

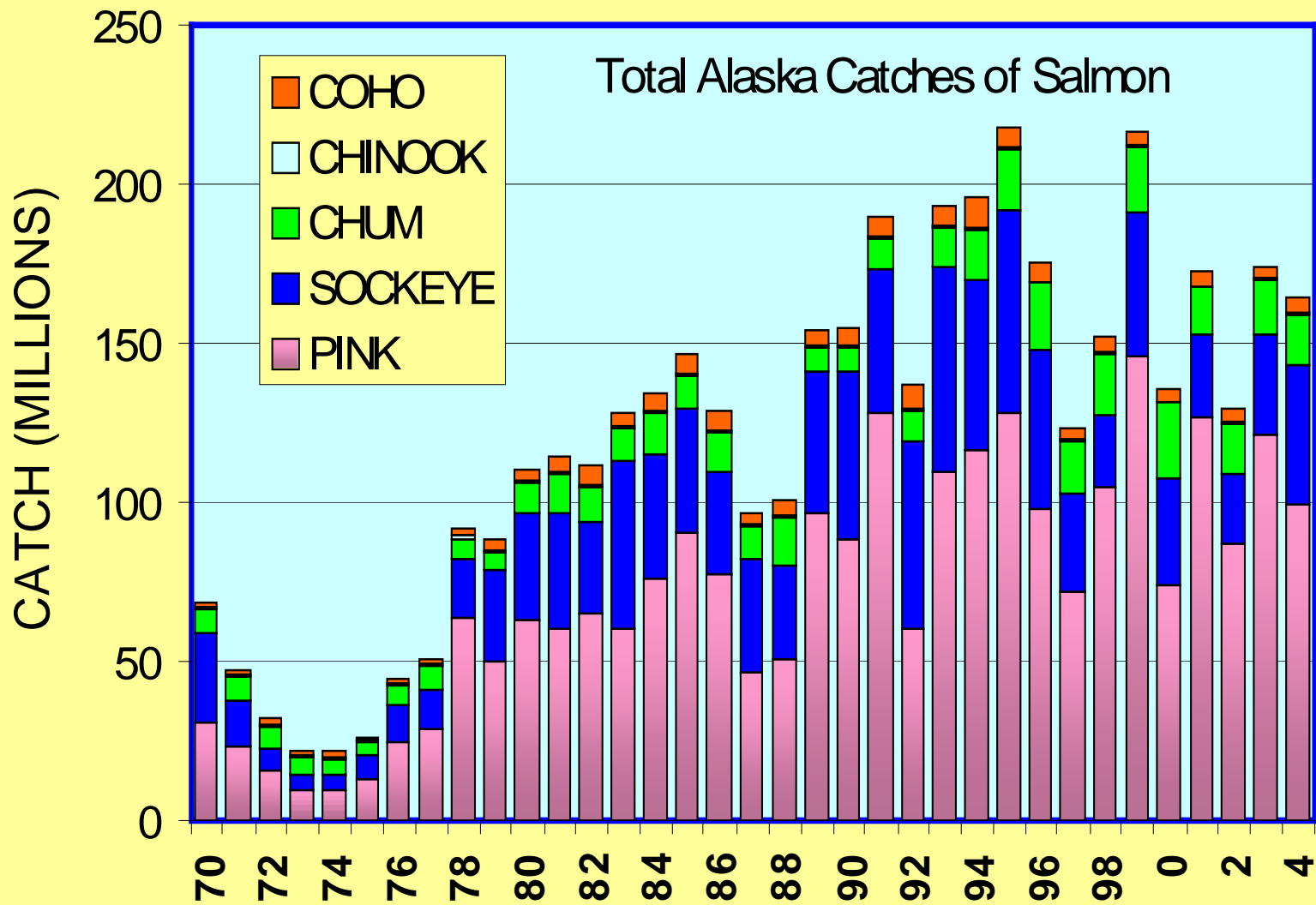


Effects of Marine Habitats on Growth, Condition and Survival of Juvenile Pink Salmon in the Coastal Gulf of Alaska

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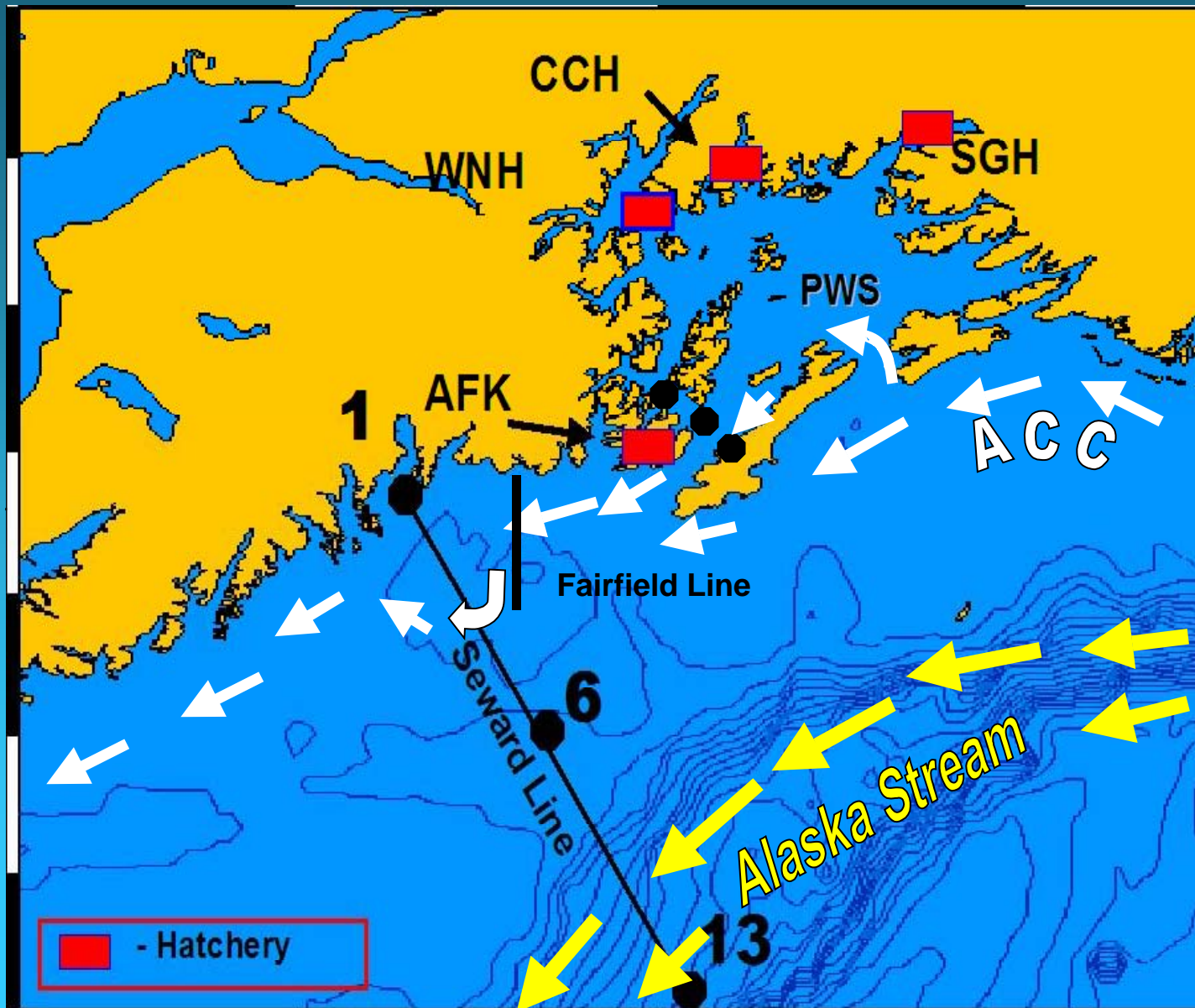
NE PACIFIC GLOBEC - CORE HYPOTHESES

I. Production regimes in the coastal Gulf of Alaska and California Current Systems co-vary, and are coupled through atmospheric and ocean forcing.

