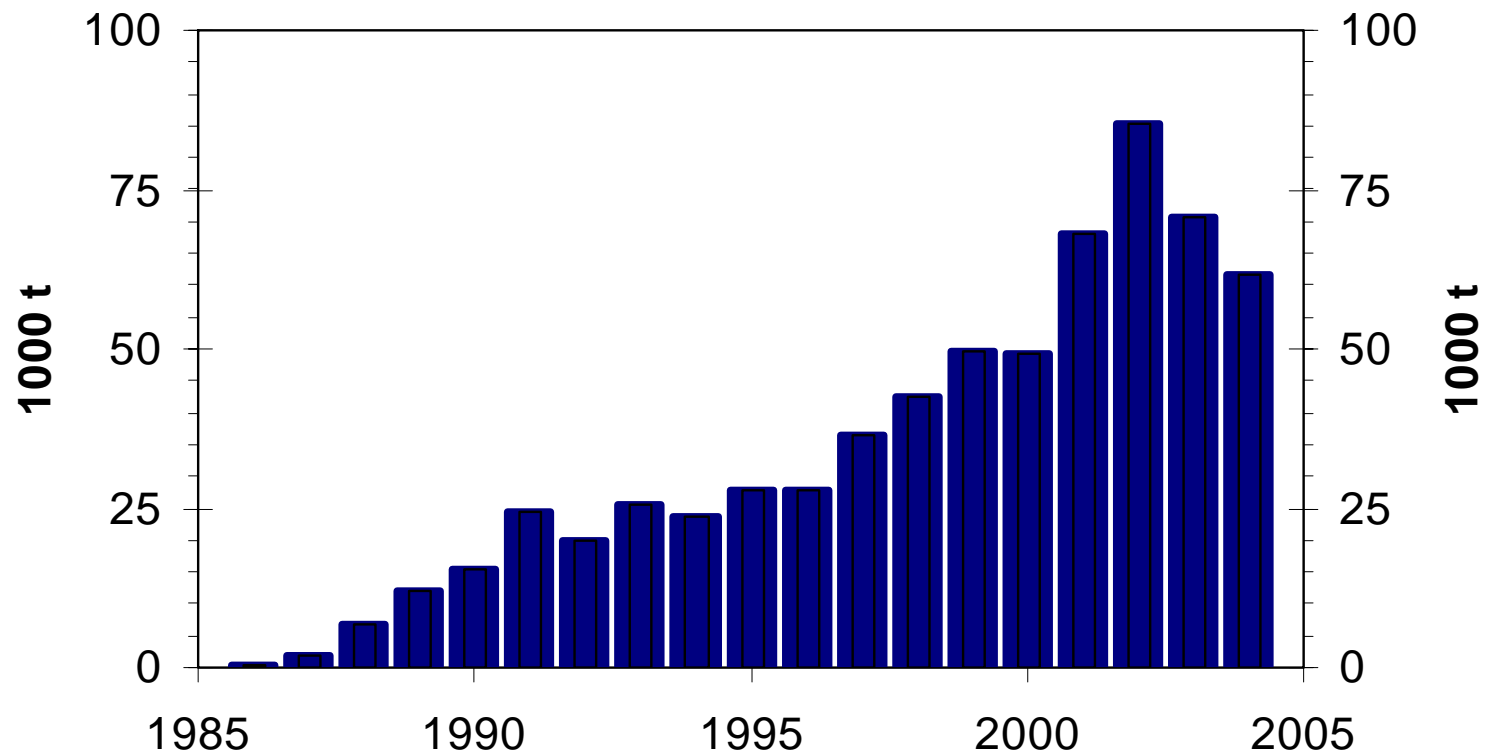


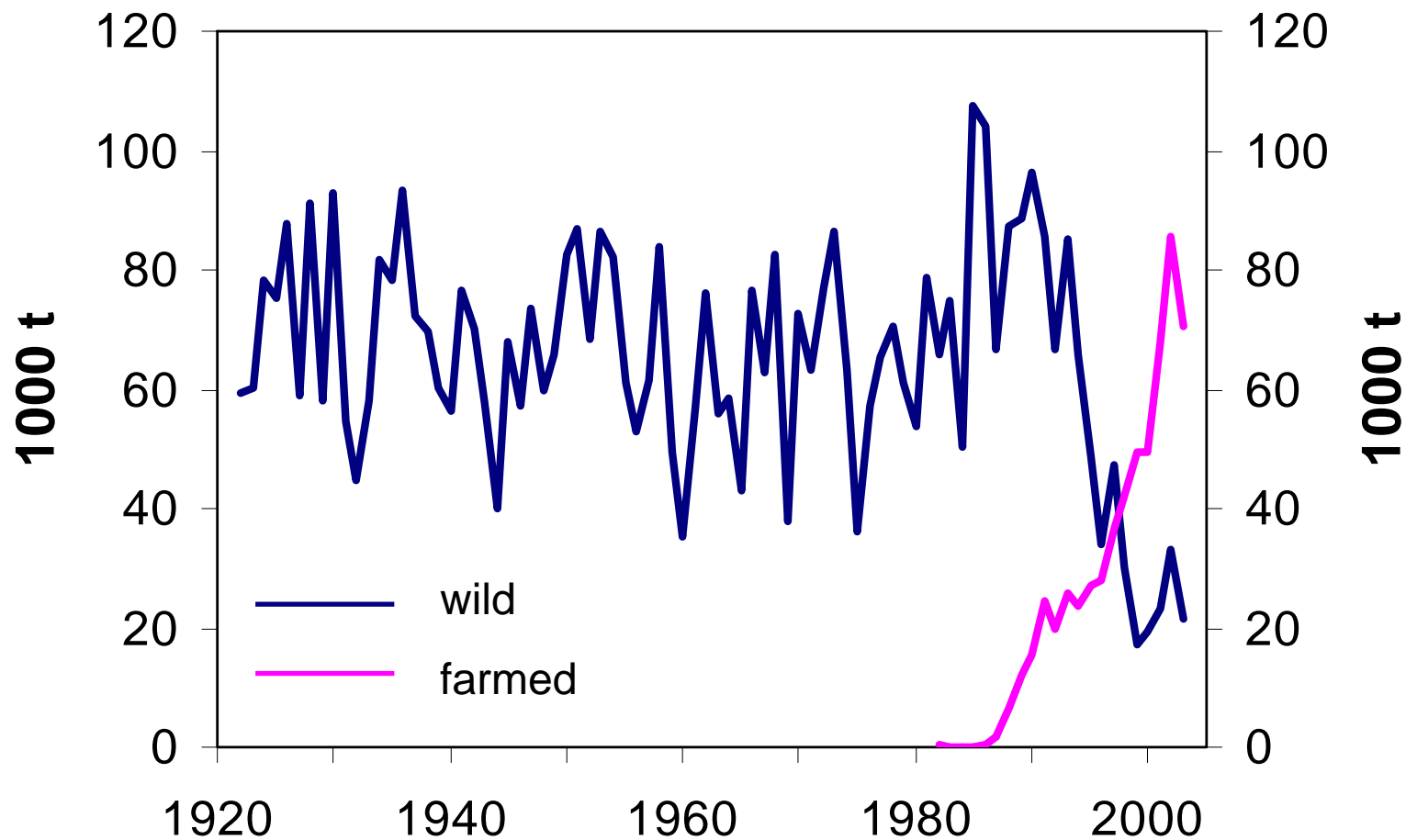
Regimes and the relationship between farmed and wild salmon in British Columbia

Richard Beamish,
Chrys-Ellen Neville and Ruston Sweeting
Fisheries and Oceans Canada

