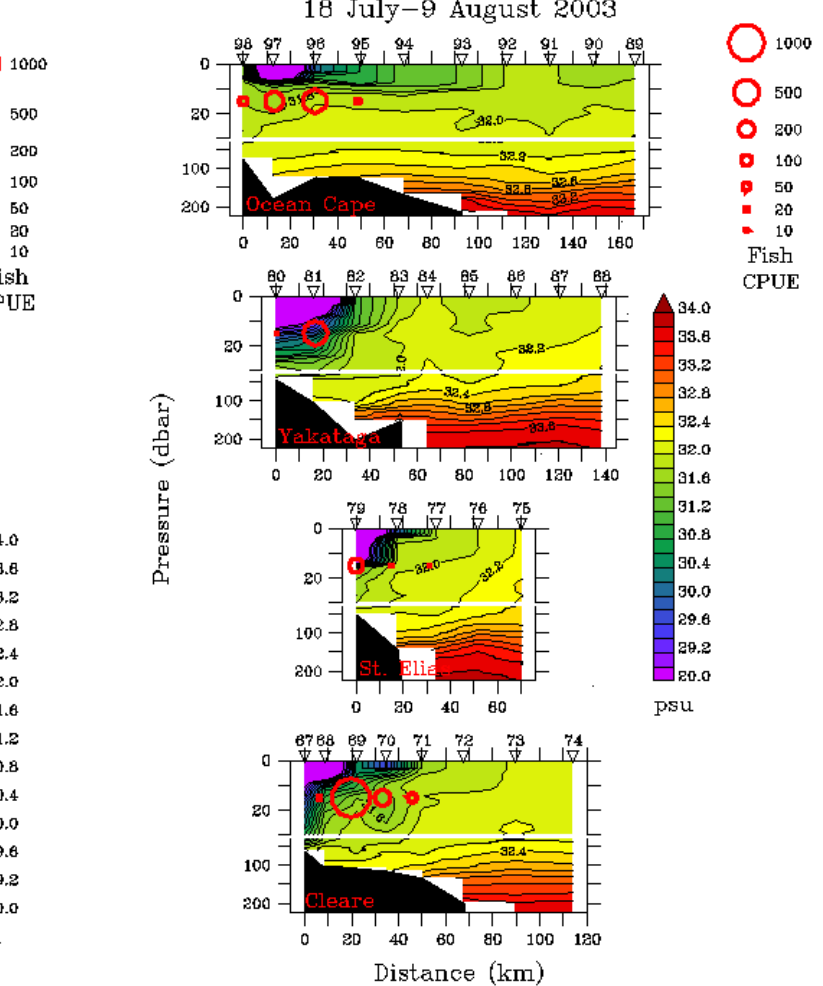
Salinity, Zoop. Conc. and Juv. Pink Salmon CPUE, 11 July-8 August 2002



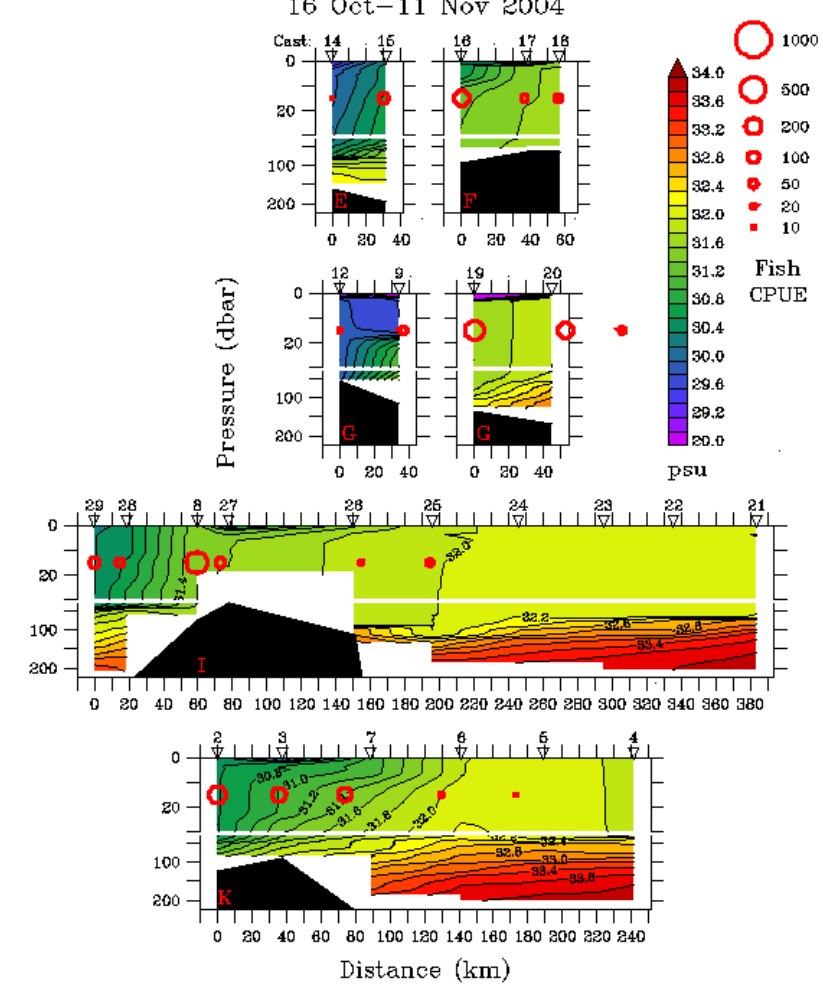
Salinity and Juv. Pink Salmon CPUE, 19 July-9 August 2003



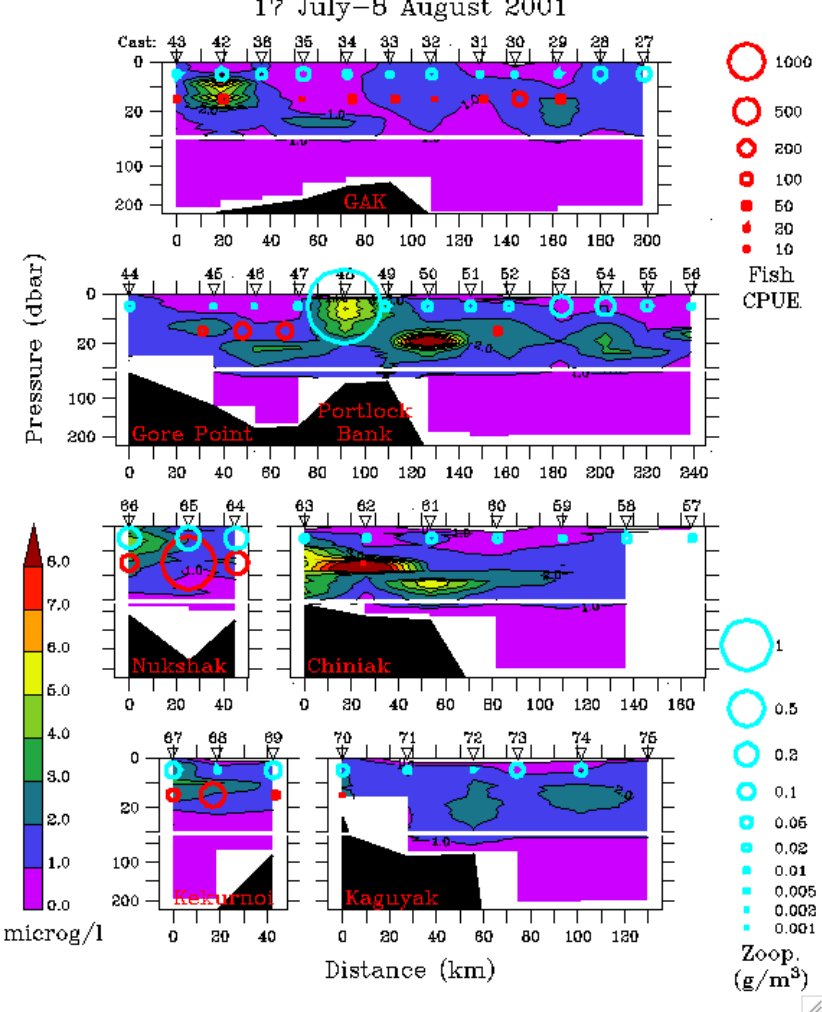
Salinity and Juv. Pink Salmon CPUE, 19 July-9 August 2003



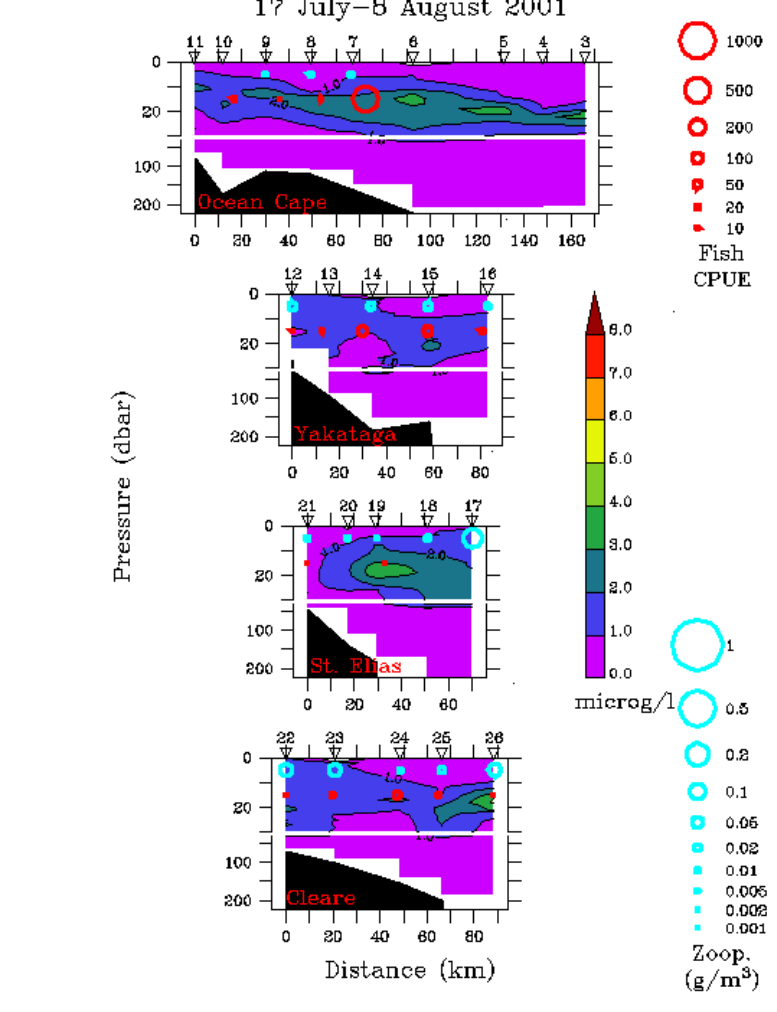