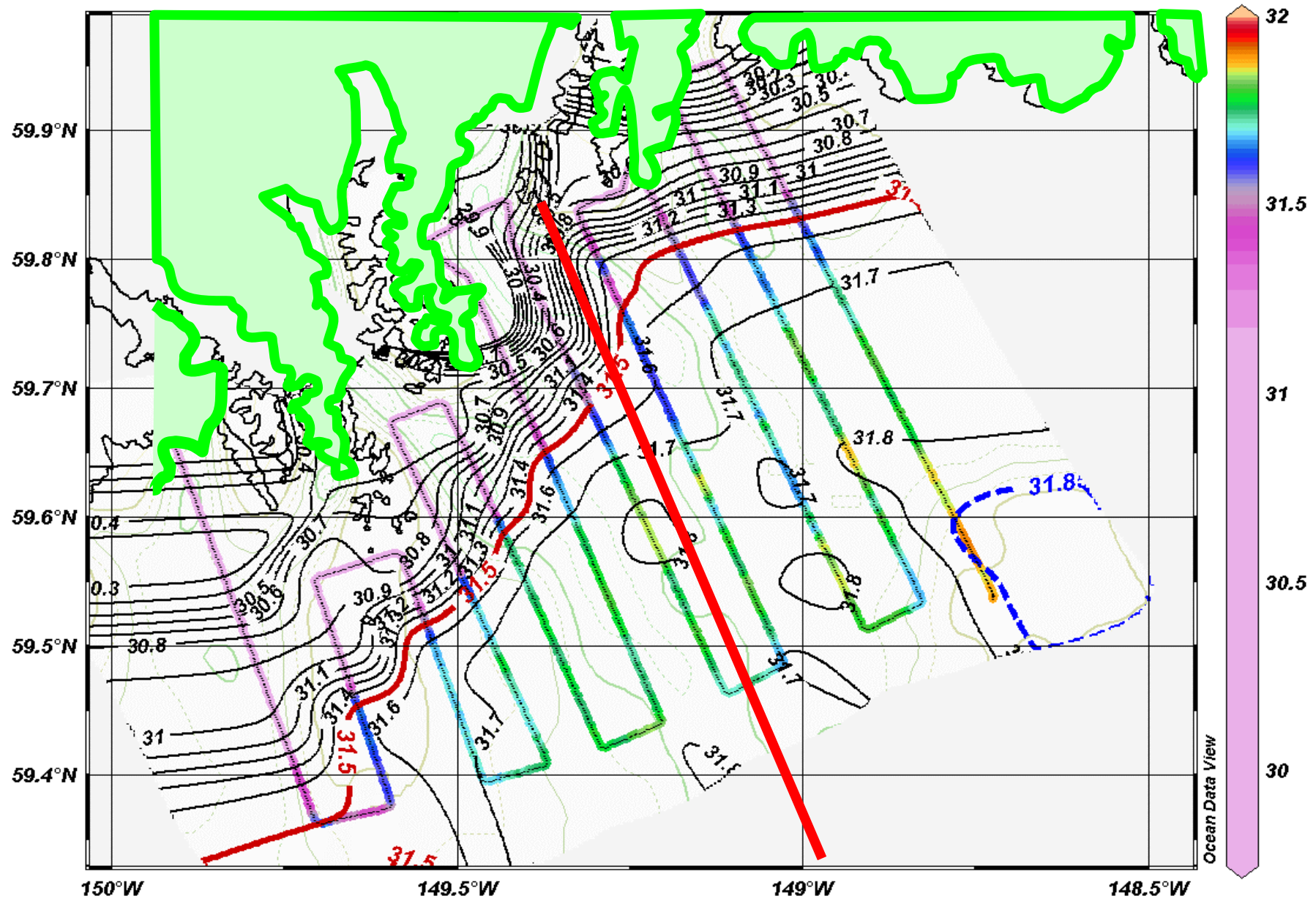
II. Spatial and temporal variability in mesoscale circulation constitutes the dominant physical forcing on zooplankton biomass, production, distribution, species interactions and retention and loss in coastal regions.

III. Ocean survival of salmon is primarily determined by survival of the juveniles in coastal regions, and is affected by interannual and interdecadal changes in physical forcing and by changes in ecosystem food web dynamics.

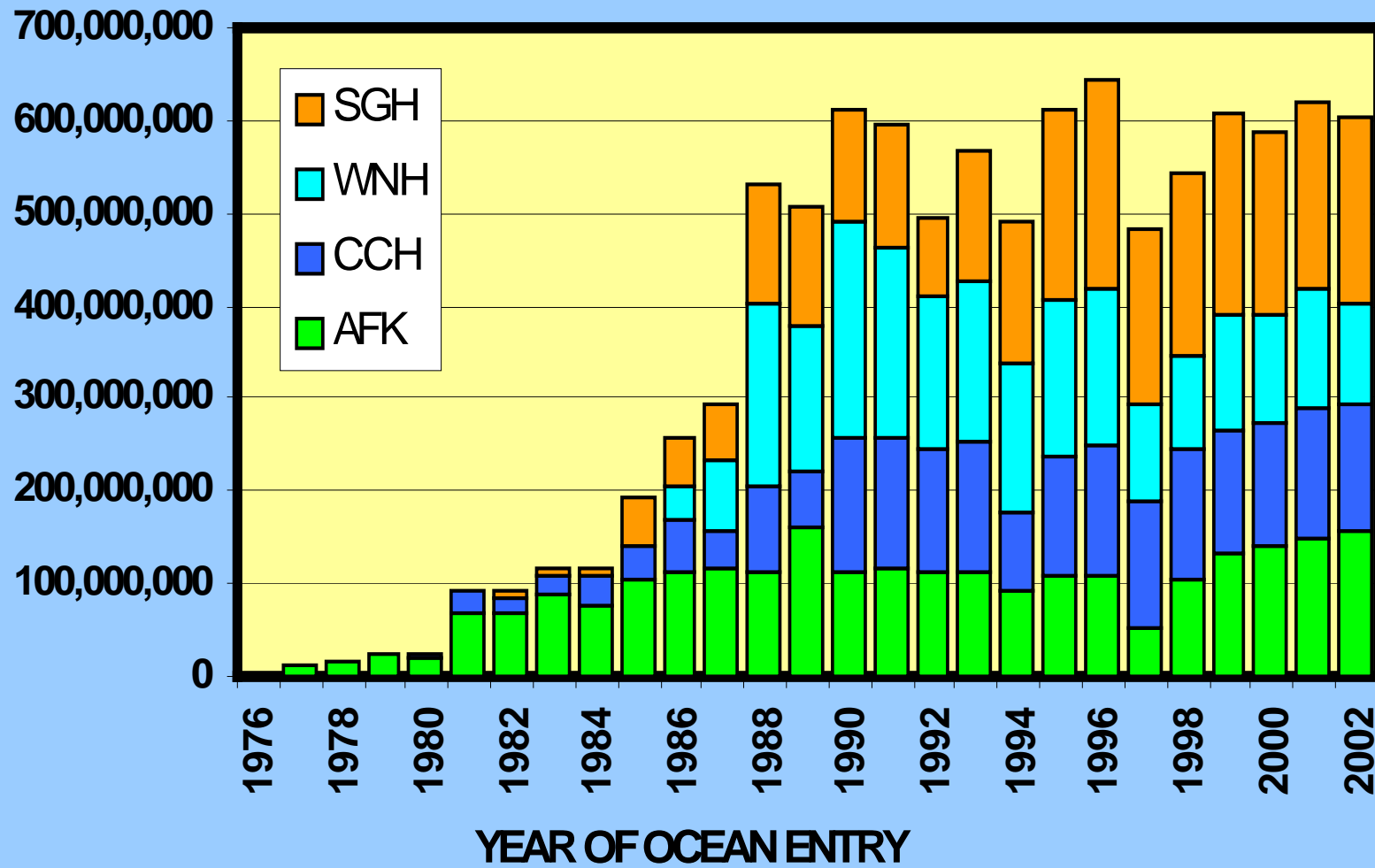
The GLOBEC Study Area, With Locations of Pink Salmon Hatcheries in PWS and the Seward Line with Locations of Stations 1, 6 and 13



