

An aerial photograph of the Strait of Georgia region, showing the coastline of British Columbia and the surrounding waters. The land is covered in dense green forest, and the water is a deep blue. Numerous small red dots are scattered across the land, particularly in the mountainous areas, indicating the locations of salmon hatcheries. The text is overlaid on the map in white, bold font.

An Overview of Coho and Chinook Hatchery Facilities in the Strait of Georgia

**Fisheries and Oceans Canada
Mel Sheng**

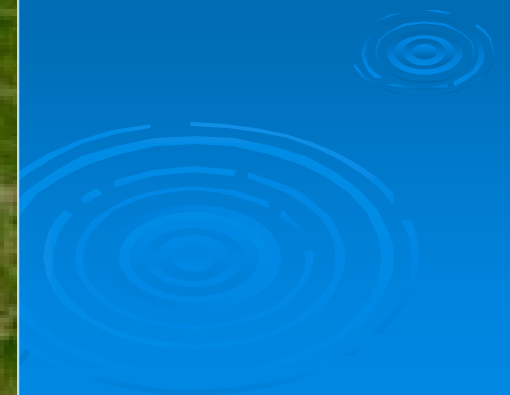
**Salmon
Enhancement
Program**

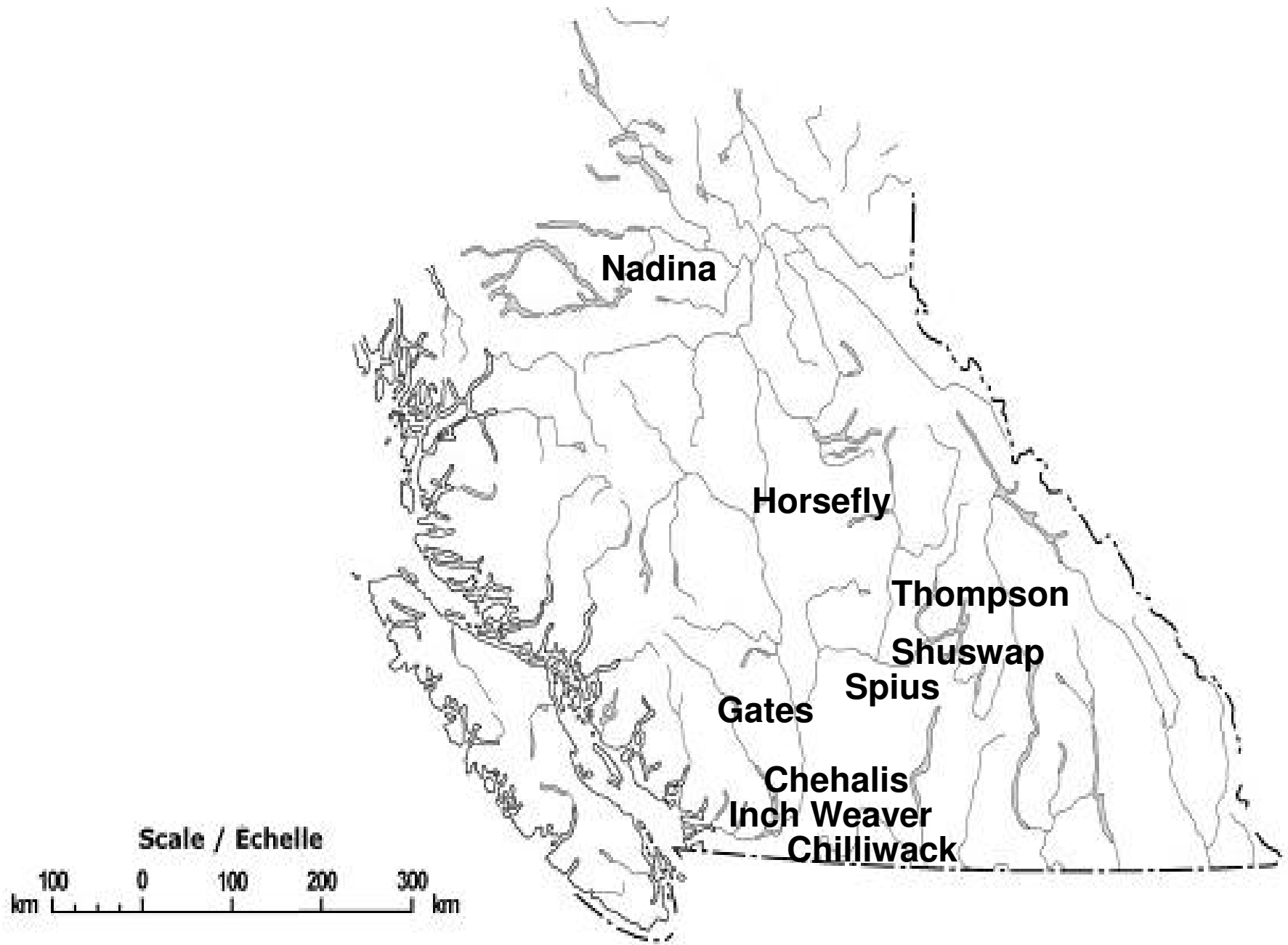


**11 Major
Hatchery
Facilities**

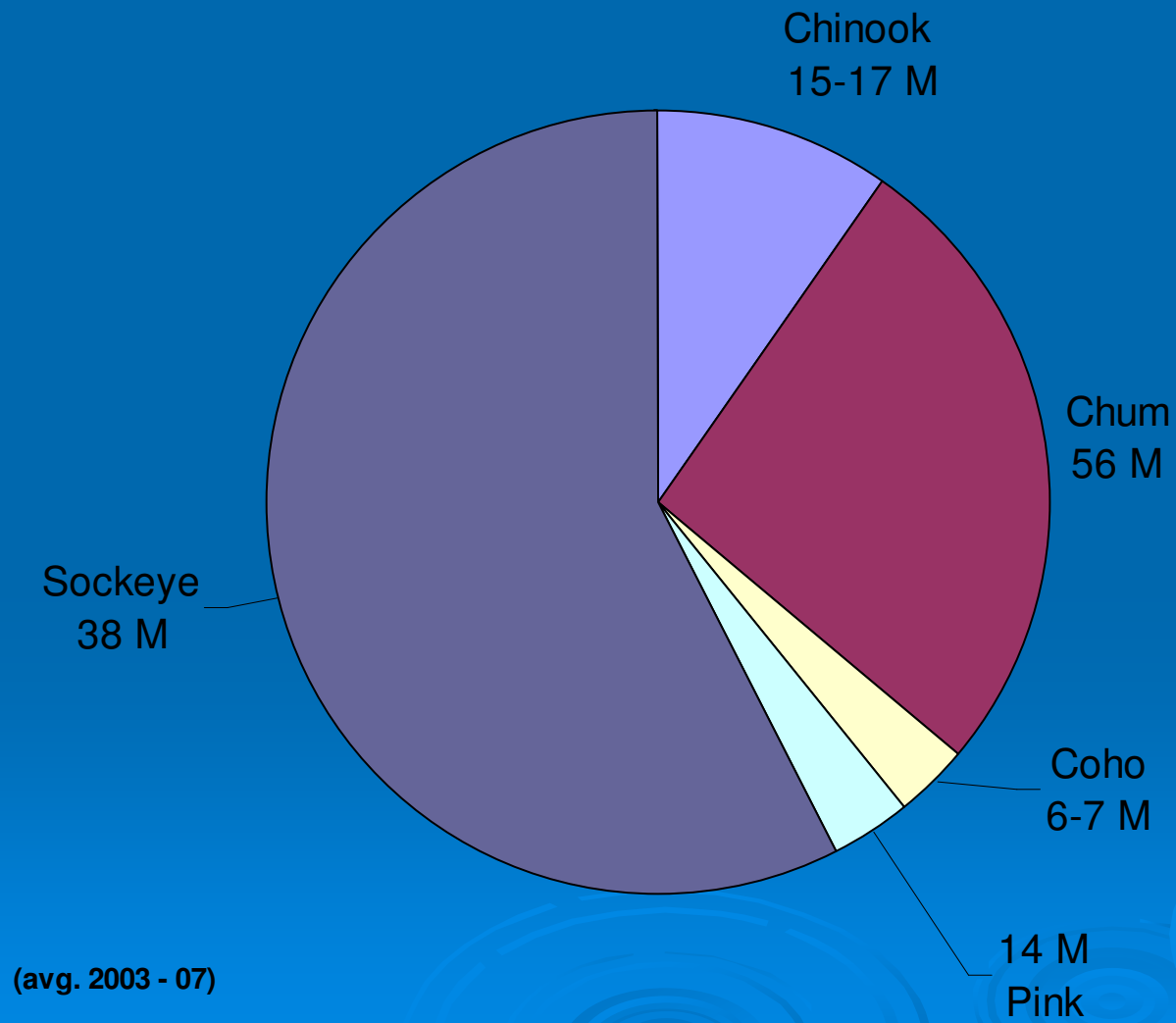
**6 Spawning
Channels**

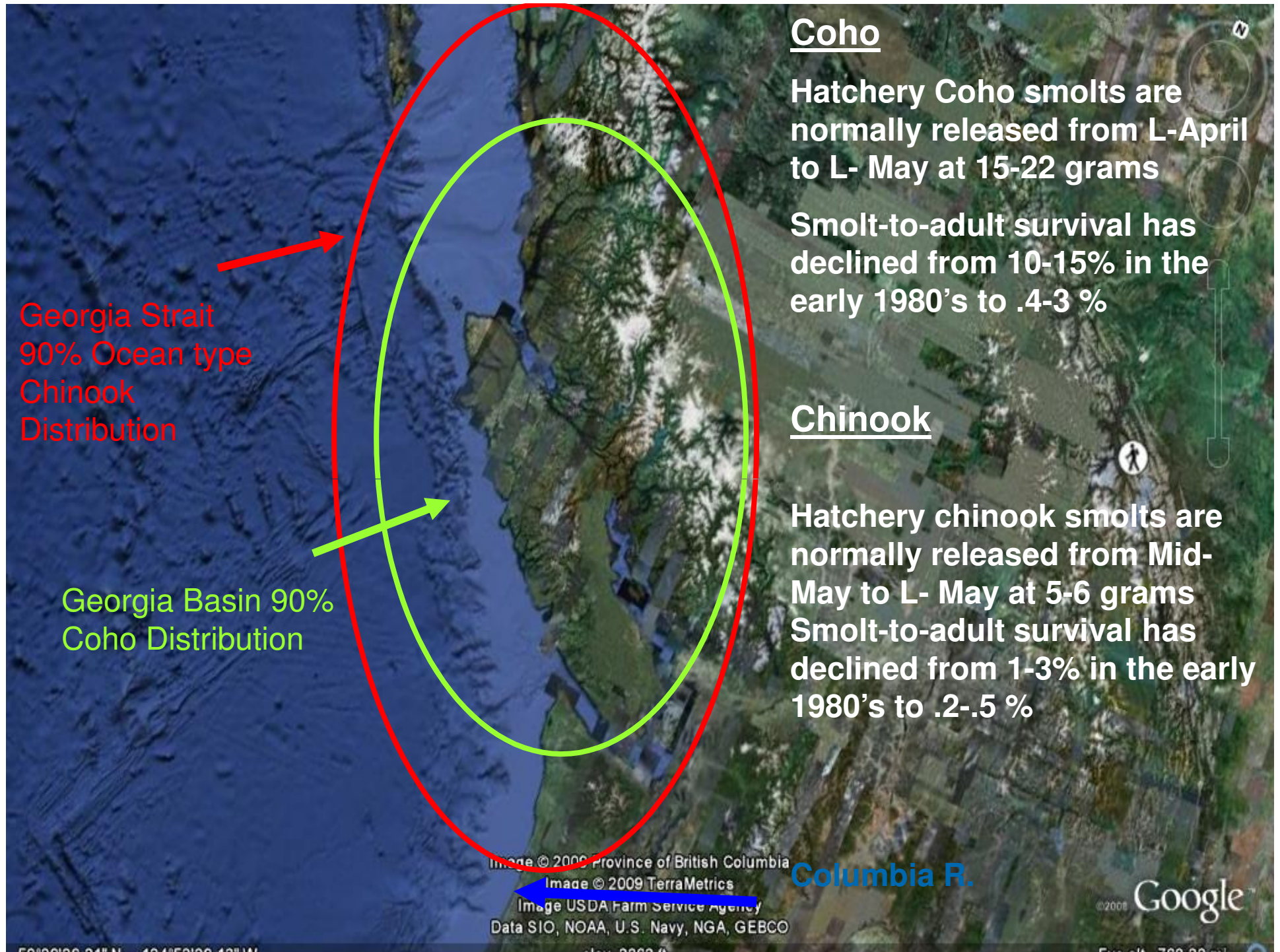
**7 Community
Economic
Development
Projects**





SEP Production in the Strait of Georgia (M-million)





Georgia Strait
90% Ocean type
Chinook
Distribution

Georgia Basin 90%
Coho Distribution

Coho

Hatchery Coho smolts are normally released from L-April to L-May at 15-22 grams

Smolt-to-adult survival has declined from 10-15% in the early 1980's to .4-3 %

Chinook

Hatchery chinook smolts are normally released from Mid-May to L-May at 5-6 grams
Smolt-to-adult survival has declined from 1-3% in the early 1980's to .2-.5 %

Columbia R.

Image © 2009 Province of British Columbia
Image © 2009 TerraMetrics
Image USDA Farm Service Agency
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

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50°20'26.21" N 124°52'29.12" W