Total production of farmed salmon



Wild and farmed salmon production





Area of the ocean used by all salmon farms is about 1/10th the size of Vancouver Airport











Jobs for each farm

1. On farms	13
<ul style="list-style-type: none">• (includes site managers, technicians, maintenance, graders, harvesters, accounting, biologists, veterinarians, hatchery staff, sales personnel).	
2. Local suppliers	18
<ul style="list-style-type: none">• (includes divers, net loft, truck drivers, feed delivery, metal fabricators, marine staff, auto maintenance).	
3. Processing plant	19
4. Feed production	3
<hr/>	
Total number of full time jobs	53

Processing

- Fish moved in well boats from farm
 - 3 boat loads/day and 6 days/week
 - 2 months to harvest 1 farm
- Processing plants
 - 9 plants processing farm fish
 - 880 full time jobs
- Fish slaughtered in morning and trucked in afternoon
 - 36 hours from slaughter to market
 - High quality, fresh product in market
 - Only fish processed in plants are marketed

PAA demands apology for Suzuki slander

Sea lice infections rising

Broughton Archipelago Pink Salmon Are Missing Again

Predicted impact of sea lice from fish farms becoming a reality

DFO study finds no link between salmon farms and sea lice on wild salmon; activists claims shown to be false

Sustainable aquaculture:

B.C. boosts monitoring of sea lice

Broughton pink salmon numbers off again
Primary estimates show that the

Sea lice infections rising

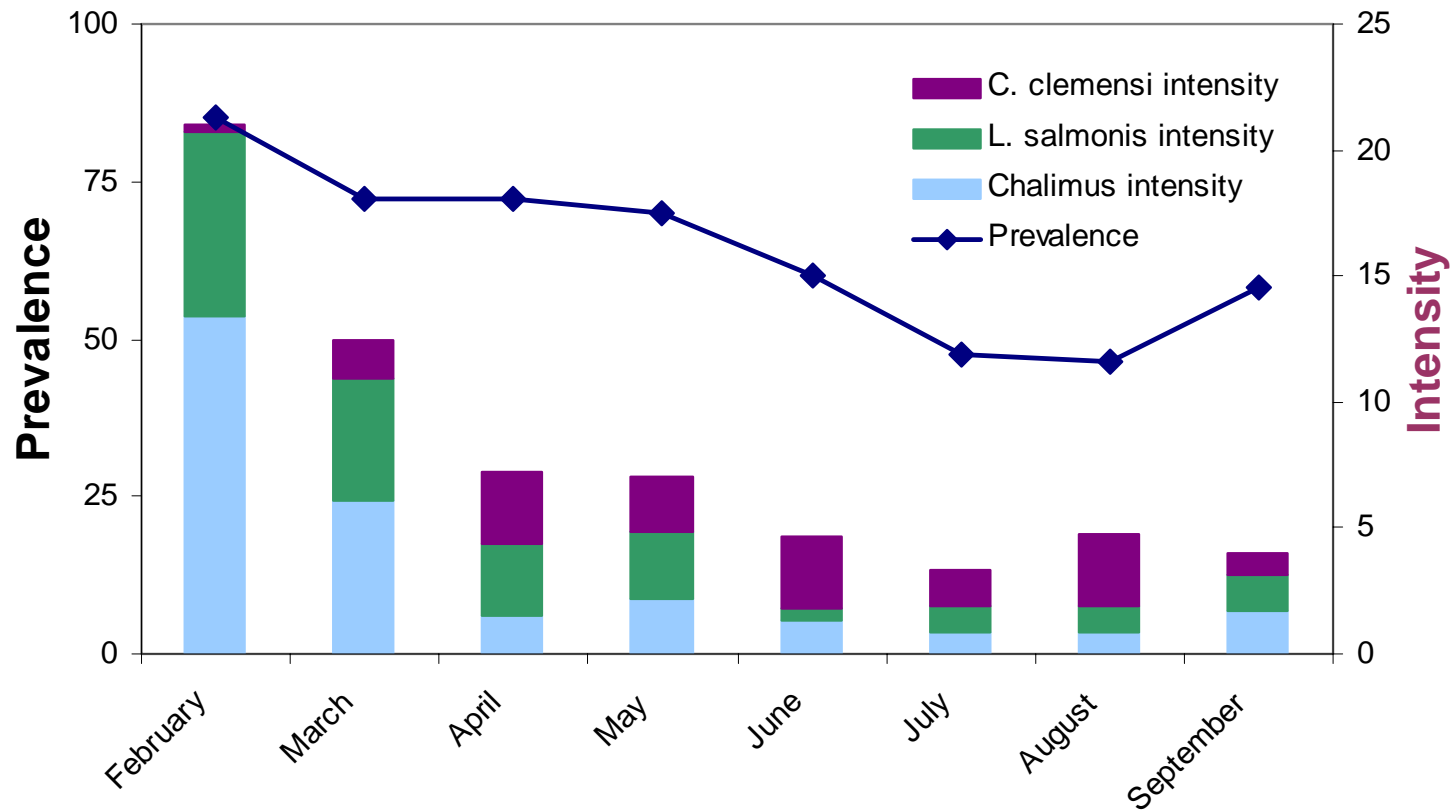
Wild salmon hit by sea-lice epidemic: Critics say blame lies with fish farms