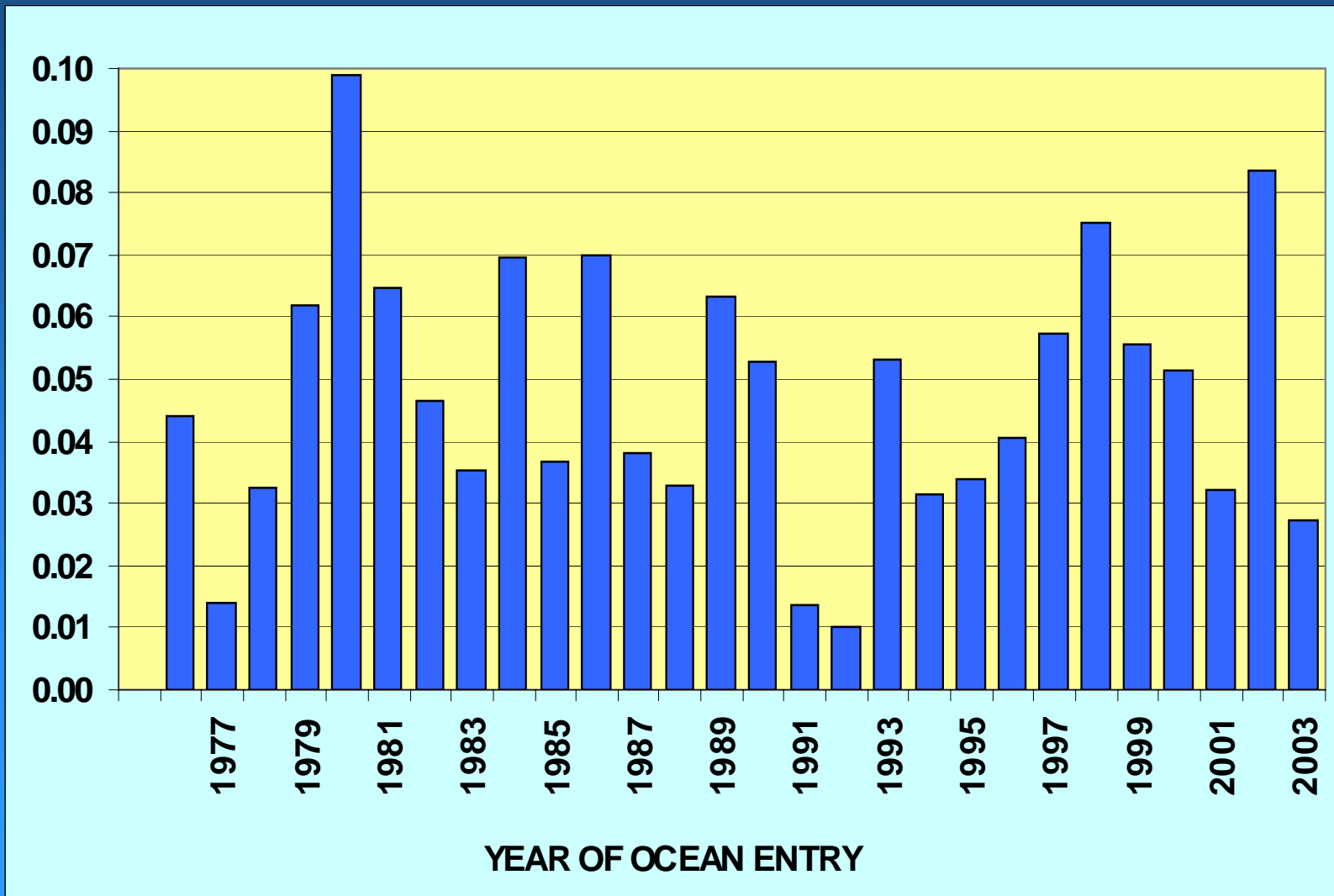
Isohaline Lines in the GLOBEC Region -



Releases of juvenile pink salmon by four hatcheries in PWS.

