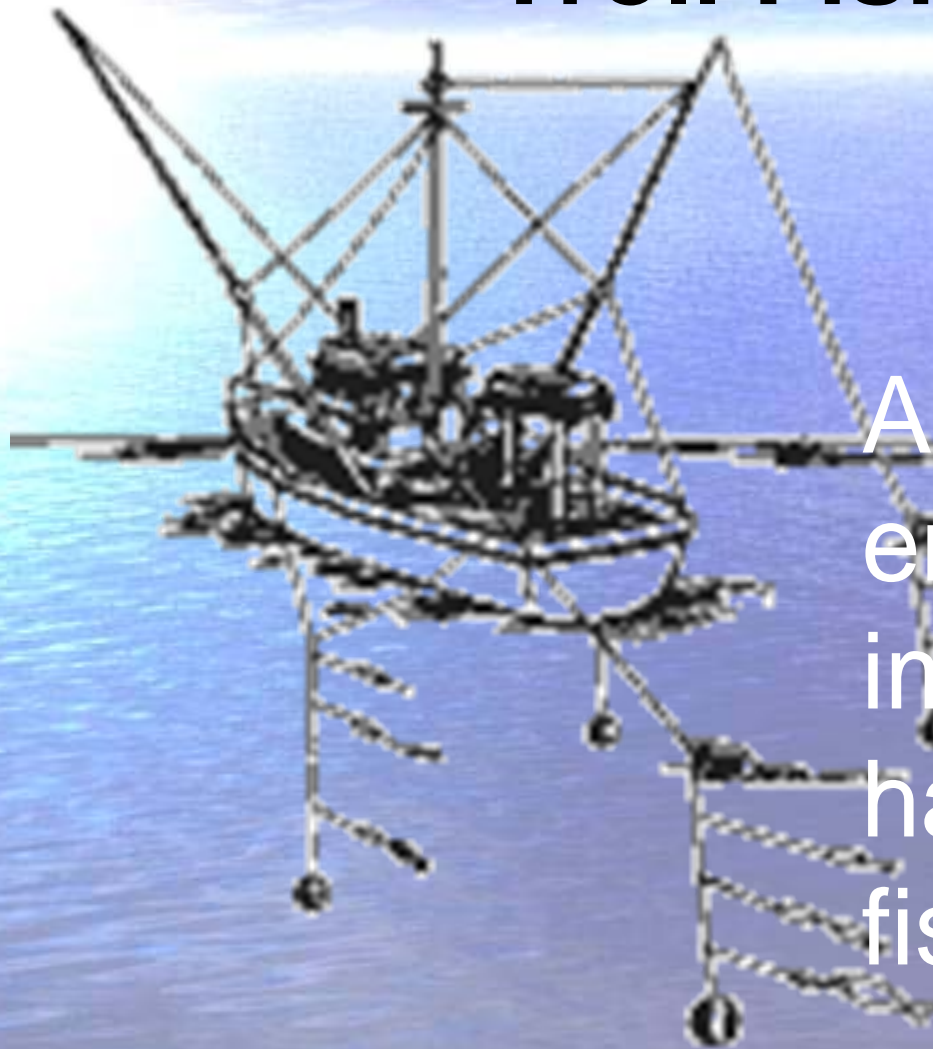


West Coast Vancouver Island Troll Fishery



A brief history with
emphasis on how
improved stock id
has changed the
fishery

Background: The Coastal Communities

Winter Harbour



Kyuquot



Zeballos



Gold River



Nuu-chah-nulth First Nations

- 15,000 people in 15 Tribes

Coastal communities

- total population about 40,000