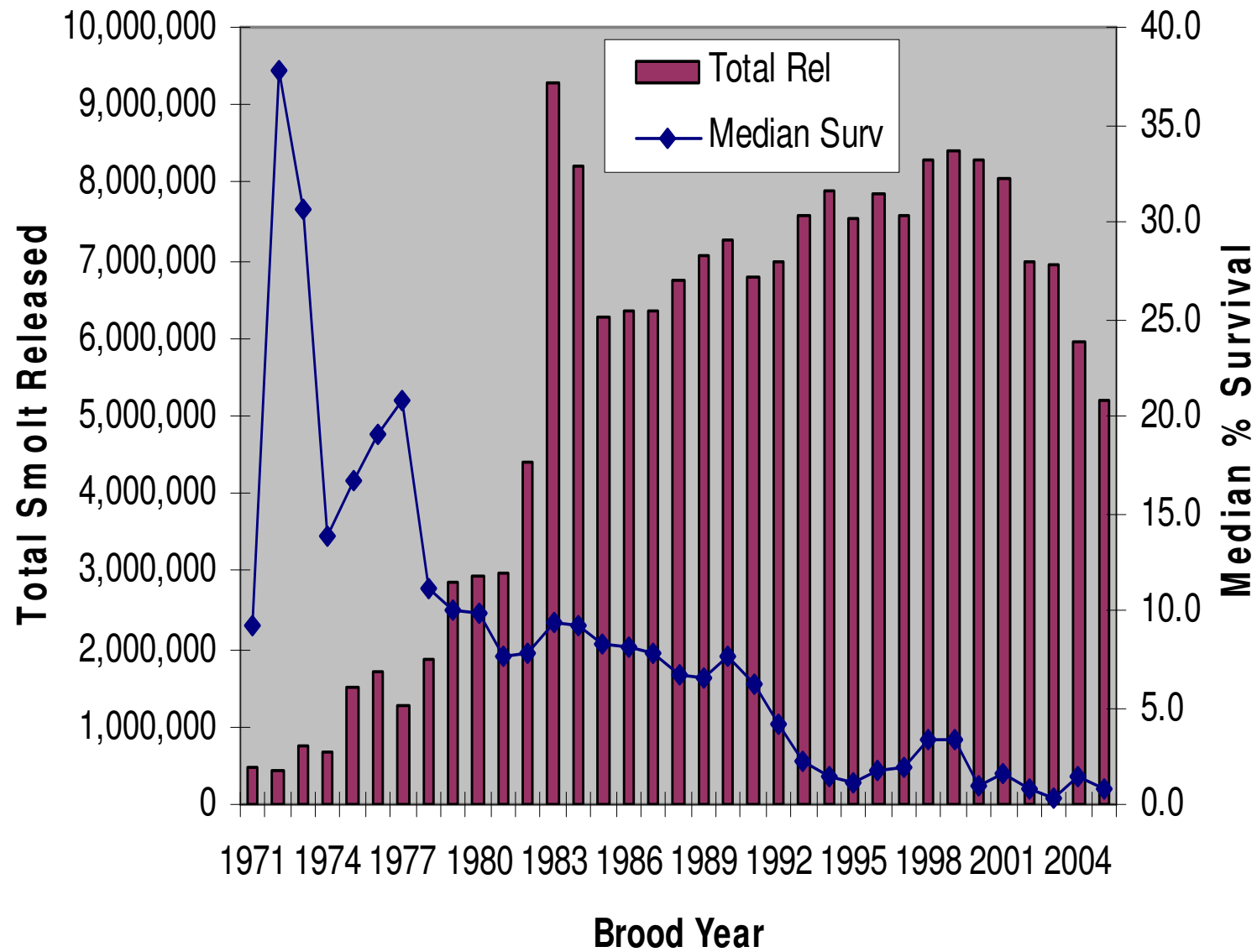
elev. 2362 ft

Eye alt. 768.22 mi

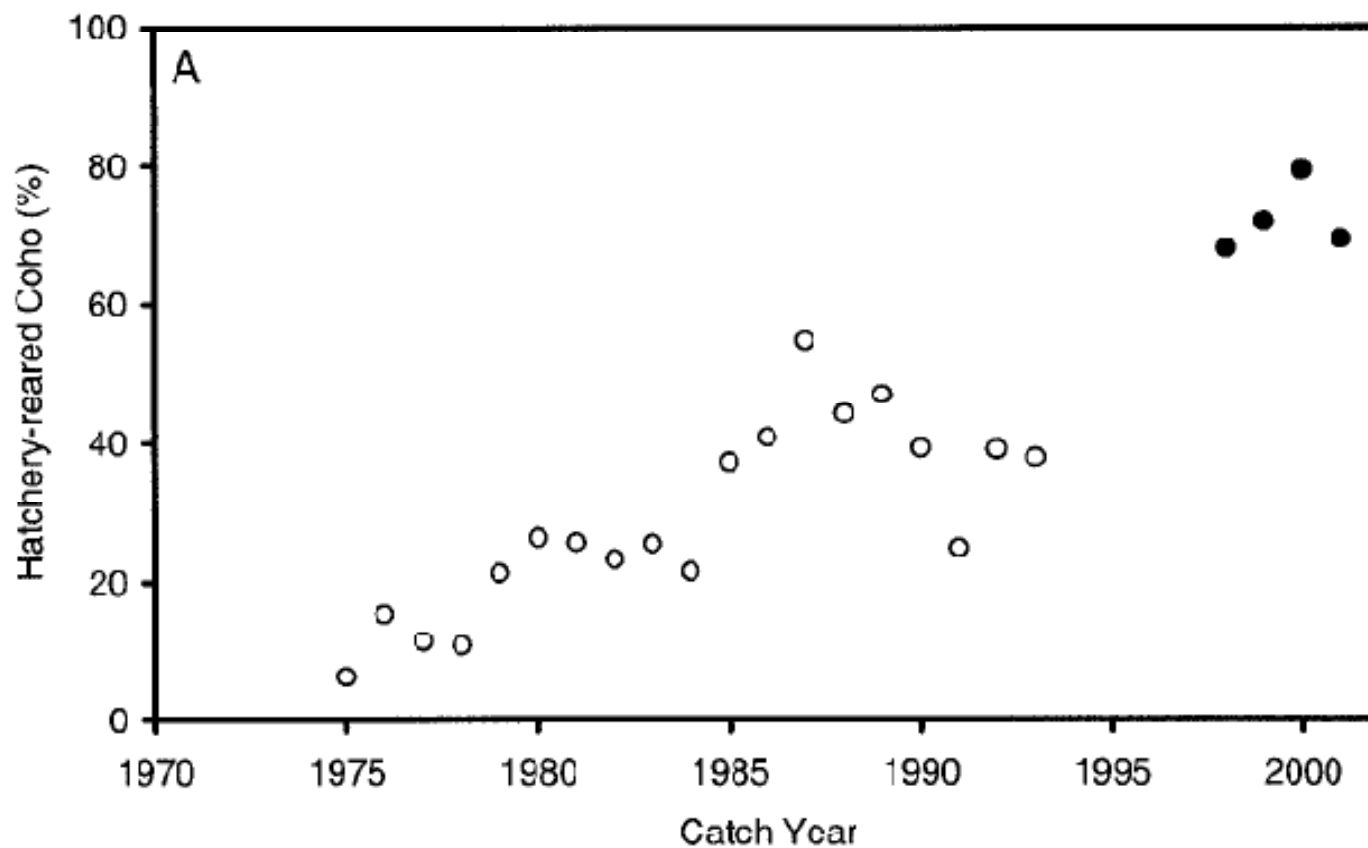
Georgia Basin Coho



Strait of Georgia Coho Releases & Survivals



Percentage of Hatchery Fish in Georgia Basin