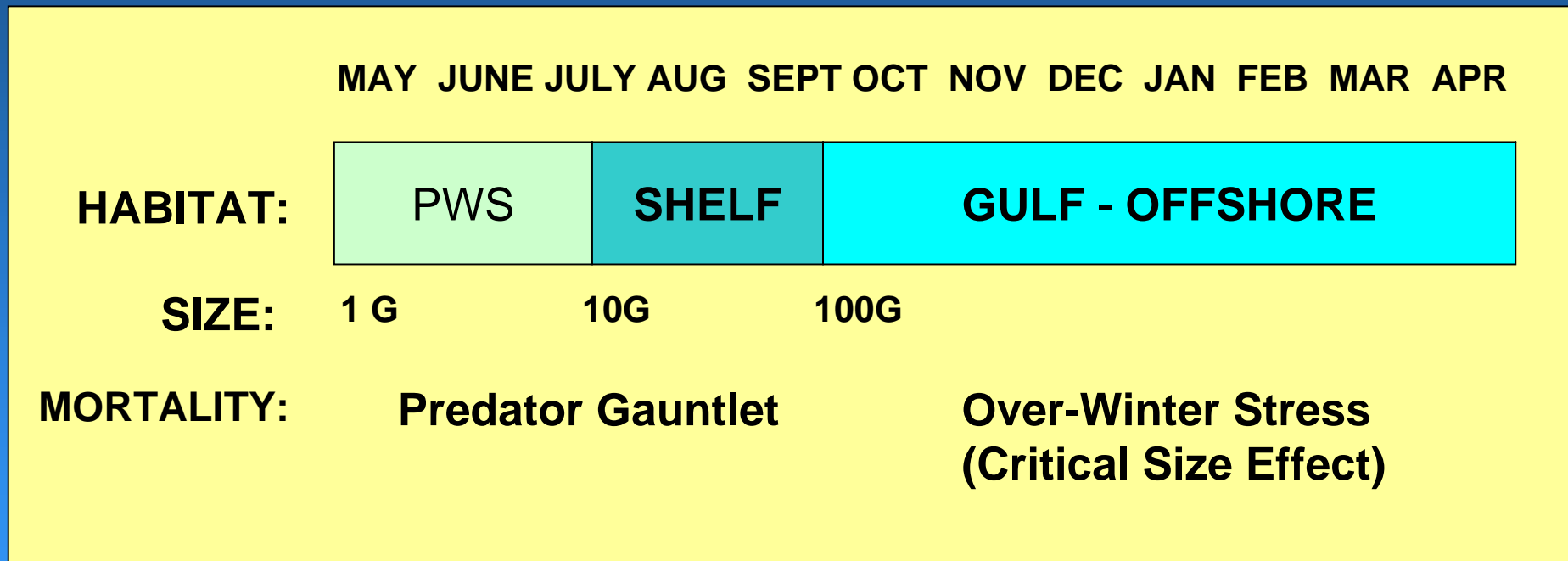


Marine Survival of Pink Salmon From Hatcheries in PWS (2003 is preliminary - only 3 of 4 hatcheries)



Habitat Use by PWS Juvenile Pink Salmon During First Year at Sea - With Size at Habitat Transitions and Possible Sources of Mortality

BIGGER IS ALWAYS BETTER



Critical Size Hypothesis - Juvenile Salmon That do not Reach a Critical Level of Size and Energy Reserves Will Experience Physiological Stress and Increased Mortality During Winter.

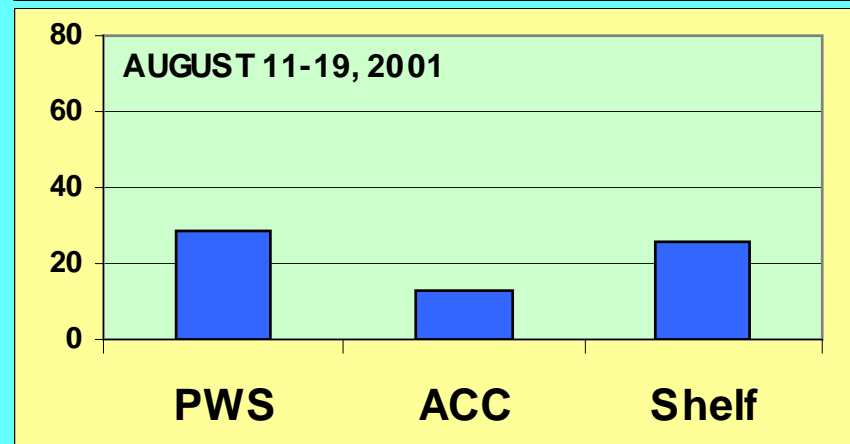
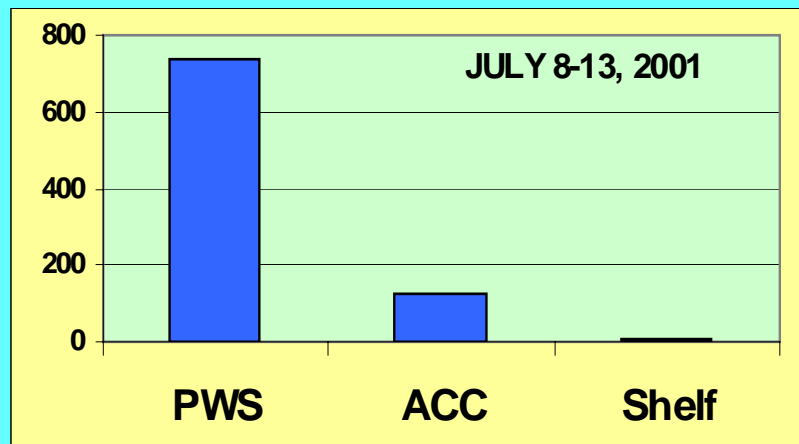
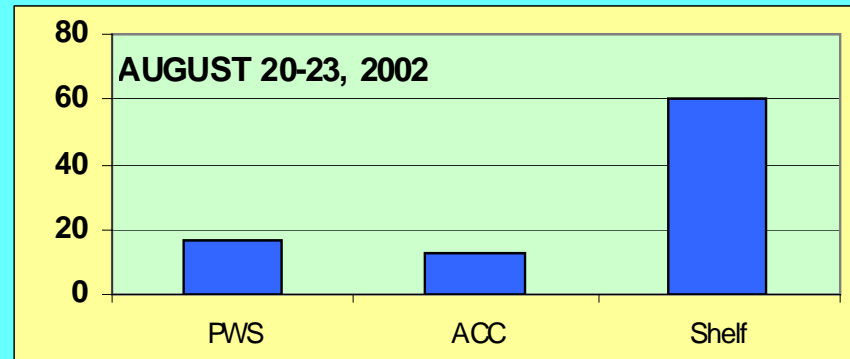
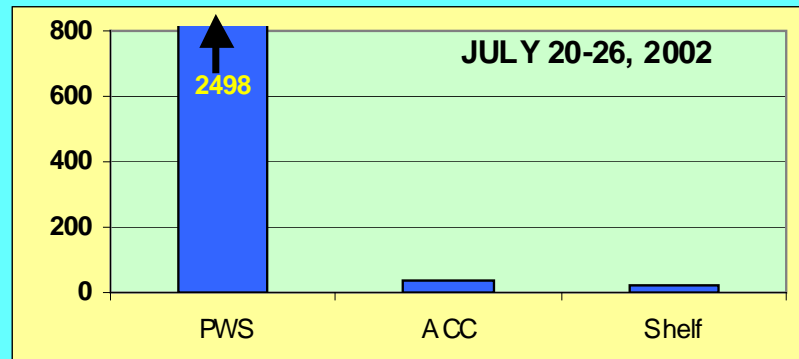
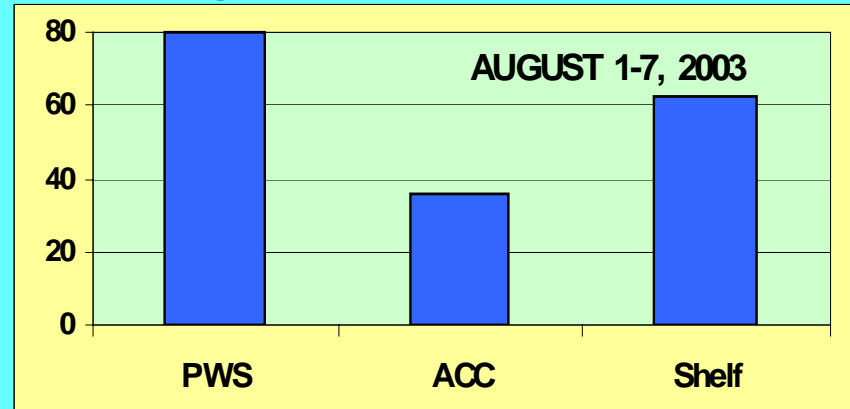
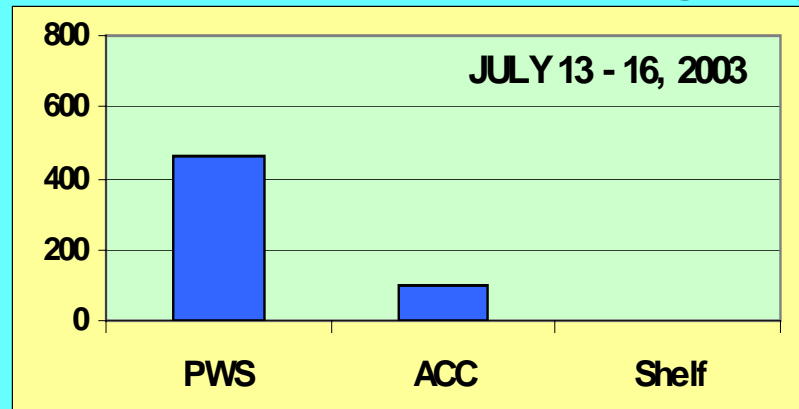