- rely on fishing, forestry, tourism

Tofino



Port Alberni



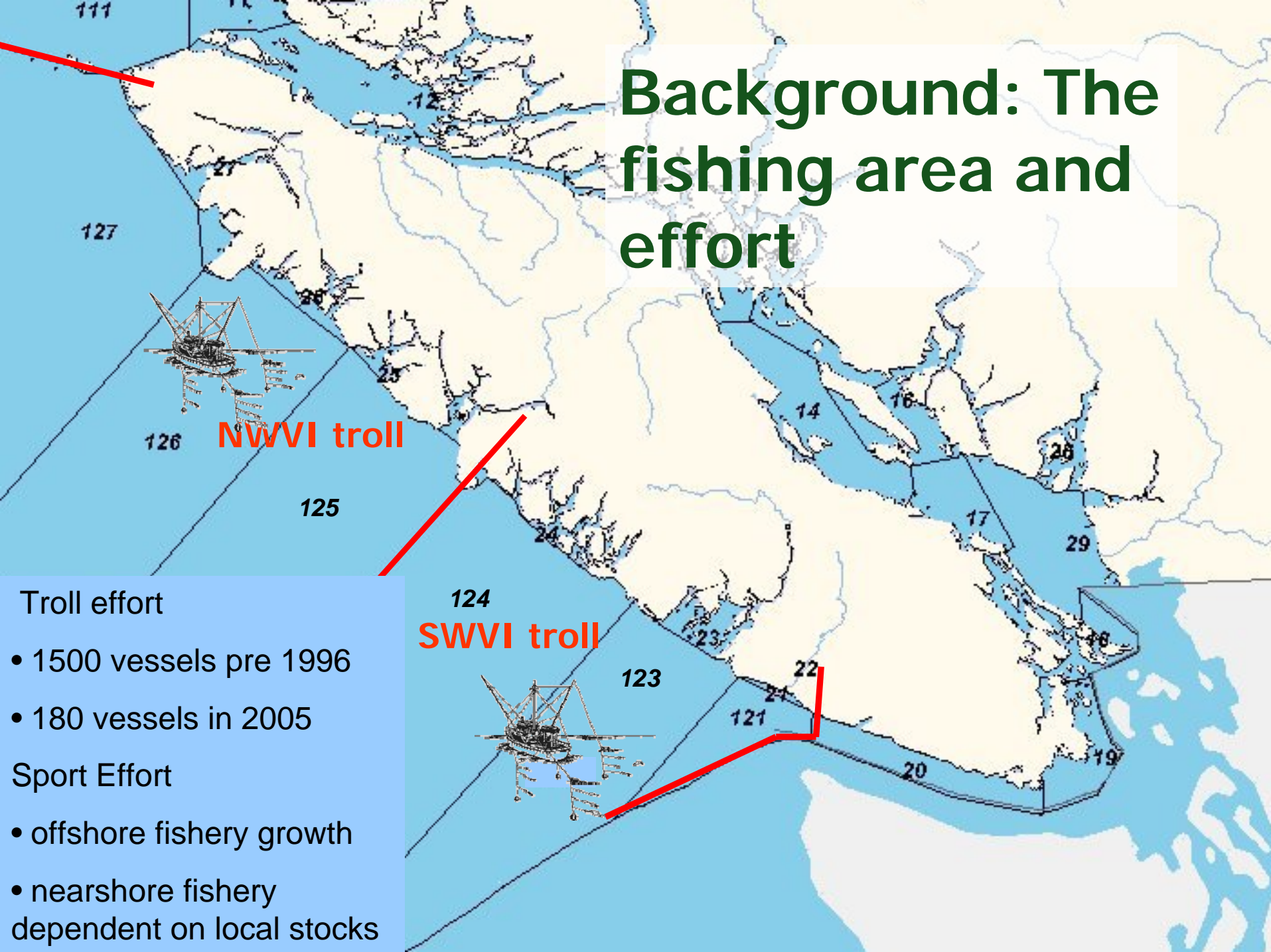
Ucluelet



Bamfield



Background: The fishing area and effort



Troll effort

- 1500 vessels pre 1996
- 180 vessels in 2005

Sport Effort

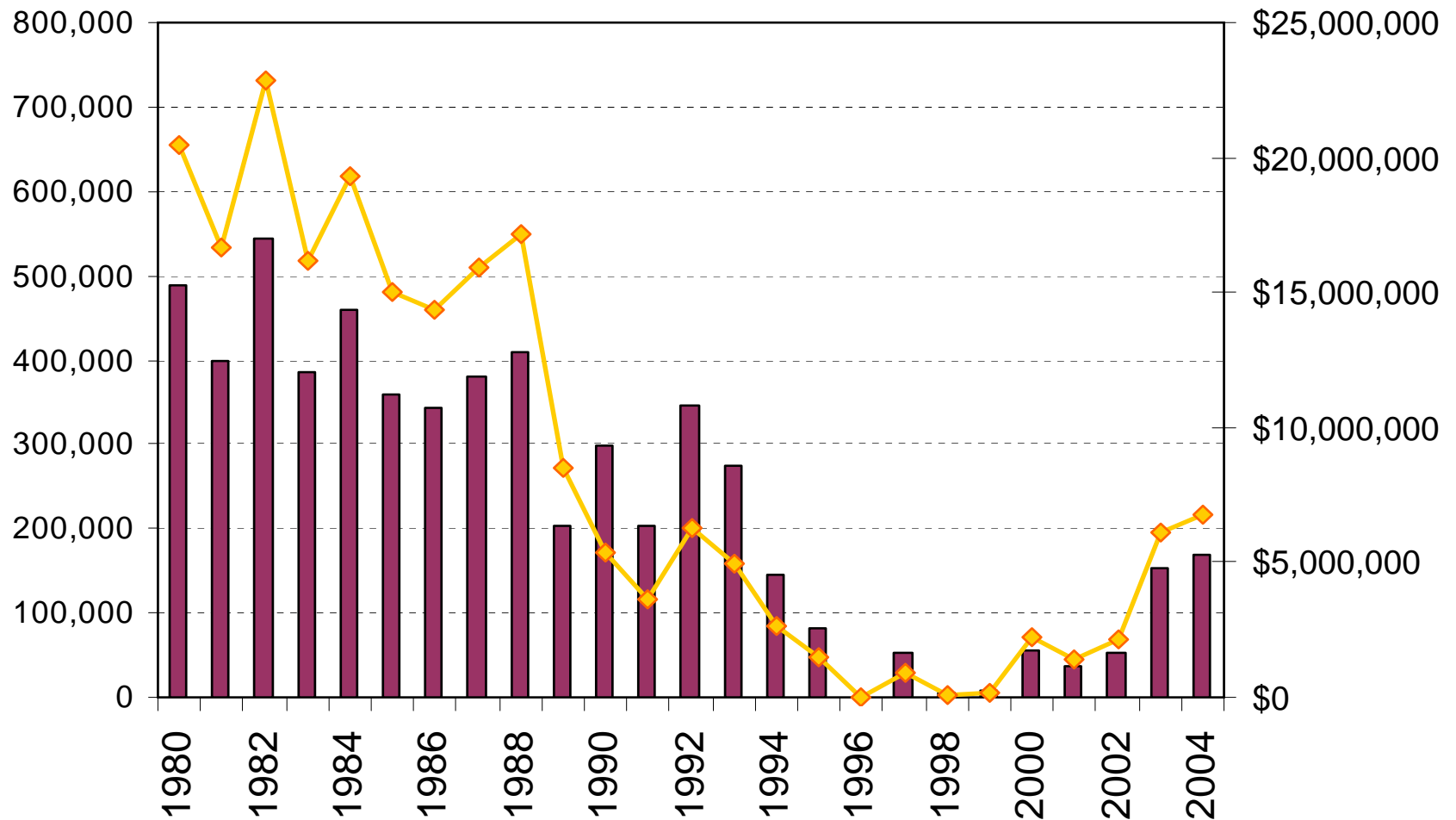
- offshore fishery growth
- nearshore fishery dependent on local stocks