Coho Exploitation and Marine Survival

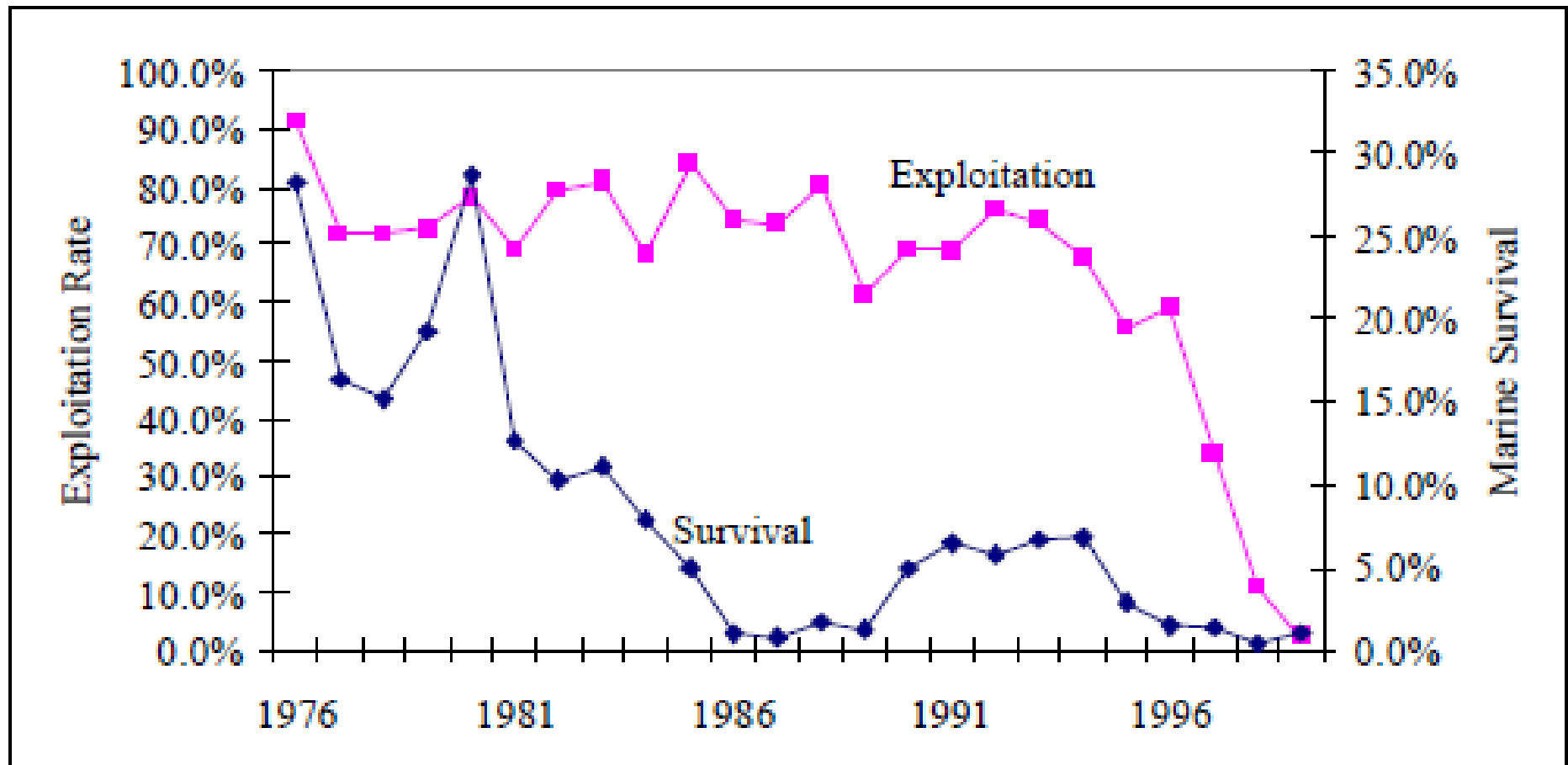
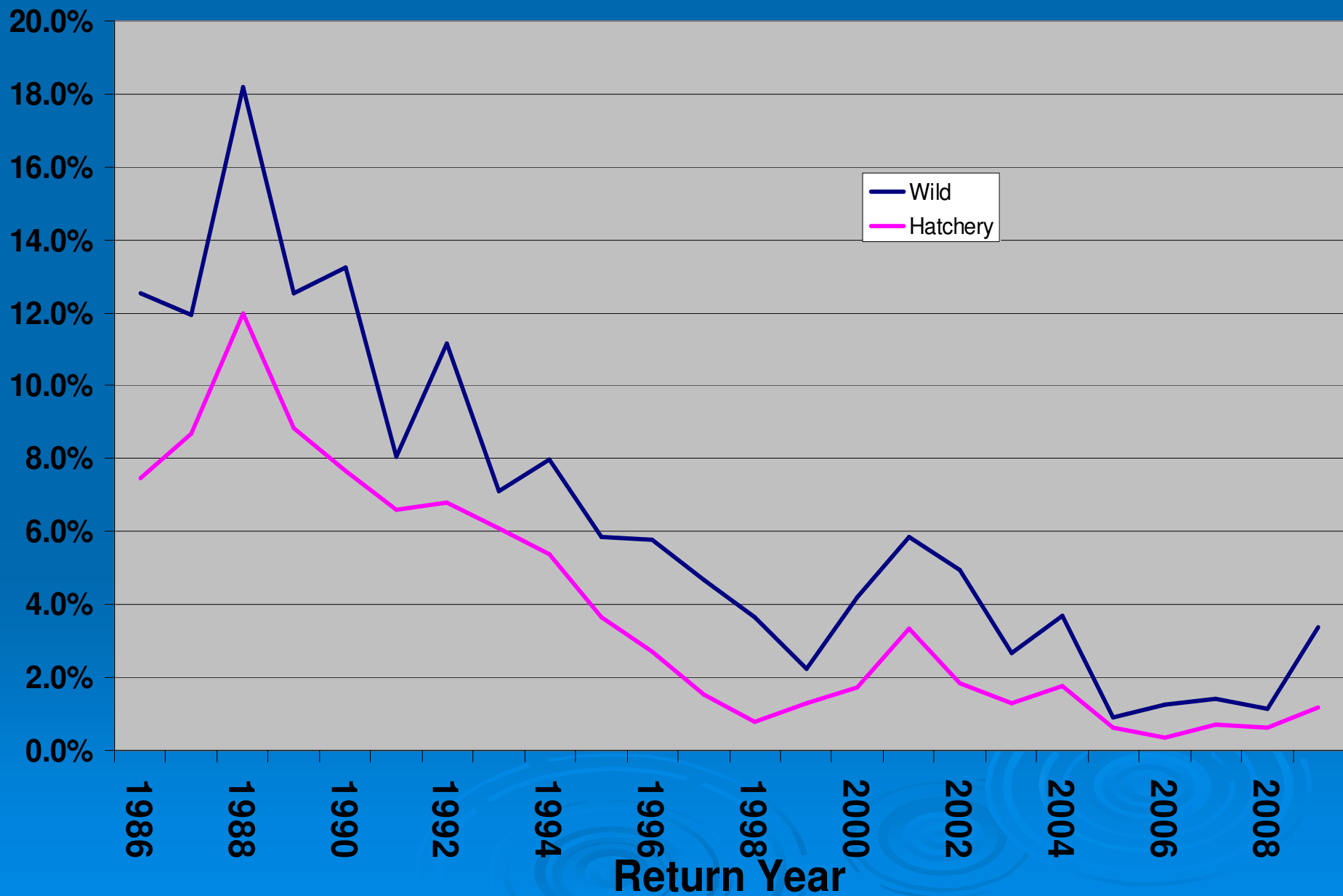
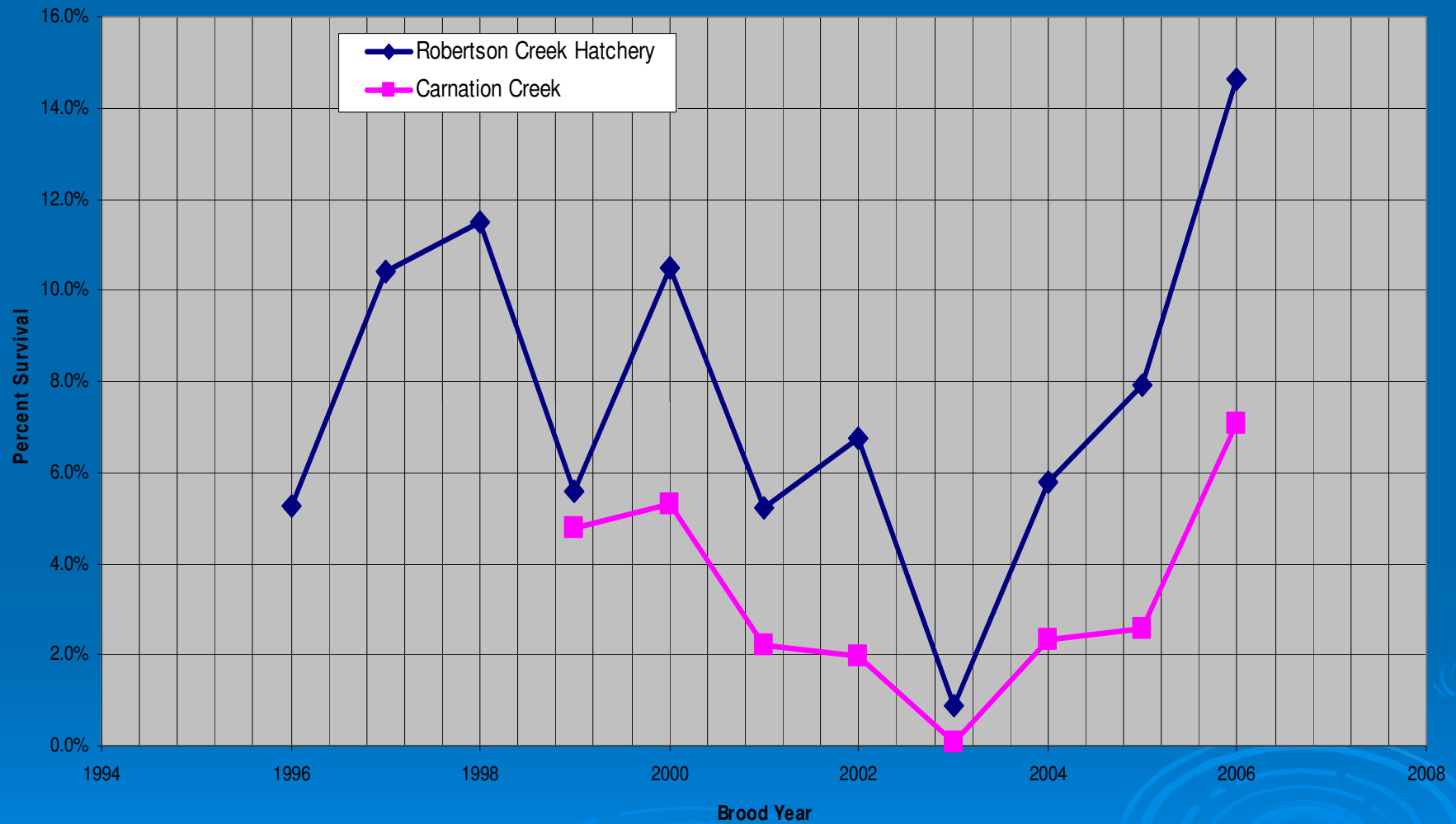


Figure 11. Marine survival and exploitation rates for Big Qualicum coho (Simpson et al. 2001).