Salmon fry carry more sea lice: Dramatic rise in parasites noted by DFO on Broughton Archipelago fish

Salmon fry carry more sea lice: Dramatic rise in parasites noted by DFO on Broughton Archipelago fish

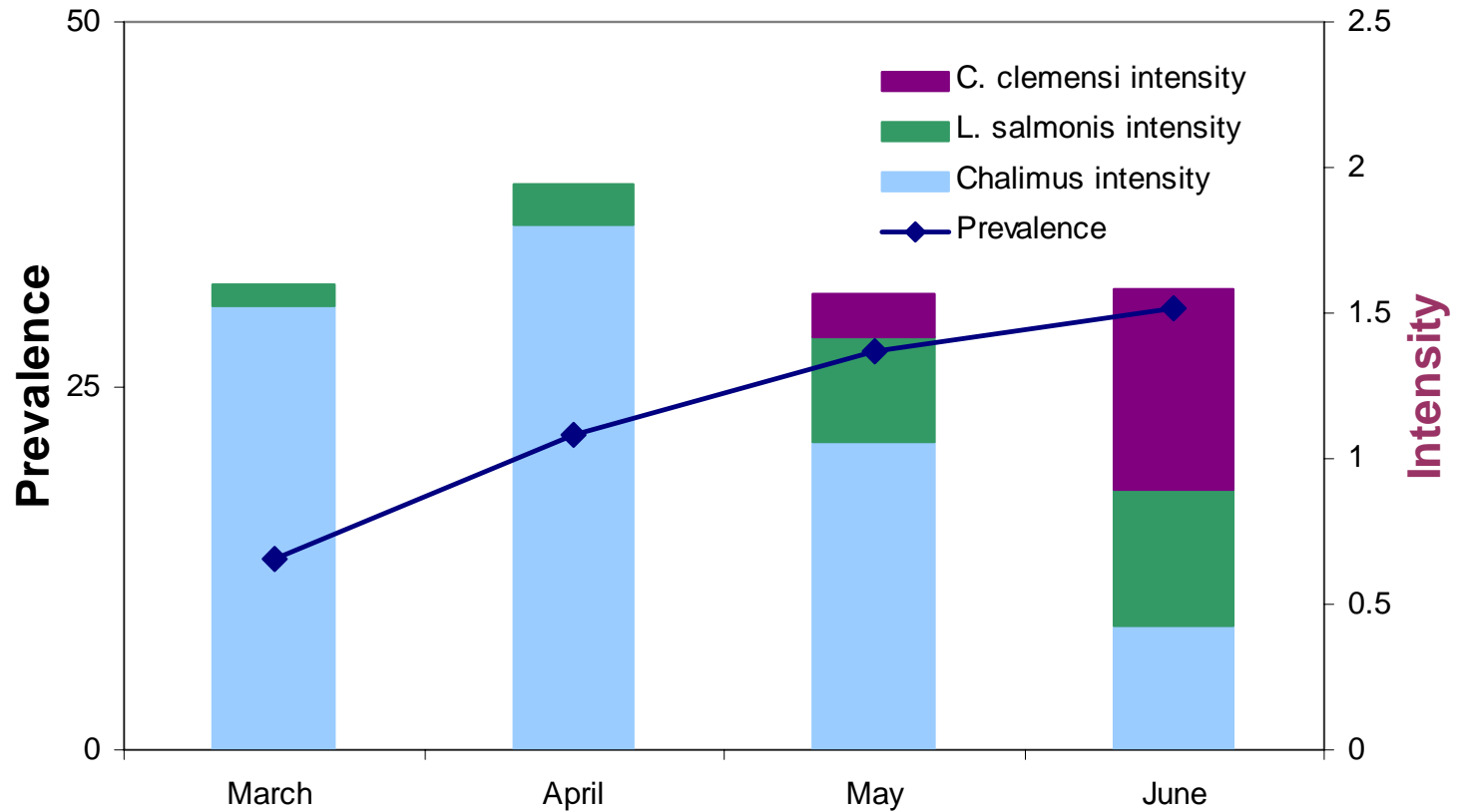
Sea lice on farmed salmon

Feb – Sept 2003

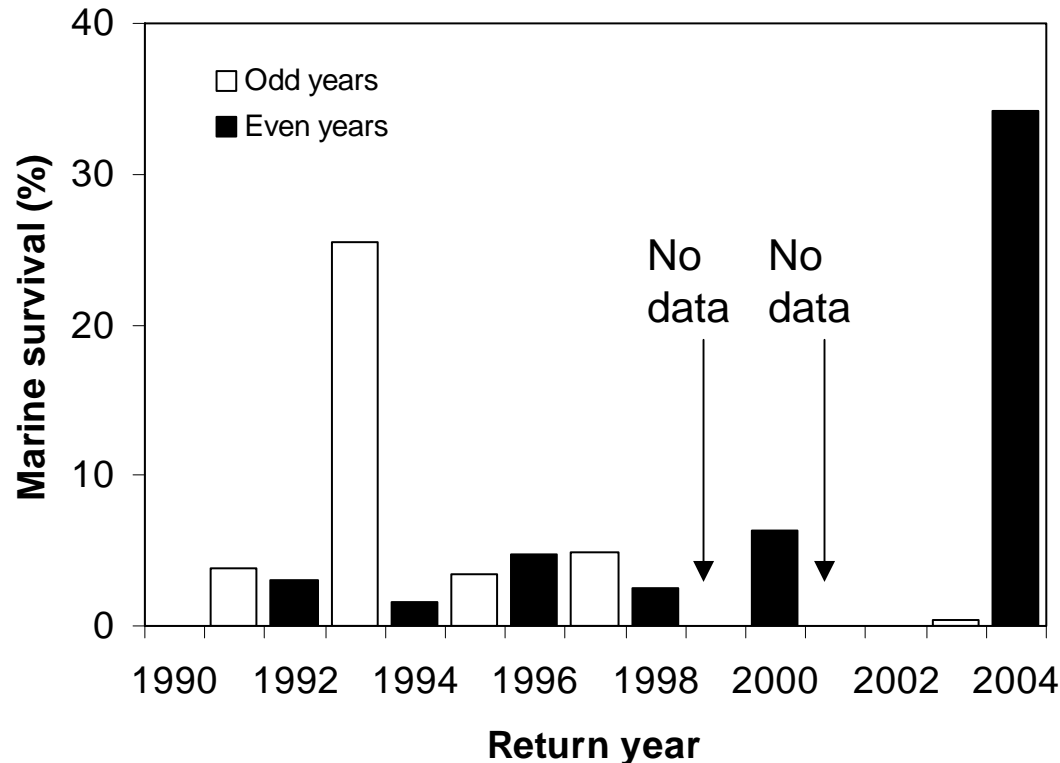


Sea lice on juvenile pink salmon

March – June, 2003