Problems in the troll fishery

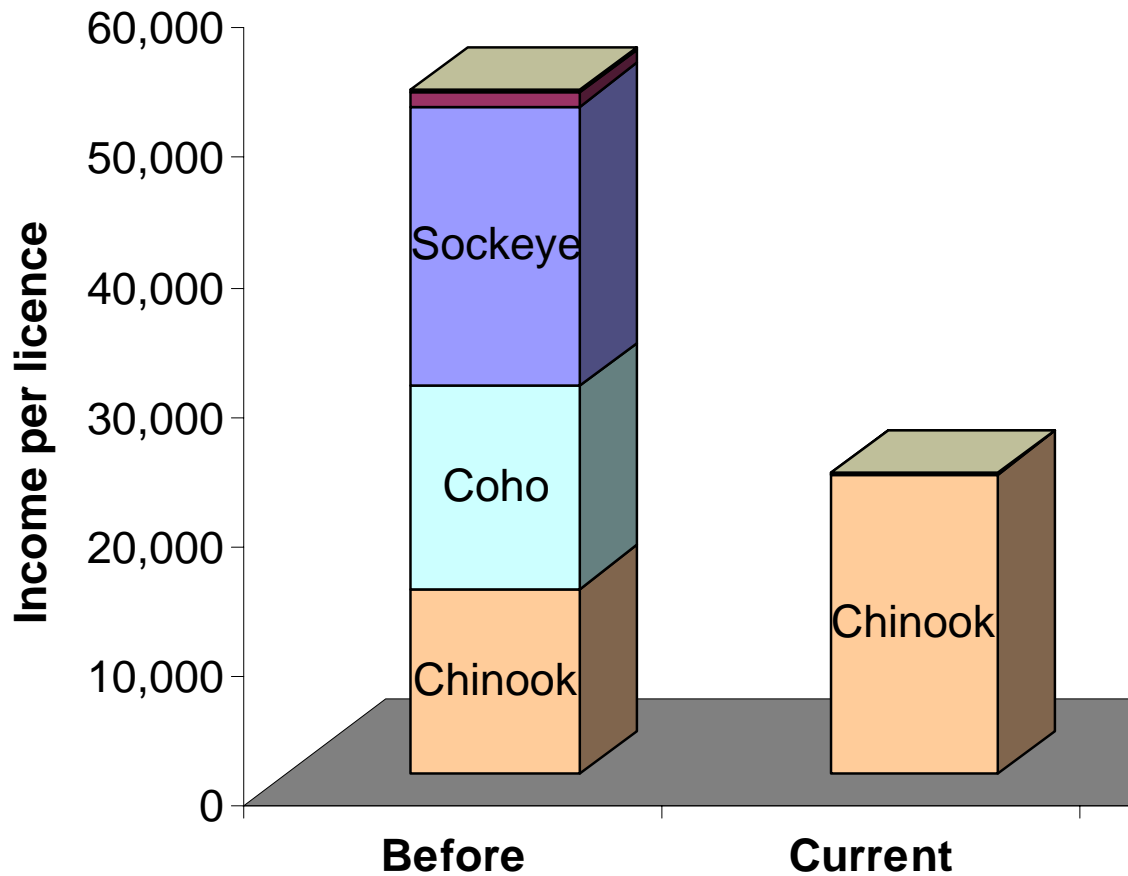
- **Biological events**
 - More frequent El Nino leads to mackerel and reduced marine survival
 - Low salmon abundance with specific conservation concerns: WCVI chinook starting in 1995, coho in 1997, upper Fraser chinook, LGS chinook
- **Management changes**
 - Area licensing (1995-97) and reselection process
 - Loss of other species, priority to sport (1998 Allocation Policy)
 - Reduced harvest rate (1999 PST, precautionary approach)
 - Minimize incidental mortality (1998 Selective Fishing Policy)
- **Increased costs**
- **Markets influenced by farmed fish**