Strait of Georgia Coho Marine Survivals



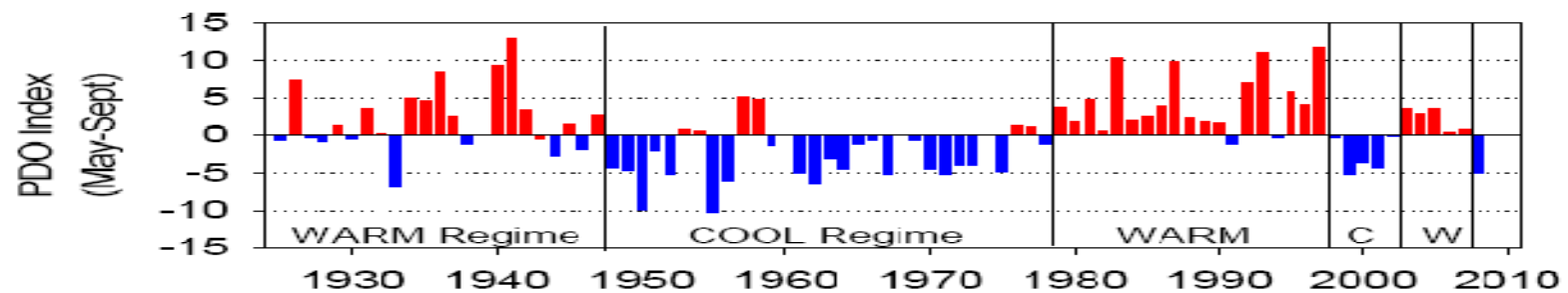
Coho Smolt Survival West Coast Vancouver Island



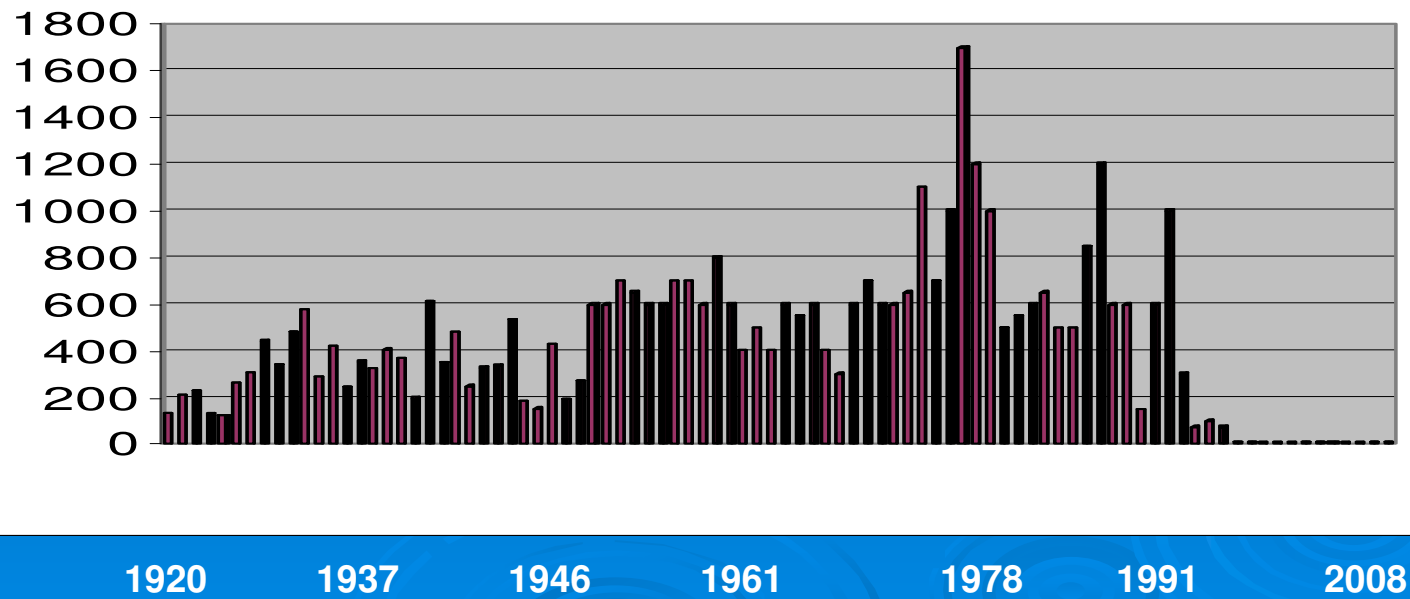
Ocean condition index

From Bill Peterson- NOAA Fisheries:

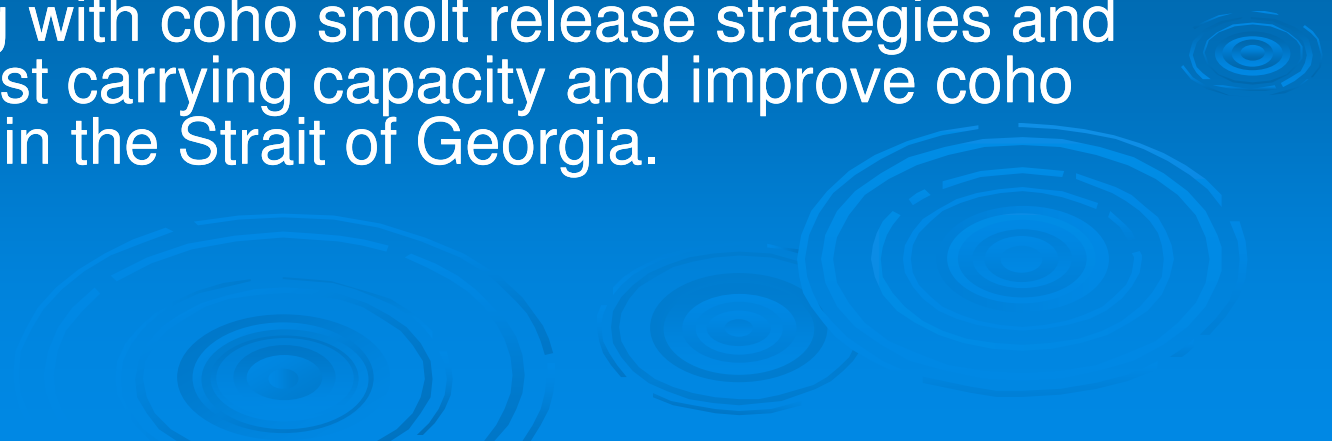
Sept. 2008



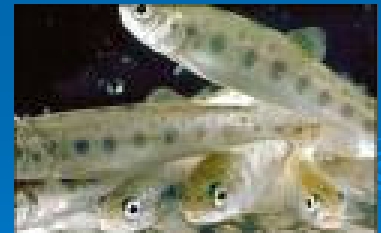
Strait of Georgia Coho Catch (thousands)