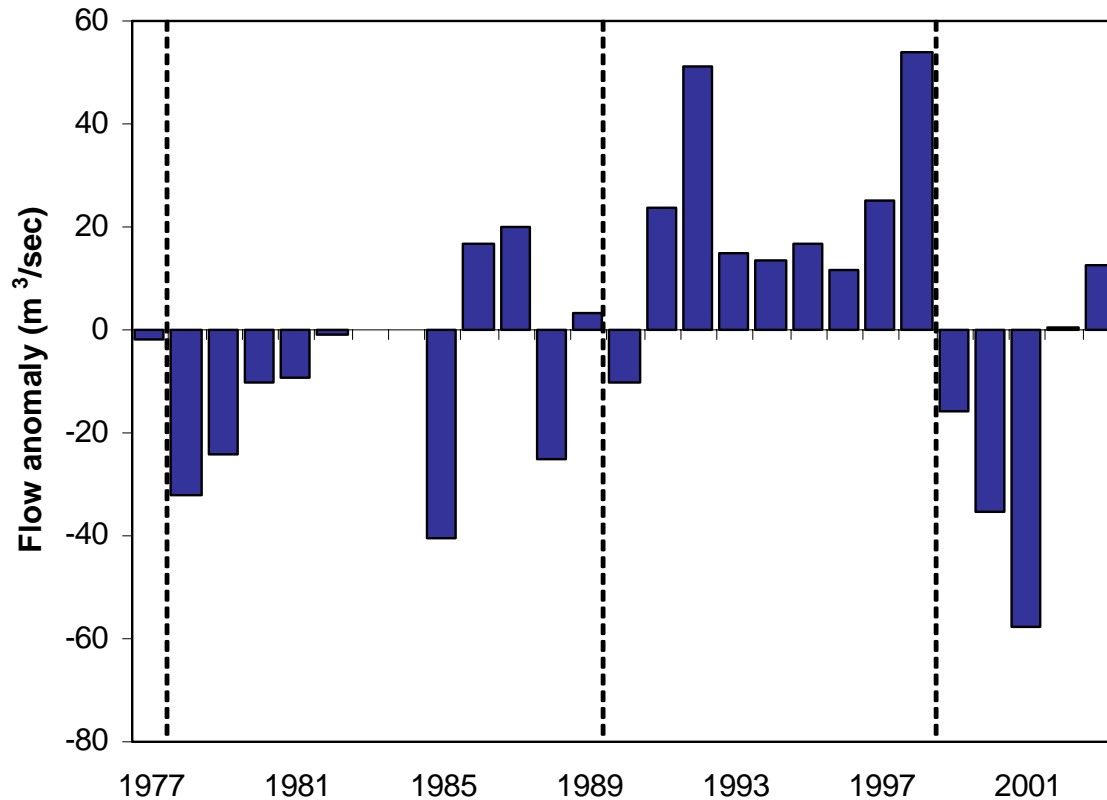
Marine survival of pink salmon



6 major pink populations – Ahnuhati, Glendale, Ahta, Kakweiken, Kingcome, and Wakeman representing 92% of all escapements.