THE FISHERY: VALUE

WCVI Catch and Landed Value



The Fishery: average income

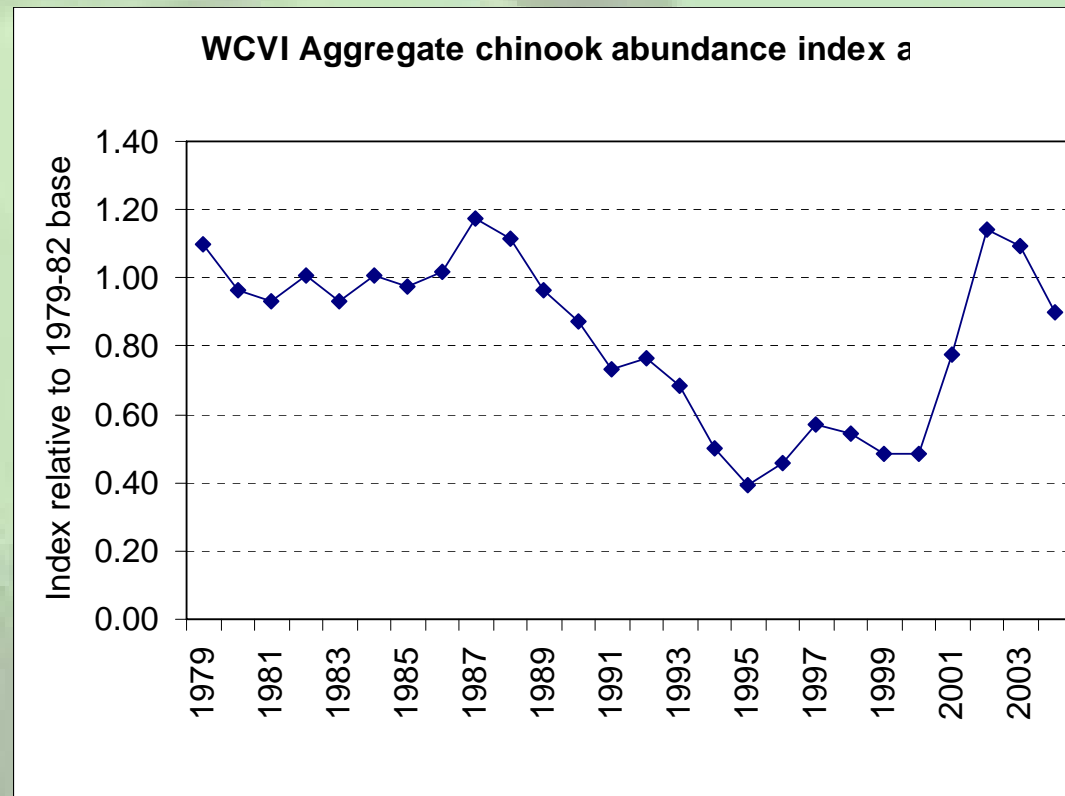


THE RESOURCE:

Chinook AABM Abundance

Consideration: WCVI aggregate consists of two major stock groupings.

- 1. Rearing stocks;
southern
distribution
chinook**
- 2. Passing stocks;
northern
distribution
chinook**