Catch Rates (Surface Trawl) of Juvenile Pink Salmon in Three Habitats During July and August 2001 - 2003

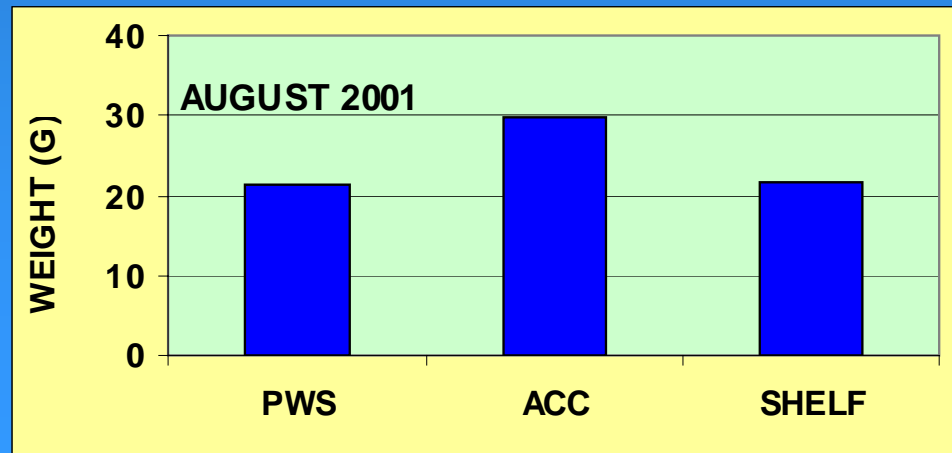
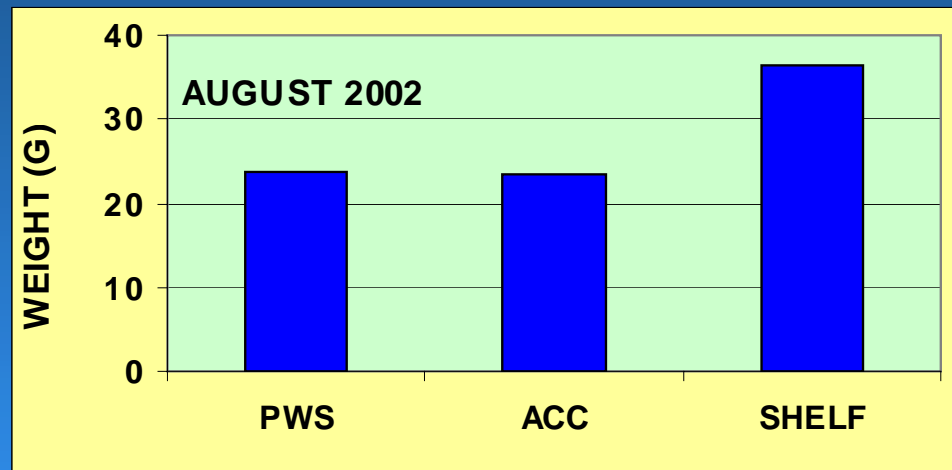
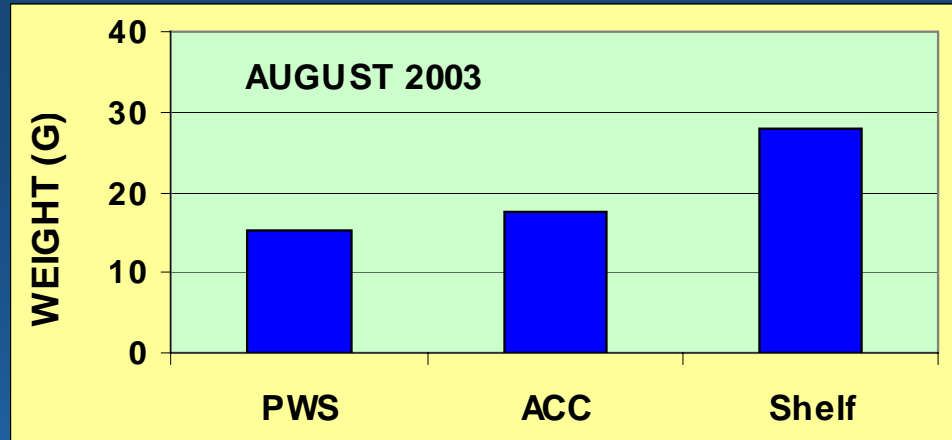
Catch per Hour