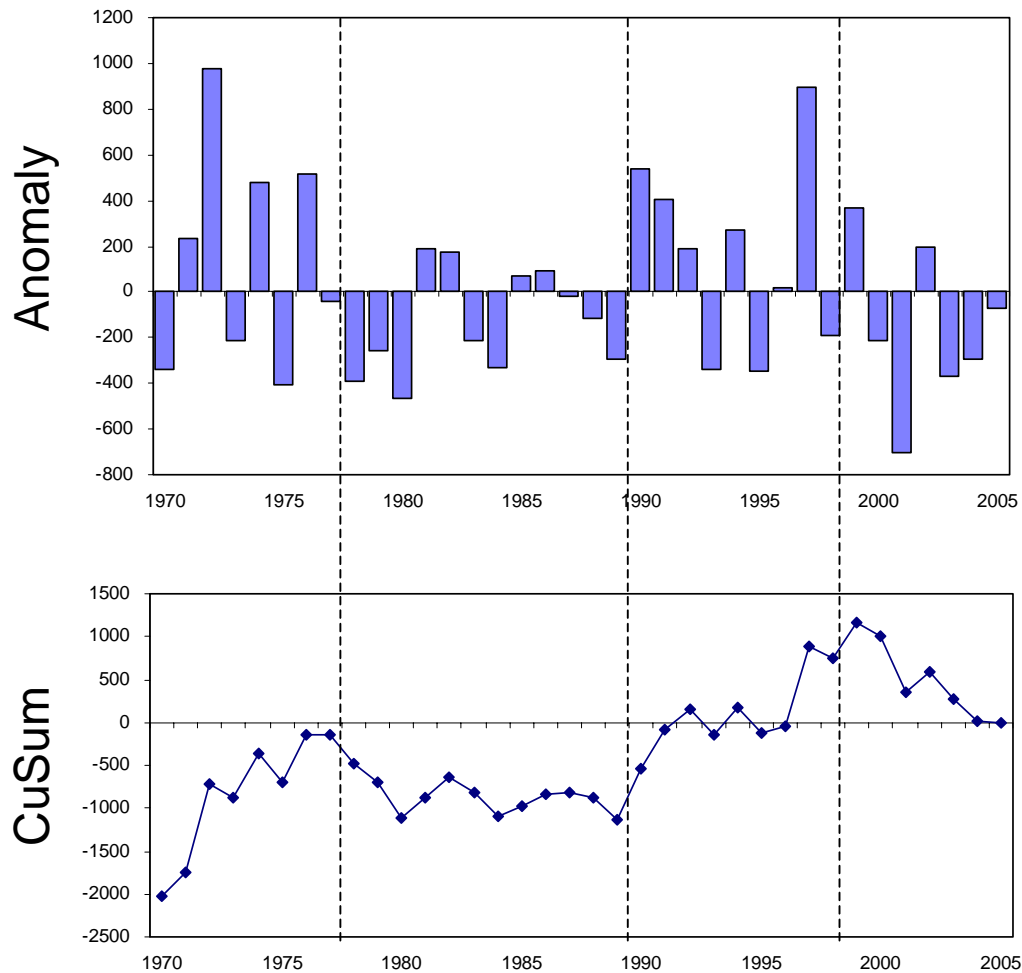
Klinaklini River Flow

Anomaly of flow Jan-June, 1977-2003



Fraser River flow

Jan to June, 1970-2005



- Eggs hatched successfully in salinities as low as 15 ‰, but survival was nil. Survival improved at 20-25 ‰ but development to the copepodid was negligible. Complete development was only achieved at salinities of 30 ‰ and, even then, it varied widely.

Johnson and Albright. 1991. The developmental stages of Lepeophtheirus salmonis (Kroyer 1837) (Copepoda: Caligidae). Can. J. Zool. 69:929-950.

Conclusion

- Salmon farming is an important industry in British Columbia that employs over 4000 full time employees in coastal communities.
- Sea lice are produced on farmed and wild salmon but there is no evidence of a link between sea lice production and marine survival of pink salmon.
- Recent increases in sea lice abundance appear to be related to reduced river flow that was associated with the 1998 regime shift and resulted in higher surface salinities that favoured sea lice production.