Old management

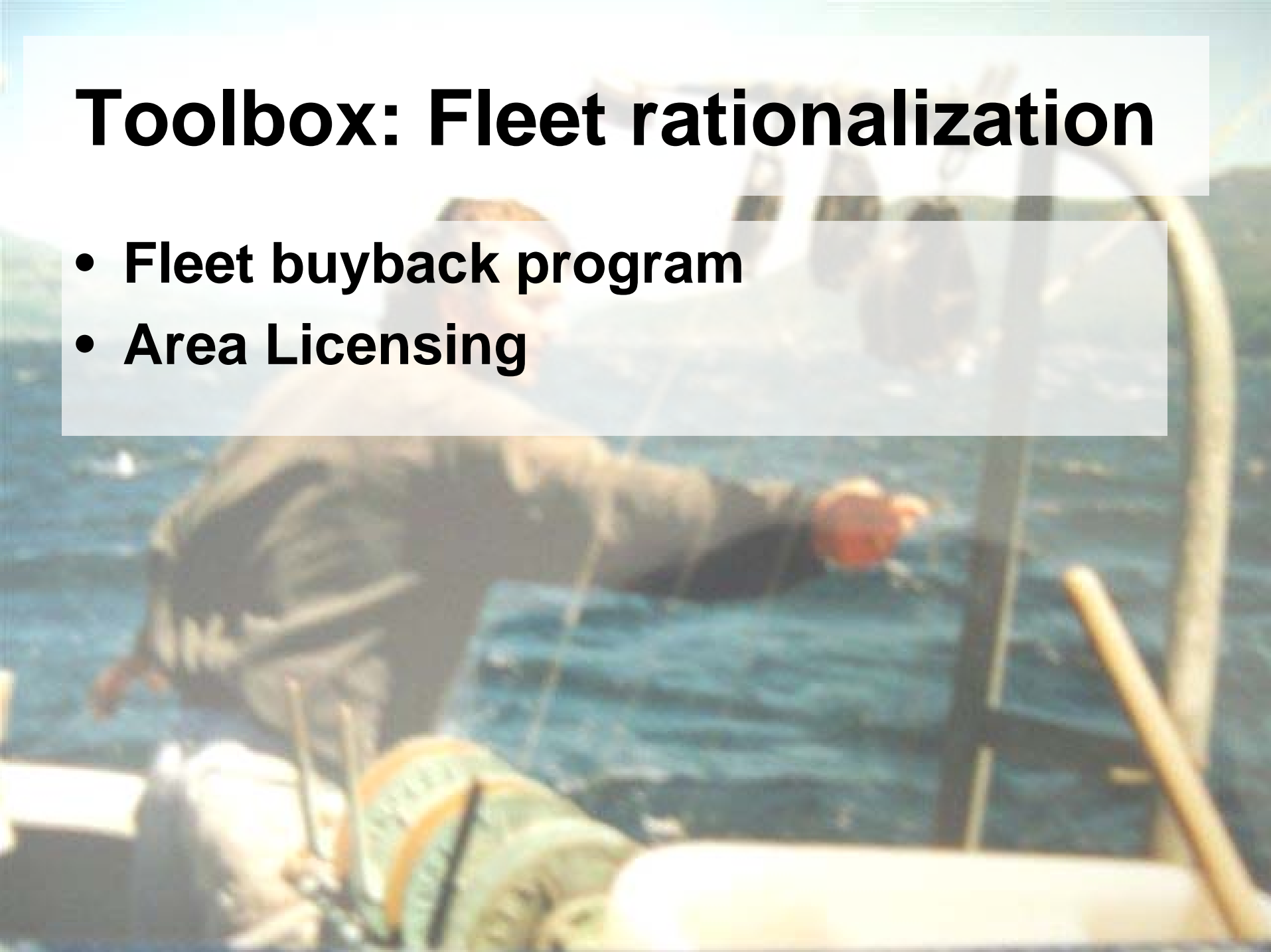
1. Ceiling management for chinook and coho.
Allocations of sockeye, pink, and chum.
2. Fishery evolved from 1) always open; to 2) April-October; to 3) summer only.
3. Few restrictions.
4. Large chinook size limit to limit catch irrespective of release rates.
5. Poor monitoring and reporting, reliance on sales slips.
6. High catch low value per fish.
7. Sport fishery not part of management.

New management

1. Abundance based; reduced harvest rate; precautionary approach
2. Allocation priority to First Nations and sport.
3. Flexibility within full year fishery to distribute impacts and increase value.
4. Fleet rationalization
 - Area licensing and reselection; buybacks
5. Gear toolbox: (gear restrictions / selective fishing)
 - limit gurdies, barbless hooks, recovery tanks, plugs only
6. Other tools:
 - Size limits (maintain low incidental mortality)
 - Area closures (avoid stocks of concern, small fish, gear conflicts)
7. Improved monitoring and sampling
 - on board observers
 - Log books with hail out and hail in procedures; move to E-logs
8. Use of DNA and thermal marks to shape fisheries