Salinity and Juv. Pink Salmon CPUE, 16 Oct-11 Nov 2004



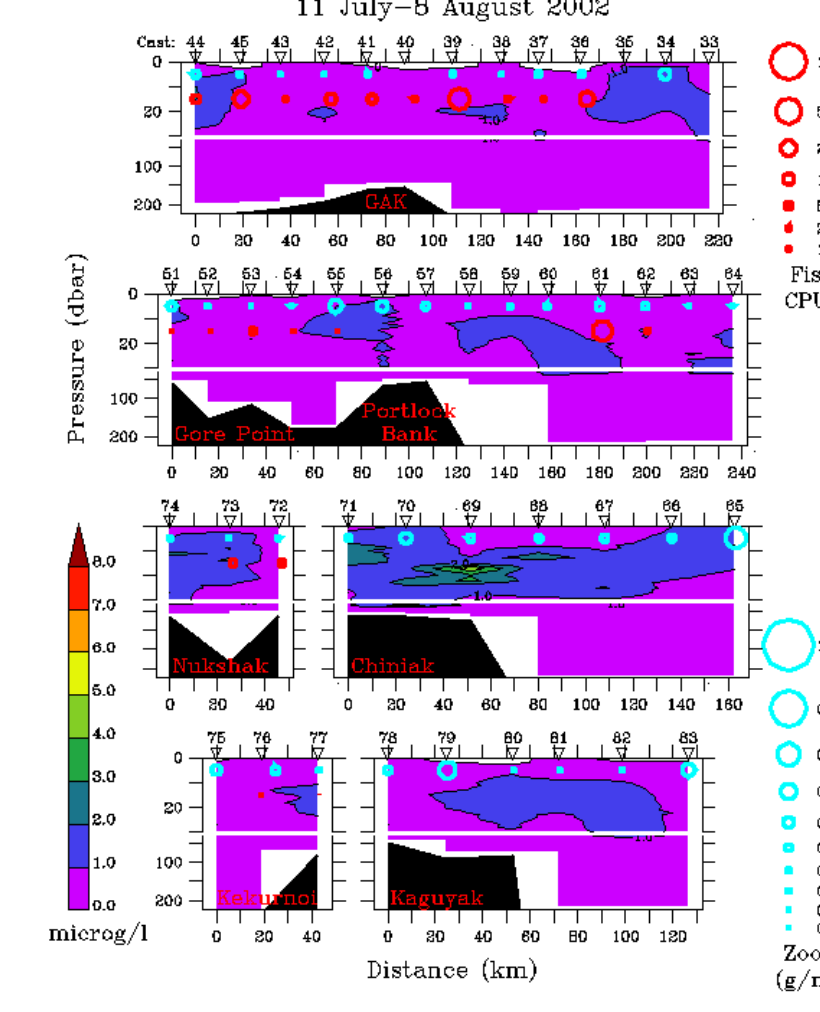
Chlorophyll, Zoop. Conc. and Juv. Pink Salmon CPUE, 17 July-8 August 2001



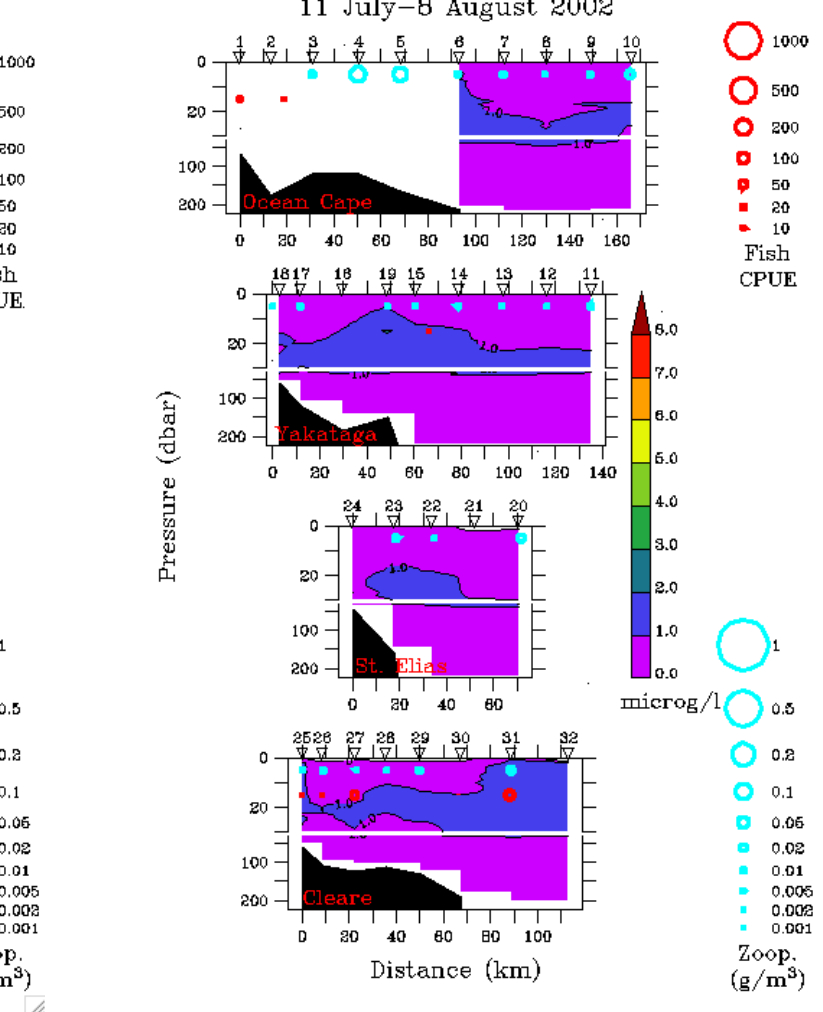
Chlorophyll, Zoop. Conc. and Juv. Pink Salmon CPUE, 17 July-8 August 2001



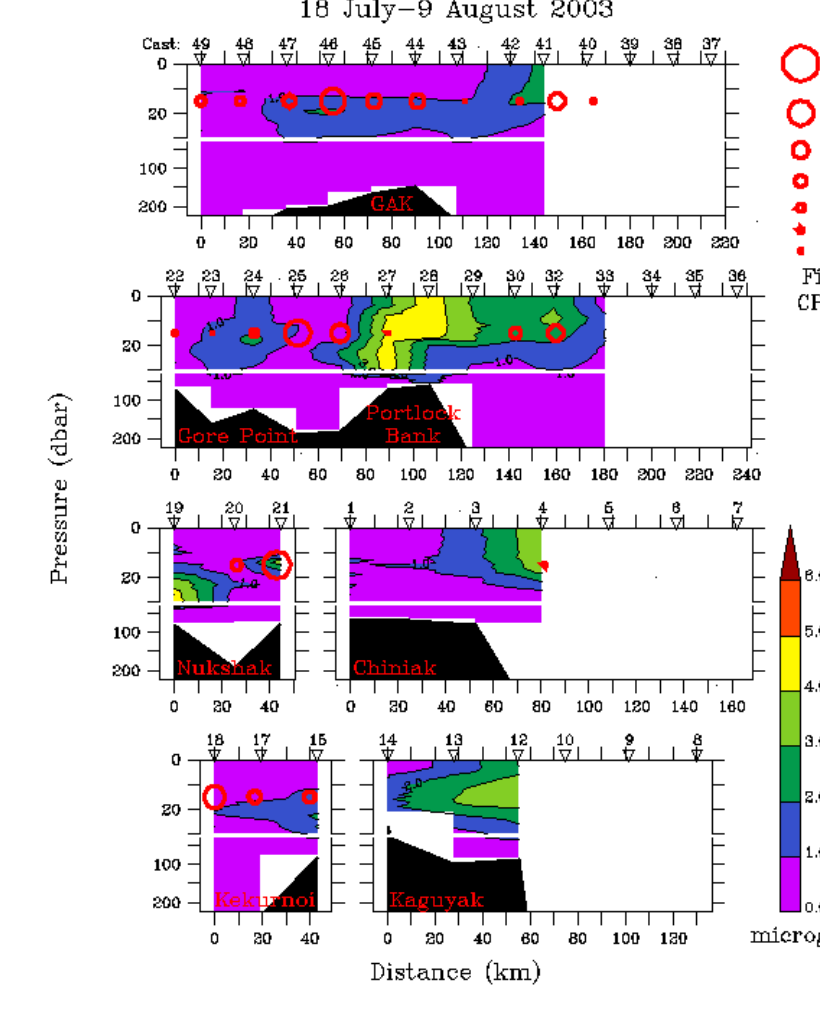