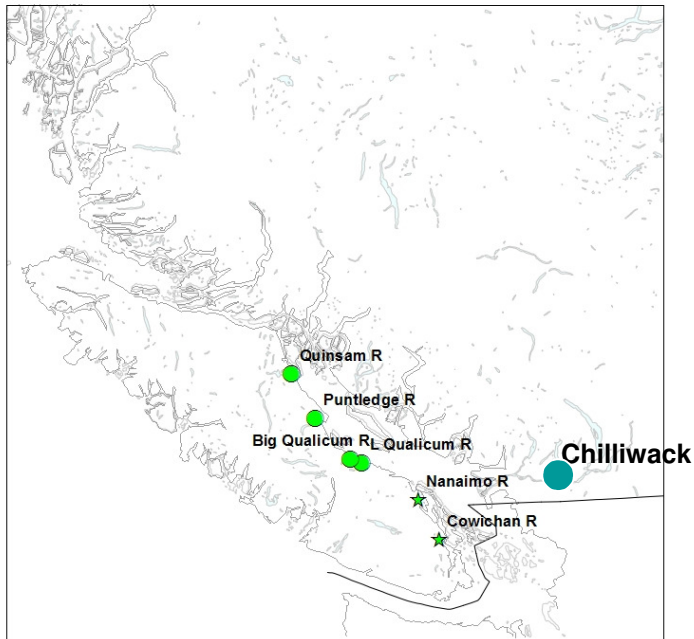
Summary-Coho Release Strategy Studies

- SEP has been releasing 6.5 to 7.5 million coho smolts into the Strait of Georgia for the past 15 – 20 years
 - Georgia Strait coho survival rates declining
 - May be linked to Georgia Strait carrying capacity or other ocean condition issues.
 - Science community and stakeholder interest in experimenting with coho smolt release strategies and numbers to test carrying capacity and improve coho survival rates in the Strait of Georgia.
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Georgia Strait Chinook



Comparative Chinook Smolt Release-To-Adult Survival Rates



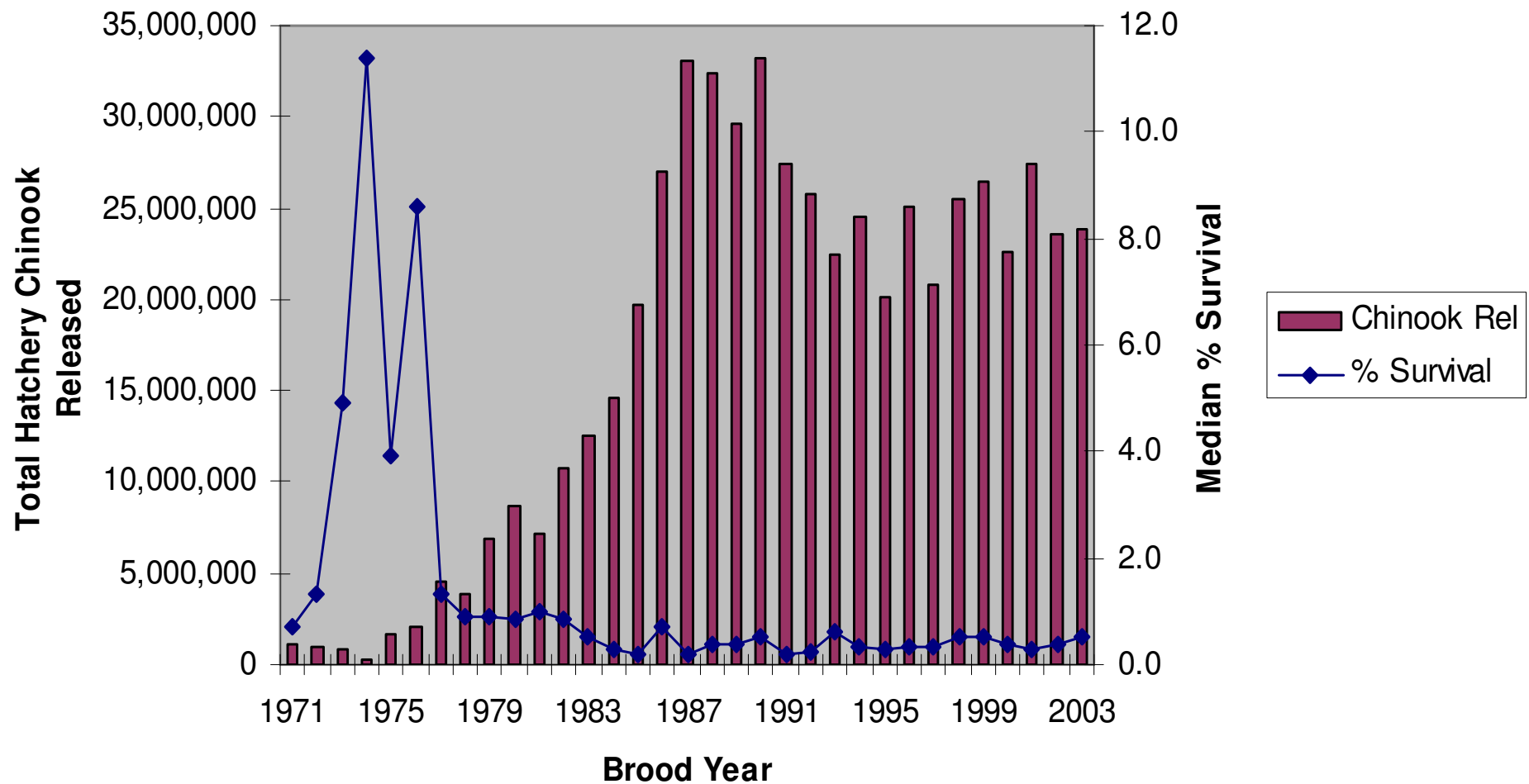
| Hatchery | 5 year * Surv Rate % | 10 year** Surv Rate % |
|-----------------|----------------------------|-----------------------------|
| Big Qualicum | 0.2 | 0.2 |
| Little Qualicum | 0.3 | 0.3 |
| Cowichan | 0.3 | 0.4 |
| Quinsam | 0.3 | 0.4 |
| Puntledge | 0.5 | 0.4 |
| Nanaimo | 0.5 | 0.6 |