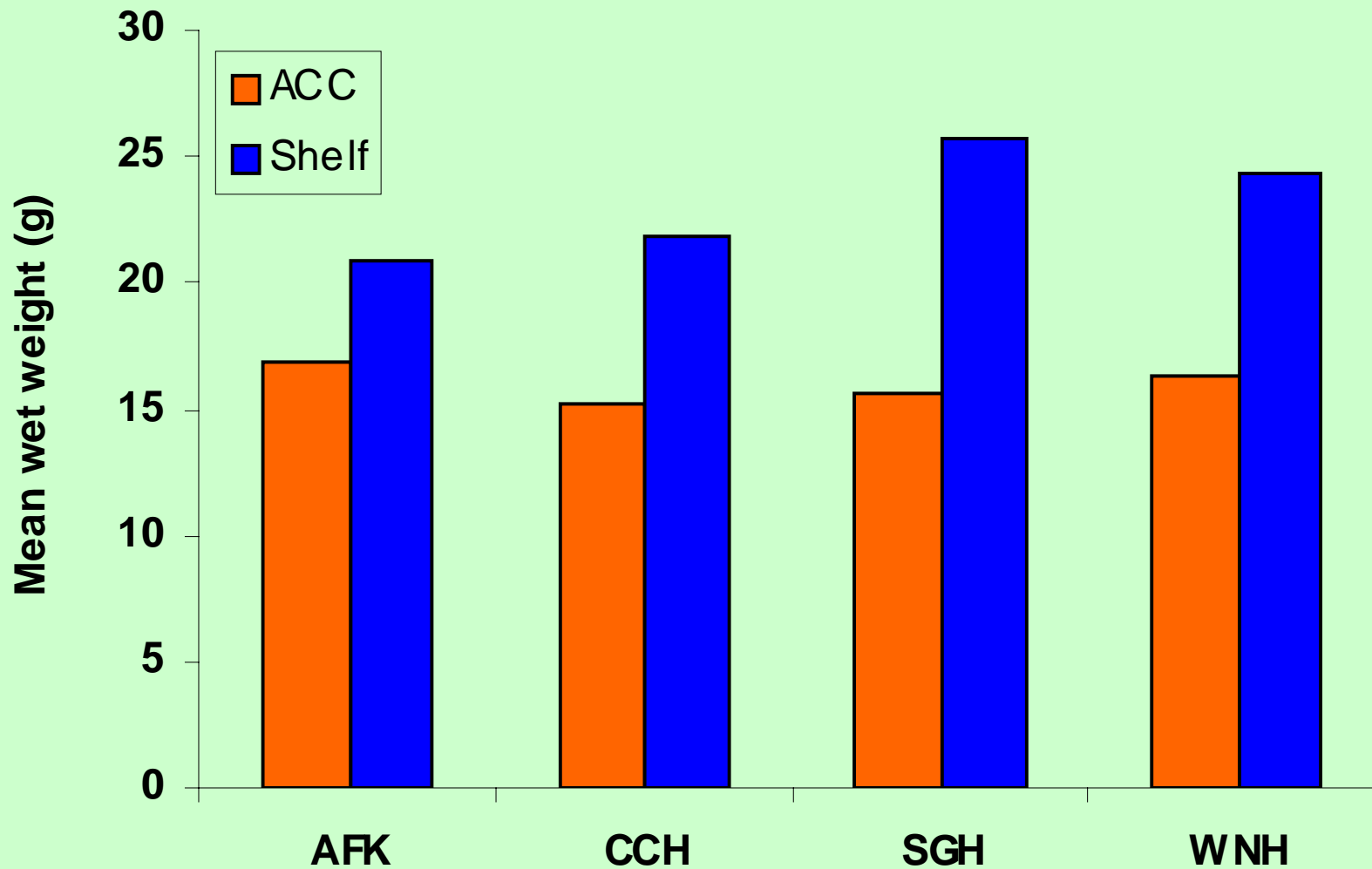
Mean Wet Weights of Juvenile Pink Salmon by Habitat in August 01 - 03

Shelf Fish Larger in 02, 03

ACC Fish Larger in 01



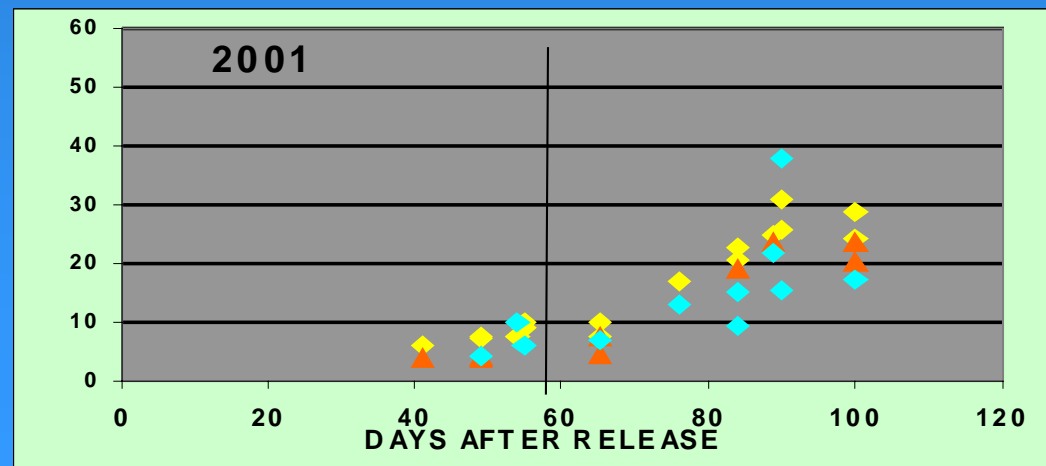
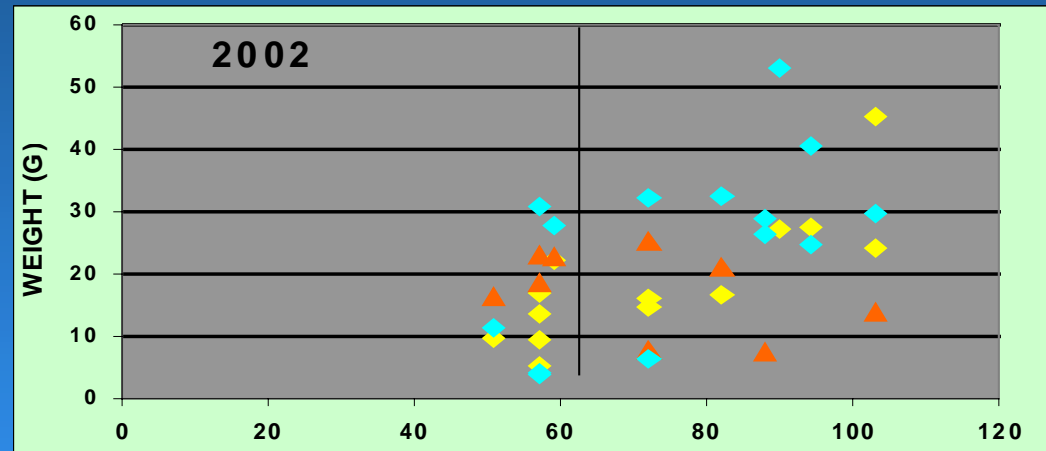
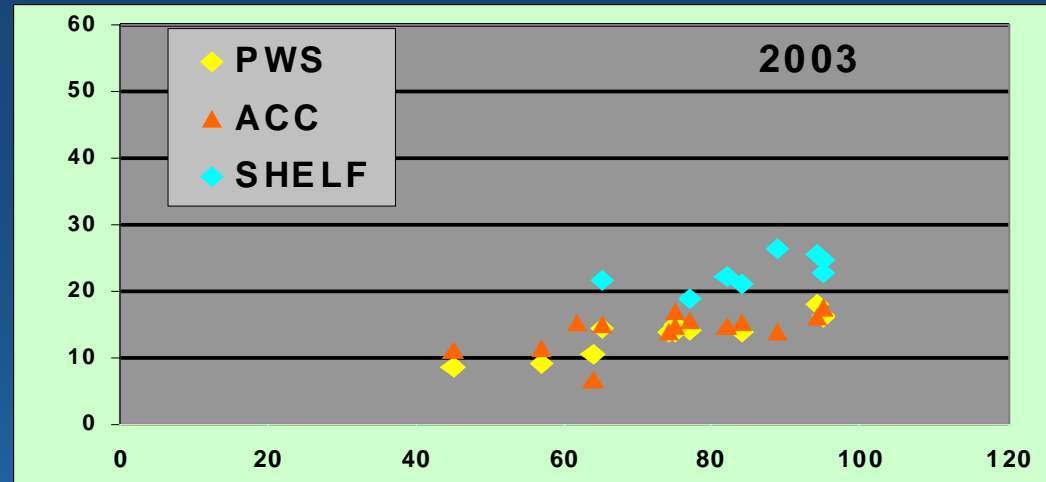
Mean Wet Weight by Hatchery and Habitat in August 2003