Chlorophyll, Zoop. Conc. and Juv. Pink Salmon CPUE, 11 July-8 August 2002



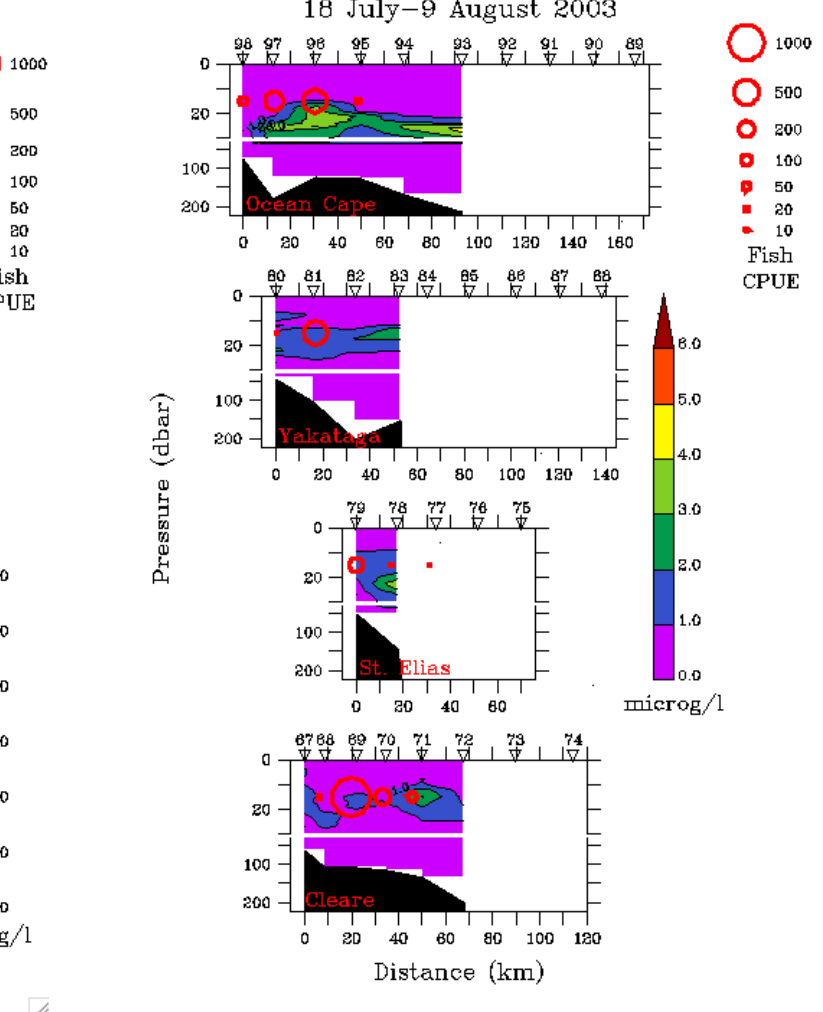
Chlorophyll, Zoop. Conc. and Juv. Pink Salmon CPUE, 11 July-8 August 2002



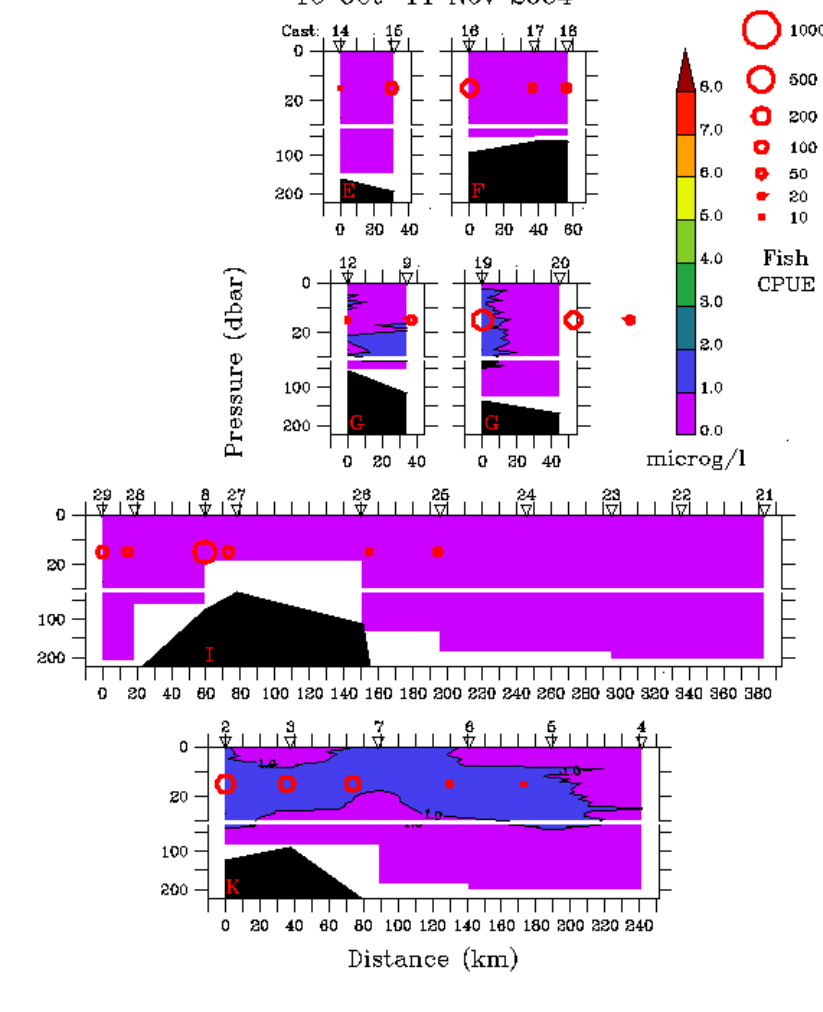
Chlorophyll and Juv. Pink Salmon CPUE, 19 July-9 August 2003



Chlorophyll and Juv. Pink Salmon CPUE, 19 July-9 August 2003