* 1998-2002 brood years

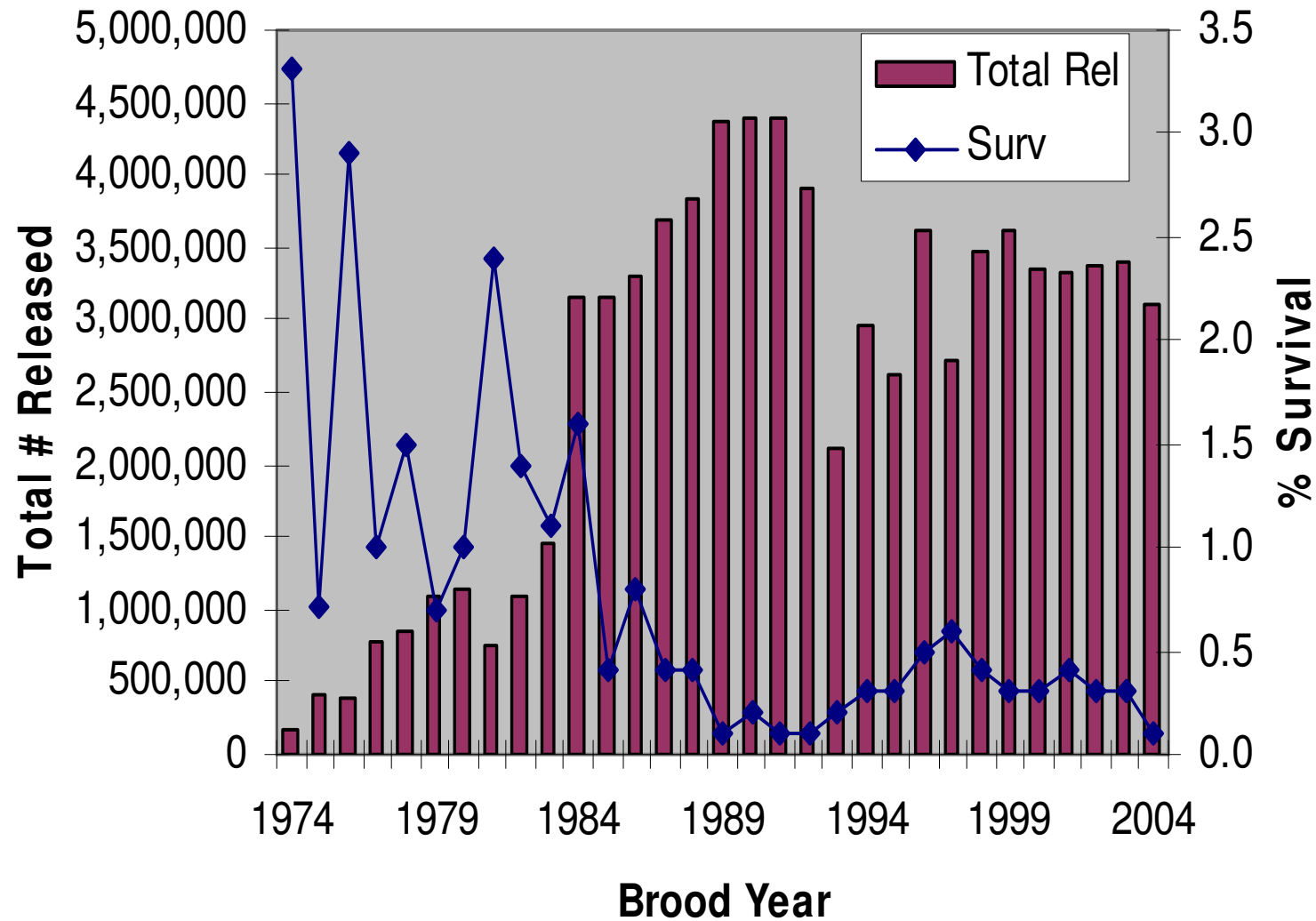
** 1993-2002 brood years

Mean Survival of SEP Facilities in the Georgia Basin

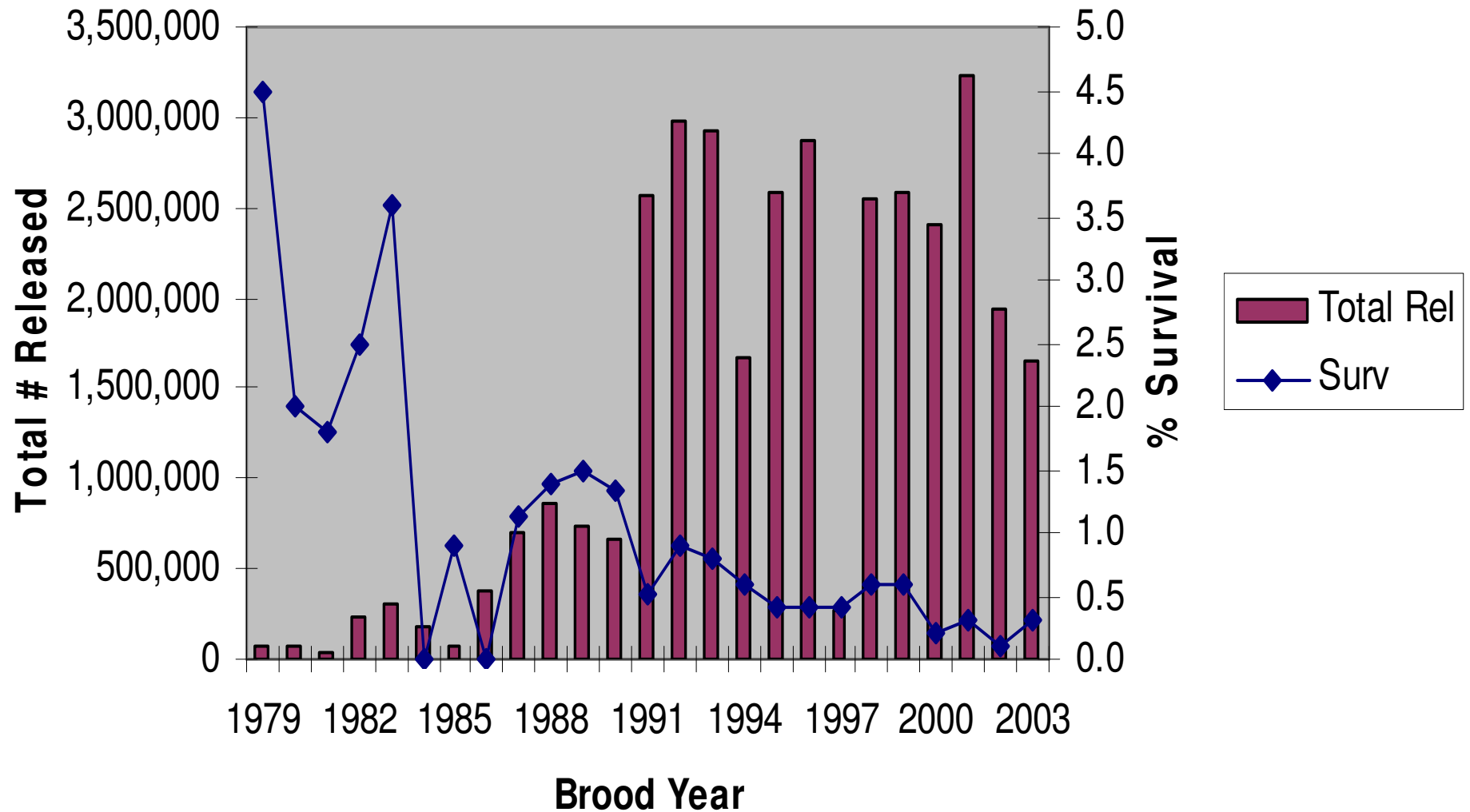
Strait of Georgia Chinook Releases & Survival



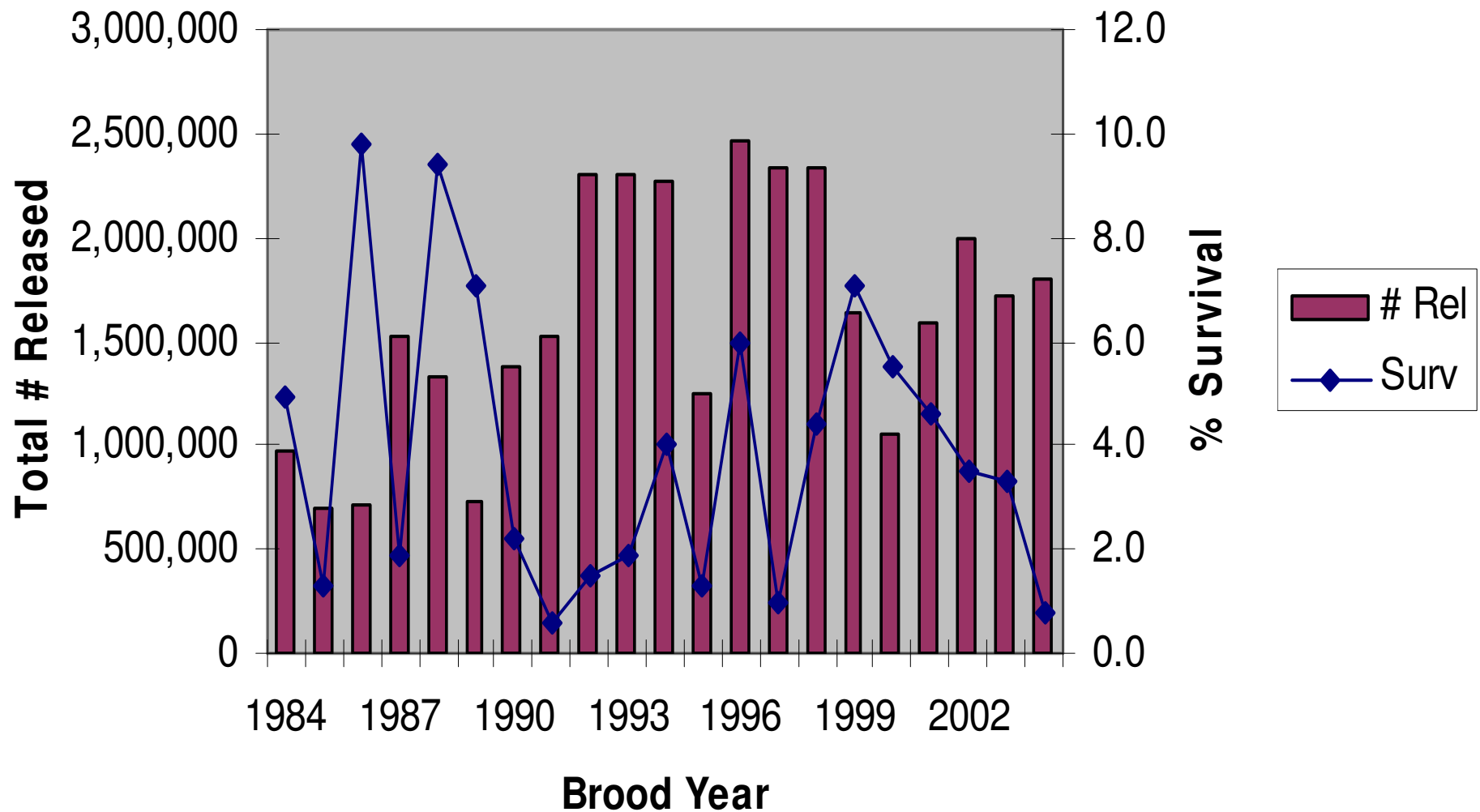
Quinsam R Chinook Releases and Survivals, by Brood Year