Toolbox: Fleet rationalization

- **Fleet buyback program**
- **Area Licensing**



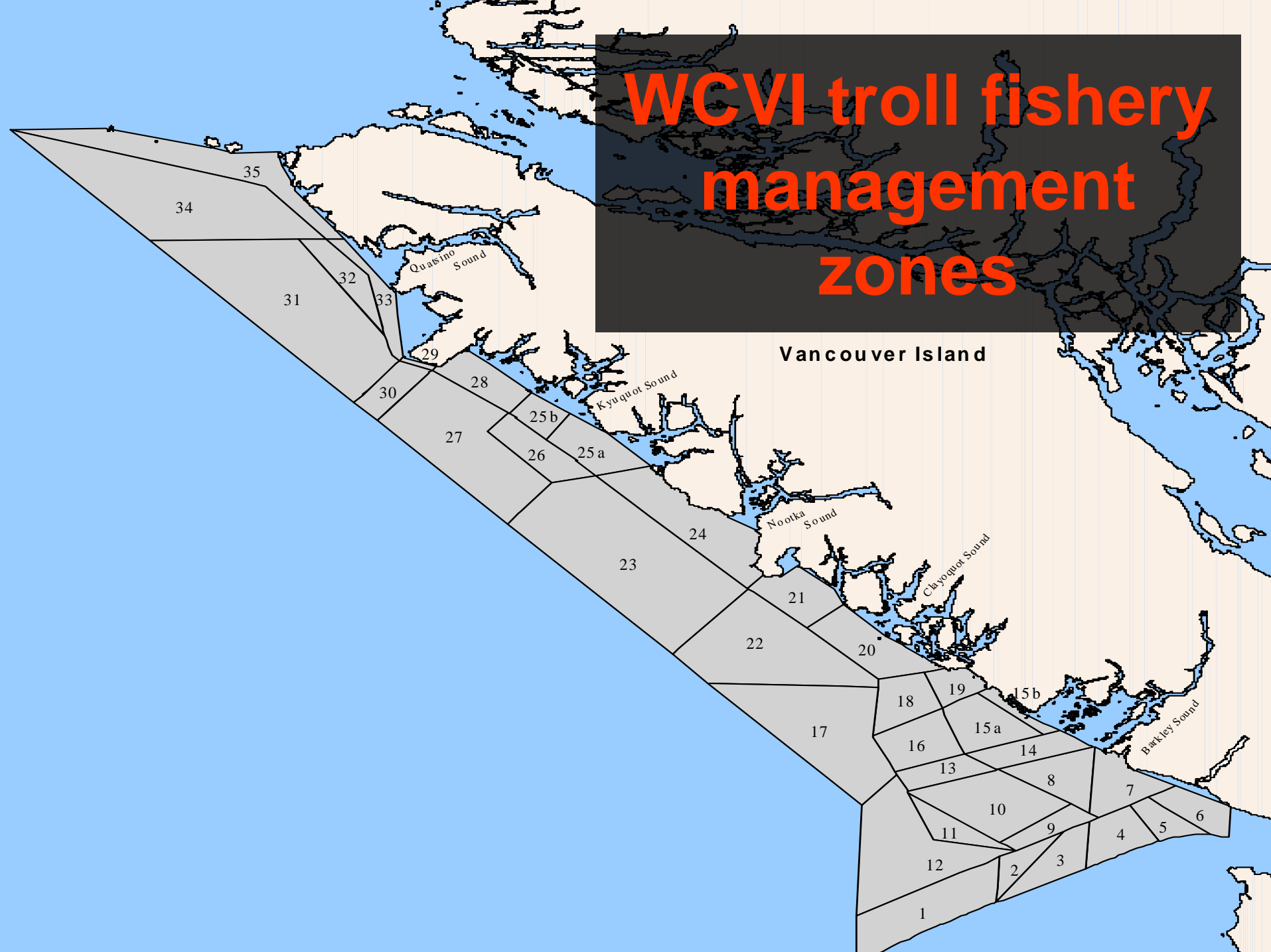
Tool: gear restrictions

**Out: Flasher
with Hoochie or Spoons**