Chlorophyll and Juv. Pink Salmon CPUE, 16 Oct-11 Nov 2004



## Conclusions

- Alaska Coastal Current (ACC) core is a low salinity lens (bounded by a strong horizontal gradient) hugging the coast from Ocean Cape in the east past Kodiak Island in the west.
- ACC core was found in Shelikof Strait, but not seaward of Kodiak Island in summer.
- Vertical stratification was reduced in autumn due to storm mixing.
- Chlorophyll was patchy and the maximum occurred at 20-30 m. Summer 2002 values were low.
- Zooplankton were more widely and evenly distributed than phytoplankton and juvenile pink salmon.
- Juvenile pink salmon were found within and seaward of the ACC core.
- Juvenile pink salmon were found over the continental shelf, but not seaward of the continental slope.
- Juvenile pink salmon were distributed most widely over the widest portion of the continental shelf on the GAK and Gore Point Lines.
- Juvenile pink salmon were found in Shelikof Strait, but rarely on the seaward side of Kodiak Island in summer.
- Juvenile pink salmon were found seaward of Kodiak Island in autumn.
- Portlock Bank (on Gore Pt. Line): Weak stratification indicates strong vertical mixing over bank. High phytoplankton biomass occurred in summer 2001 and 2003. Highest zooplankton concentration observed coincided with a phytoplankton patch here in 2001 (2003 data not yet available). Juvenile pink salmon were not found over Portlock Bank despite high phytoplankton and zooplankton biomass.