Managing a Strait of Georgia Ecosystem

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Nanoose Bay Sea Surface Temperatures

The chart shows the sea surface temperatures (SST, in °C) at Nanoose Bay from 1965 to 2005. The temperatures vary over time, with some periods of stability and others of fluctuation. The red dashed vertical lines indicate specific years for reference.
Ocean Temperature

![Graph showing ocean temperature over time with lines for surface and bottom temperatures.](image-url)
Fraser River flow anomaly in April 1912-2006
Lingcod catch in the Strait of Georgia
Pacific hake in the Strait of Georgia

Biomass estimates
Beamish et al. 2001

Sediment record
O’Connell. 2000

Trends in mean length
Beamish et al. 2001
Trends in Harbour Seal Abundance
Strait of Georgia

![Graph showing population trend and survey counts from 1970 to 2000. The population trend line increases gradually from around 0 in 1970 to approximately 40,000 by 2000. Survey counts are represented by red dots, which show a similar upward trend.]
Harbour Seals - Seasonal Diet
Strait of Georgia

Percent of Diet

Month

Herring
Hake
Estimated abundance of juvenile salmon in the Strait of Georgia 1967-1976 and 1993-2003
Chinook - Strait of Georgia

Catch and survival

Beamish et al. 1995. Oceanogr. 4:3, 243-256.

Hatchery releases

Chinook catch
Sport and Commercial catch within the Strait of Georgia, 1975-2005
Acoustic tags on *O. kisutch*

173 tagged in July and September (131 detections)

- July-September: 8
- October-December: 0

- July-September: 2
- October-December: 54
Coho abundance in the Strait of Georgia, July 1997-2006

Year to Sea

Abundance (x 10^6)


0.8 2.0 2.2 7.6 5.3 1.8 3.1 0.5 3.9

No Survey
Percent of coho salmon in the Strait of Georgia that originated from hatcheries
Catches of pink salmon and hatchery and wild coho salmon abundance in September
Is Marine Survival related to the abundance or length of the coho salmon?

Number of coho salmon

Abundance

Length

July

September

Abundance (x 10^6)

Year to Sea

Marine survival

Length (mm)

Marine Survival

Number of coho salmon
September – July Lengths

Length in September minus Length in July (mm)
September – July
Marine survival

R² = 0.6297
Conclusion

• The carrying capacity in the Strait of Georgia for coho salmon has changed
• Juvenile coho salmon need to grow to a critical size by the summer solstice
• This critical size and critical time appears to be different for hatchery and wild coho salmon.
• Growth and lipid storage need to continue over the summer months to achieve high marine survivals seen in the 1970s