**In: Large Plugs
7"+**

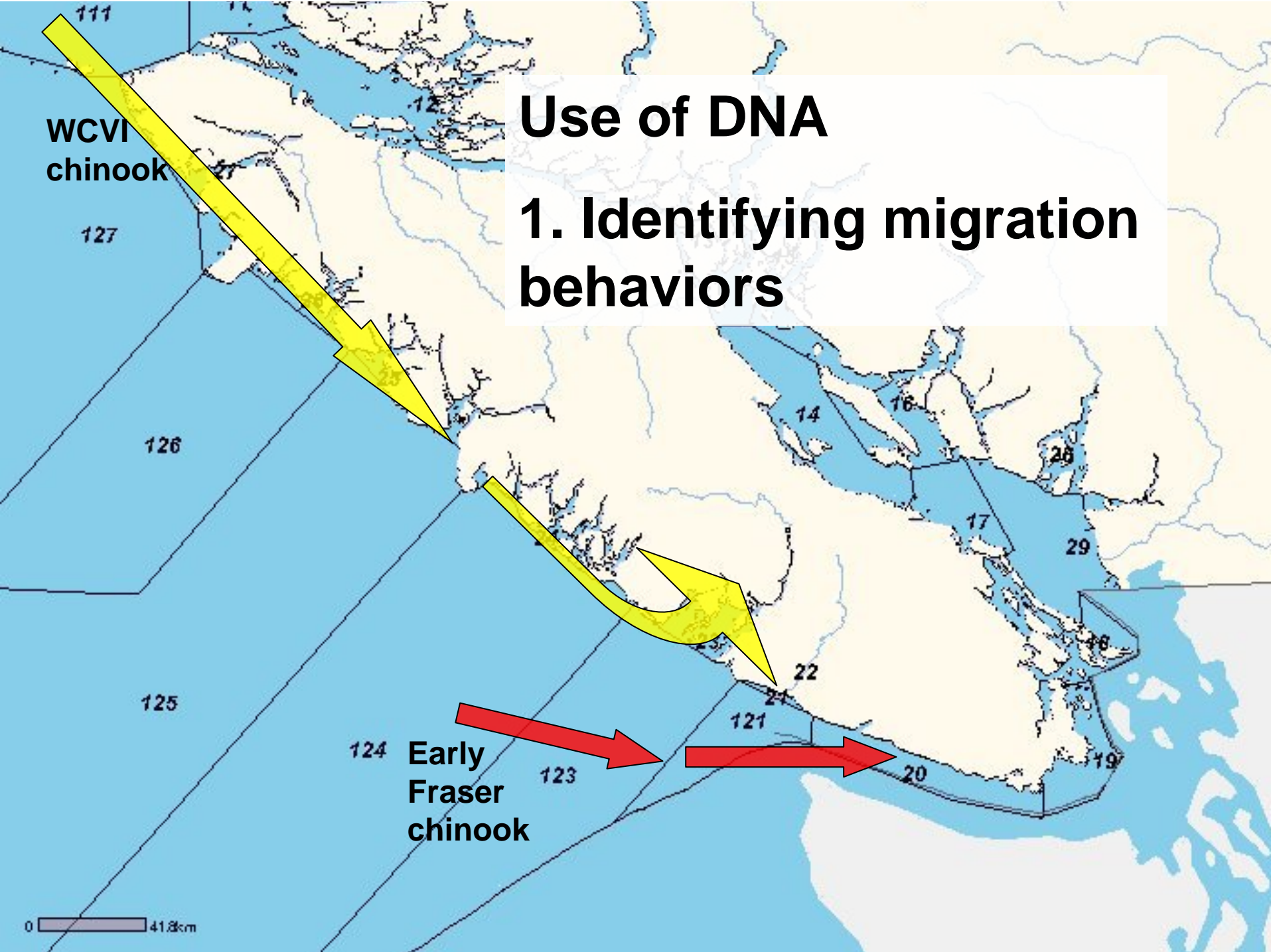


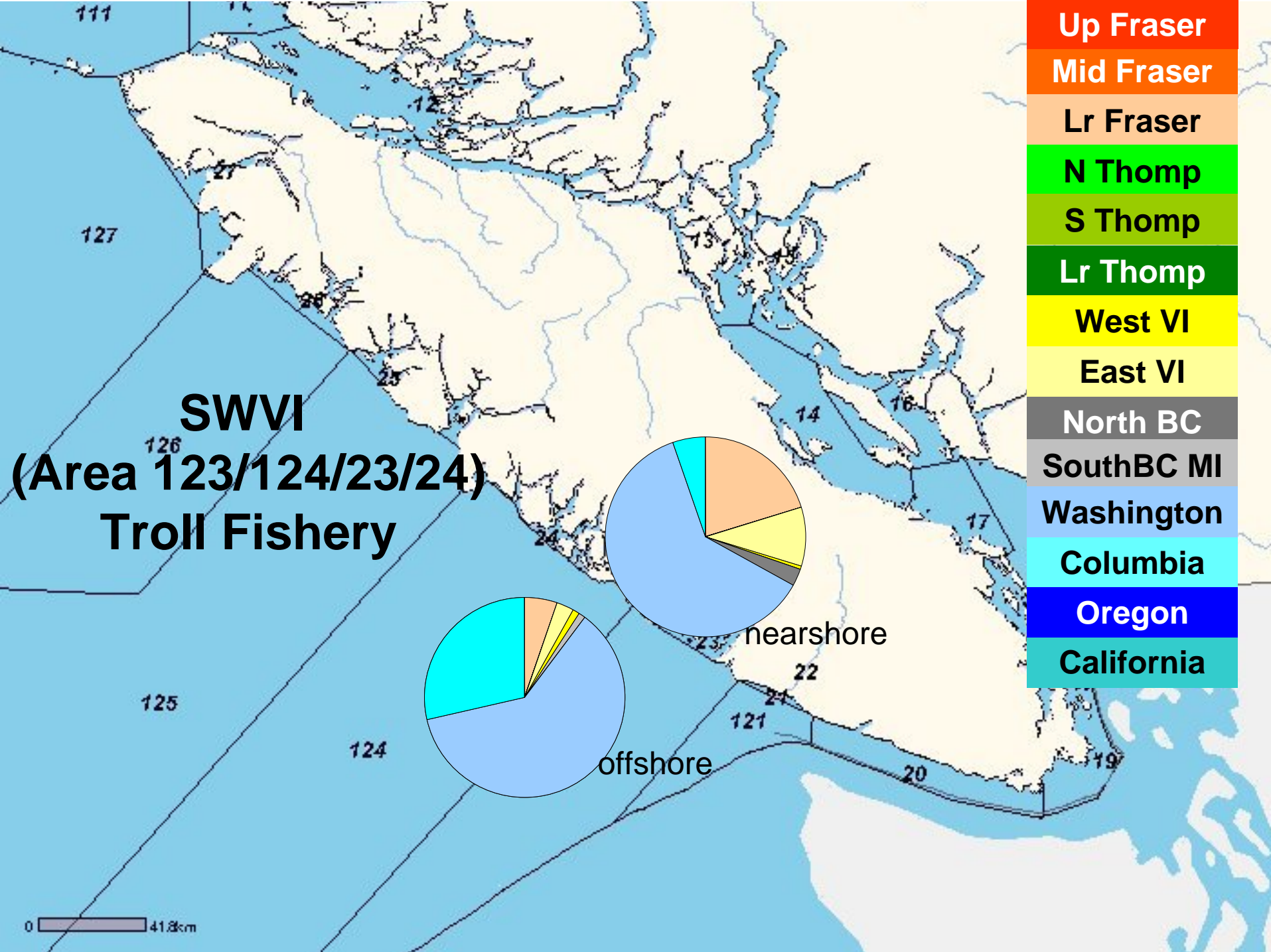
WCVI troll fishery management zones



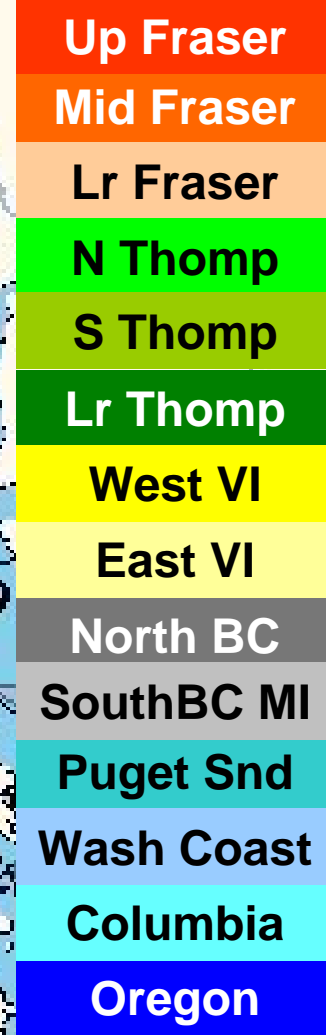