Cowichan R Chinook Releases and Survivals, by Brood Year

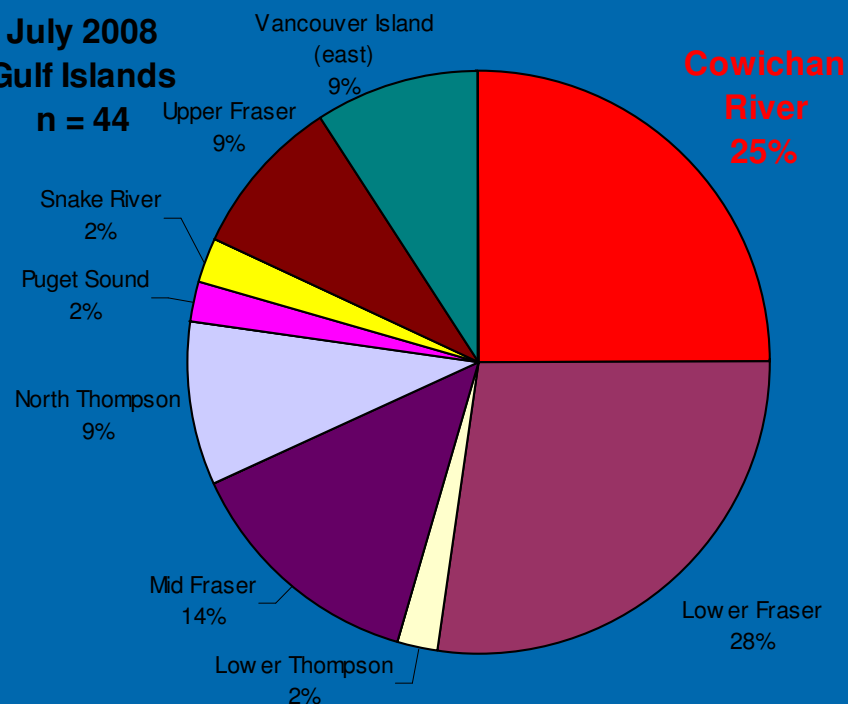


Chilliwack R Chinook Releases and Survivals, by Brood Year



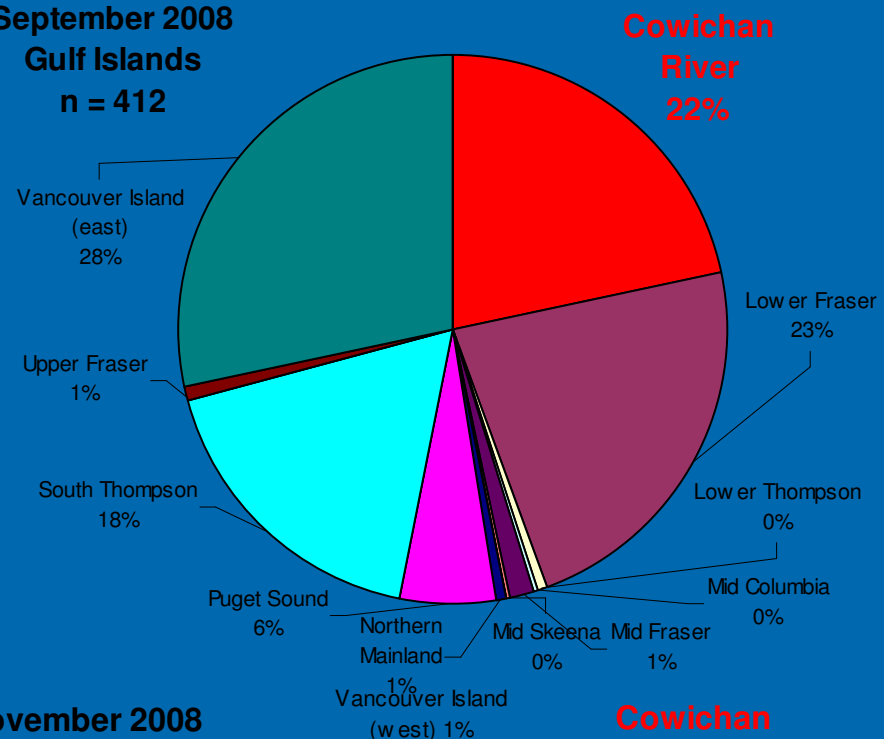
July 2008 Gulf Islands

n = 44



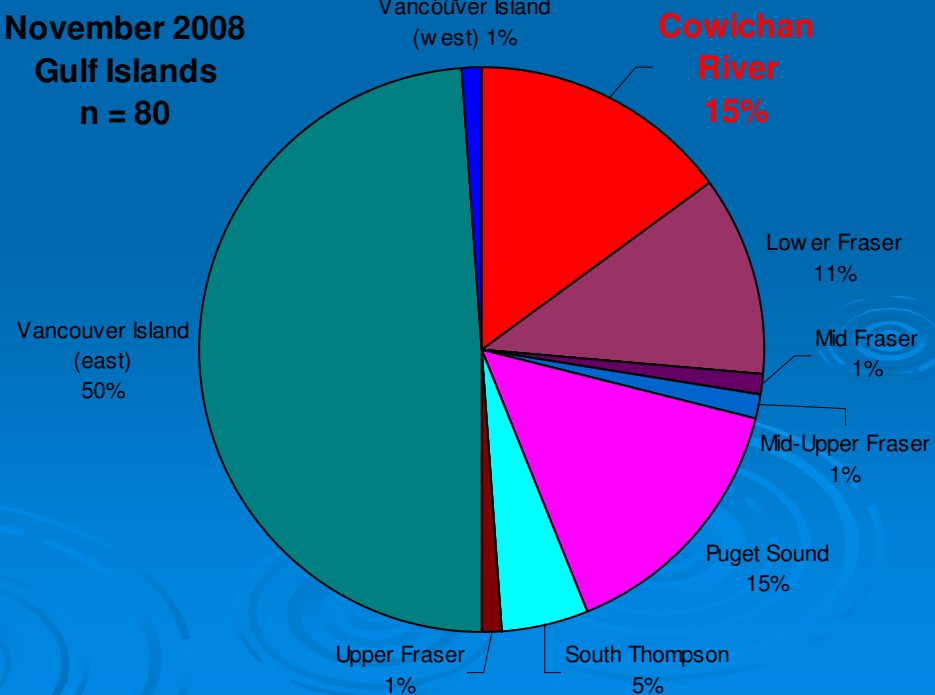
September 2008 Gulf Islands

n = 412



November 2008 Gulf Islands

n = 80



Origin of juvenile
chinook salmon in
the Gulf Islands in
2008

Chinook Summary

- SEP has been releasing 20 to 30 million chinook smolts into the Strait of Georgia for the past 15 – 20 years
- Georgia Strait survival rates declining
- May be linked to Georgia Strait carrying capacity or other ocean condition issues.
- Science community and stakeholder interest in experimenting with chinook smolt release strategies and numbers to test carrying capacity and improve survival rates in the Strait of Georgia.