Size (Weight) of Hatchery Cohorts in Three Habitats: 2001 - 2003

By Habitat:
Shelf Fish Largest 2002, 2003

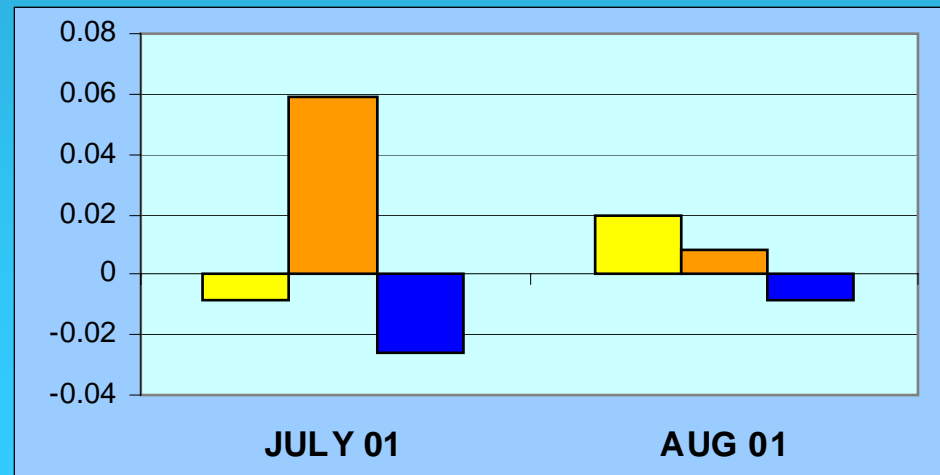
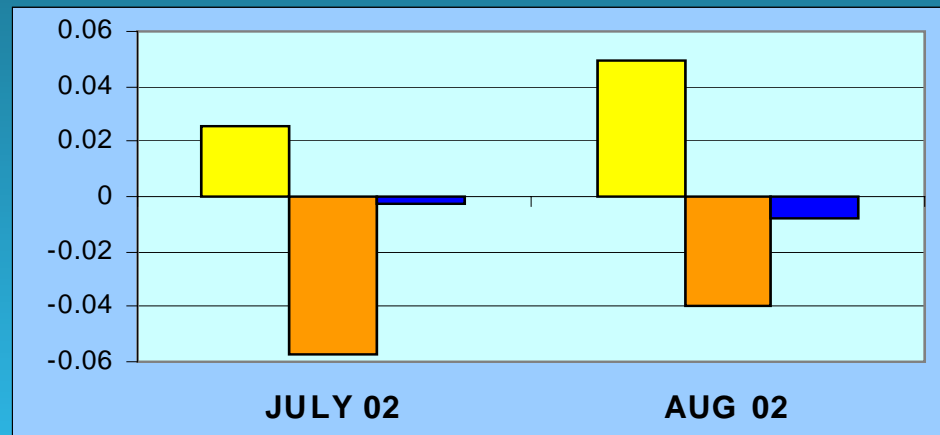
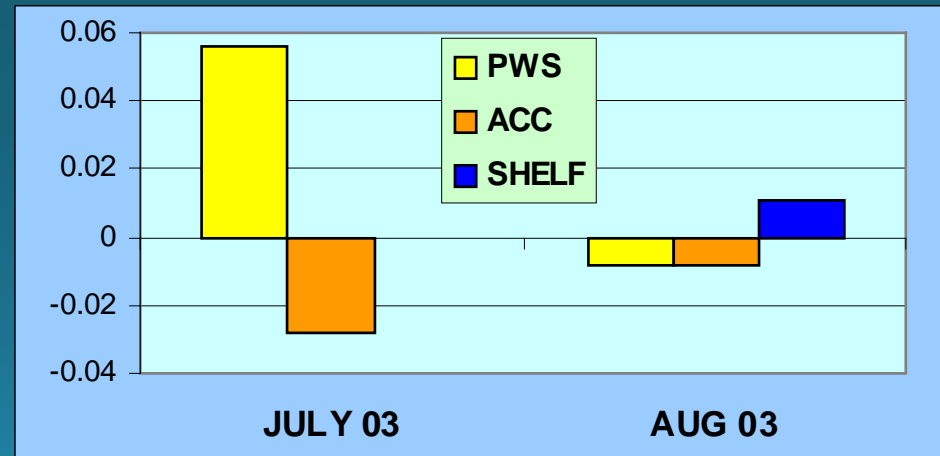
Among Years:
Smallest Fish in 2003,
Largest in 2002



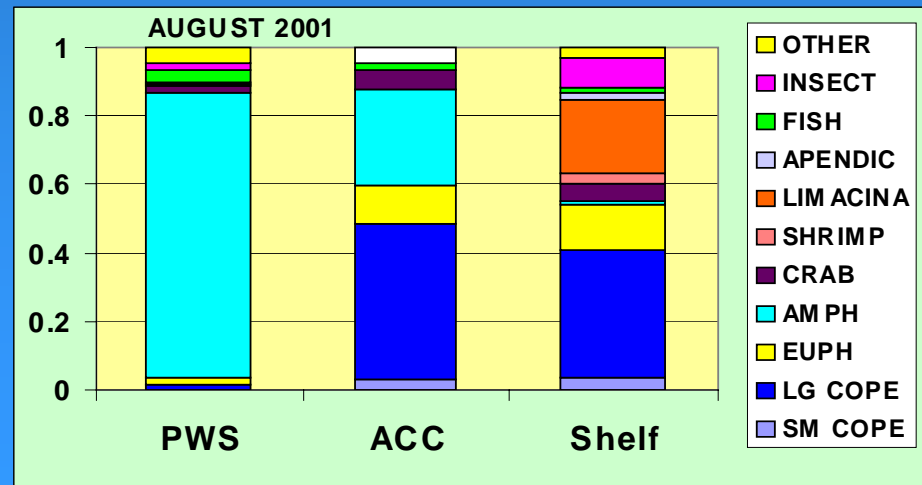
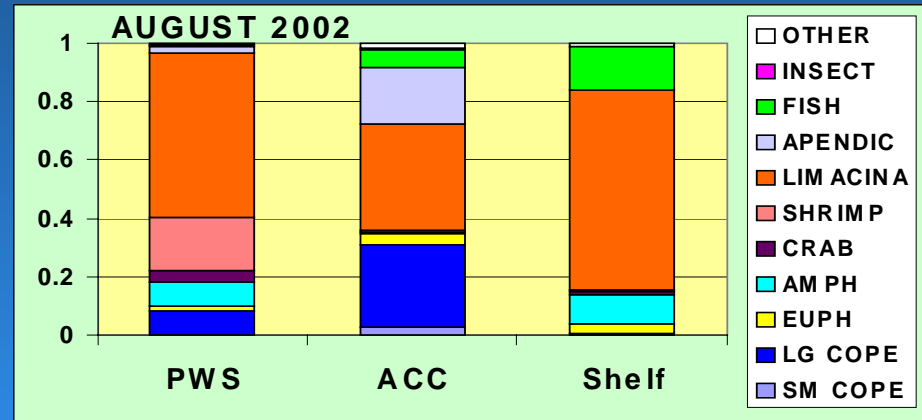
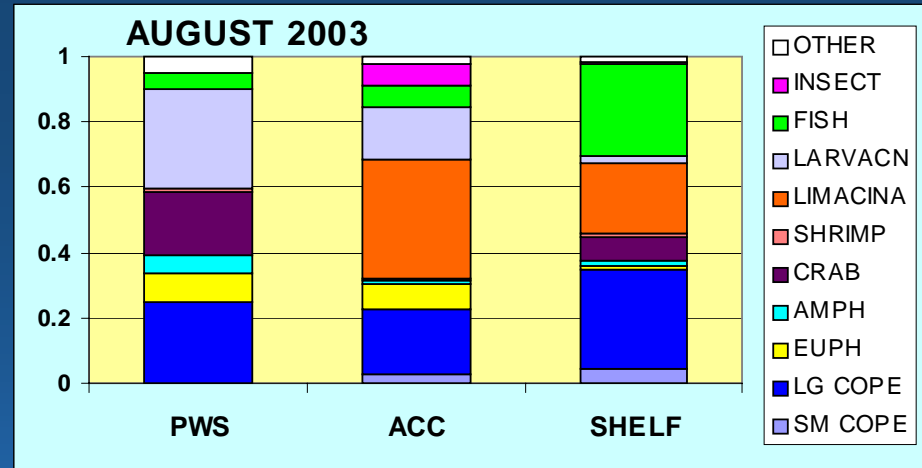
Condition Indices for Pink Salmon: Comparisons Among Habitats in July and August 2001 - 2003.

ACC Fish Had Lowest Condition in 2002 and 2003.

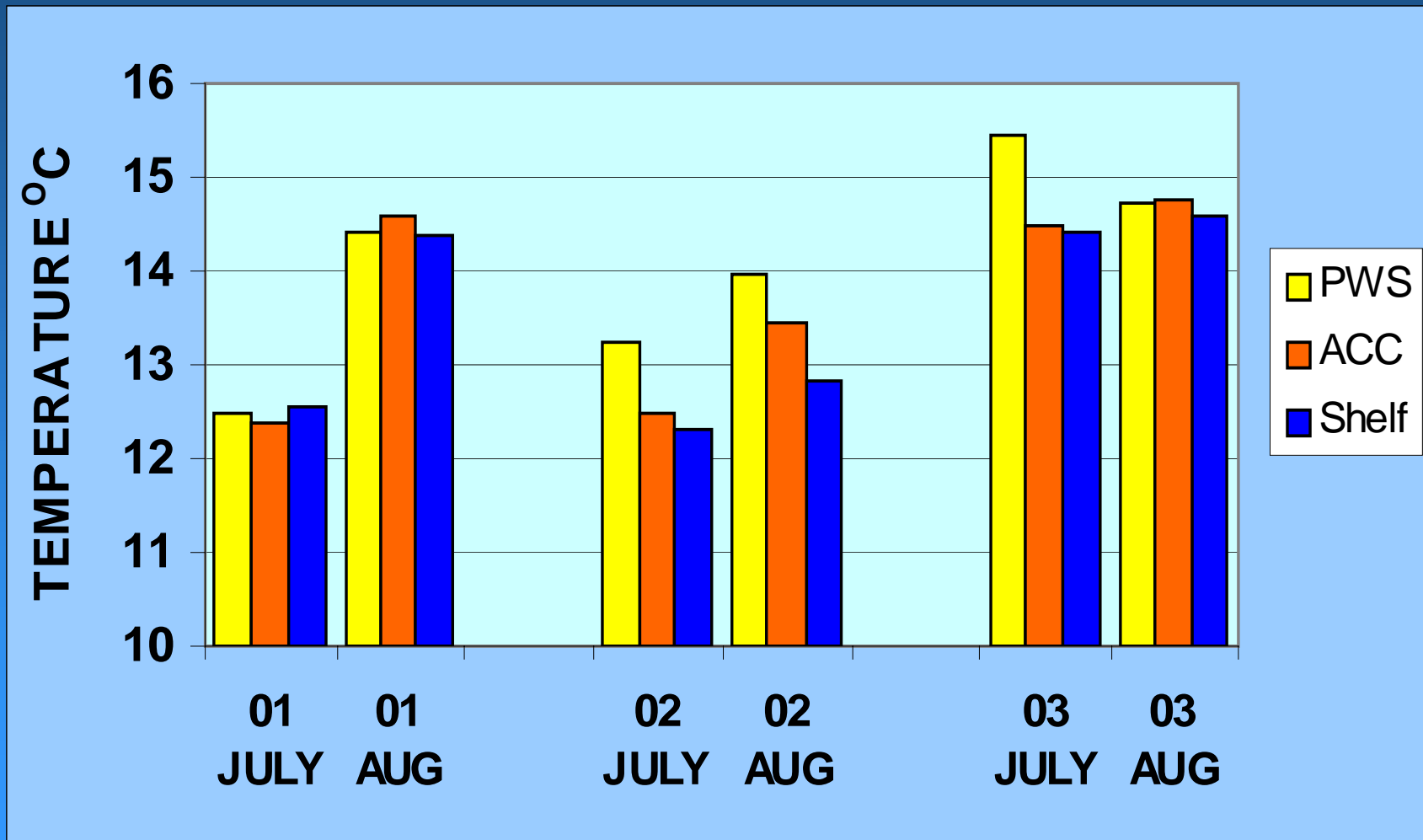
Condition Index is Mean Residual From Joint Length/Weight Regression



Diet (volume) of Juvenile Pink Salmon in Three Habitats During August 2001 - 2003



Water Temperature (2 m depth) in Three Habitats in GLOBEC Area: July and August 2001 - 2003



Summary:

Pink Salmon Move Sequentially Through PWS, ACC and Shelf Habitats From July - August

The Size Attained Differs Among Habitats: Shelf Fish were Bigger in 02 and 03, ACC Fish Bigger in 01

Condition Differences Among Habitats Were Similar to Size: Shelf Fish Were in Better Condition in 02 and 03

Growth Differed Among Years: In 02 Fish Were Larger, Especially in the Shelf Habitat

Temperatures Were Similar Among Habitats, but Differed Among Years: 02 was the Coldest Year, 03 was Warmest

The Faster Growth Attained by Fish in 02 May Have Led to the Exceptionally High Marine Survival by that Year-Class