Use of DNA

1. Identifying migration behaviors





Strait of Juan de Fuca From Creel Survey



Dec 1999

Jan 2000

Feb 2000

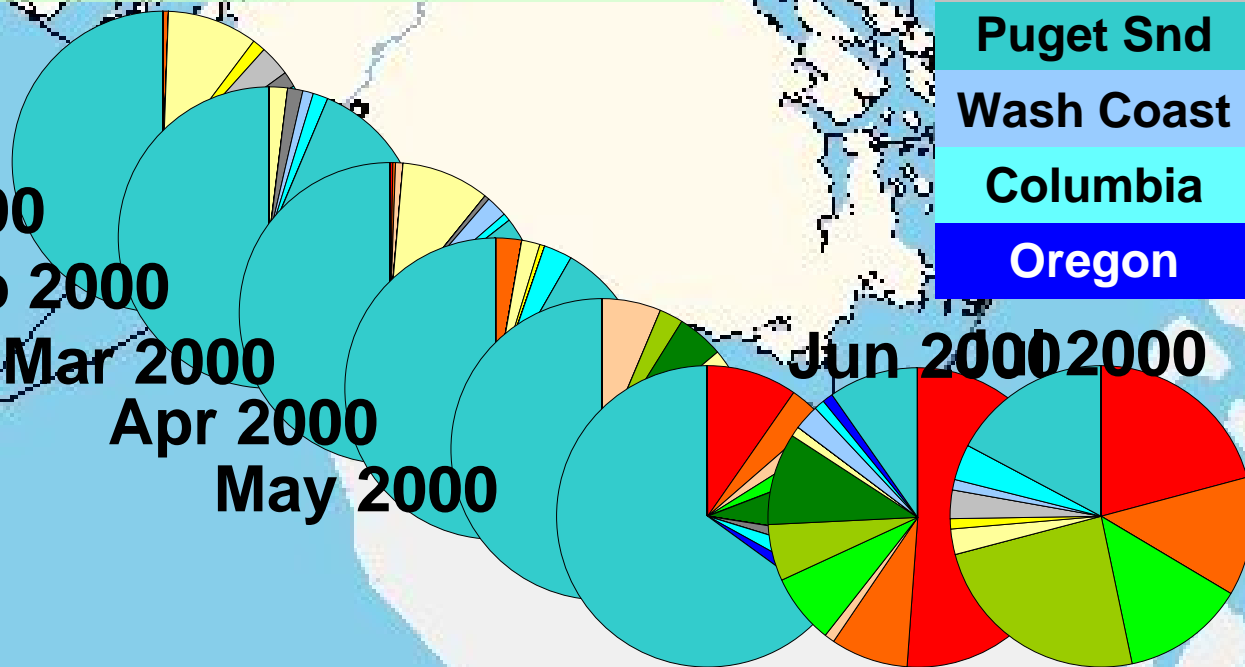
Mar 2000

Apr 2000

May 2000

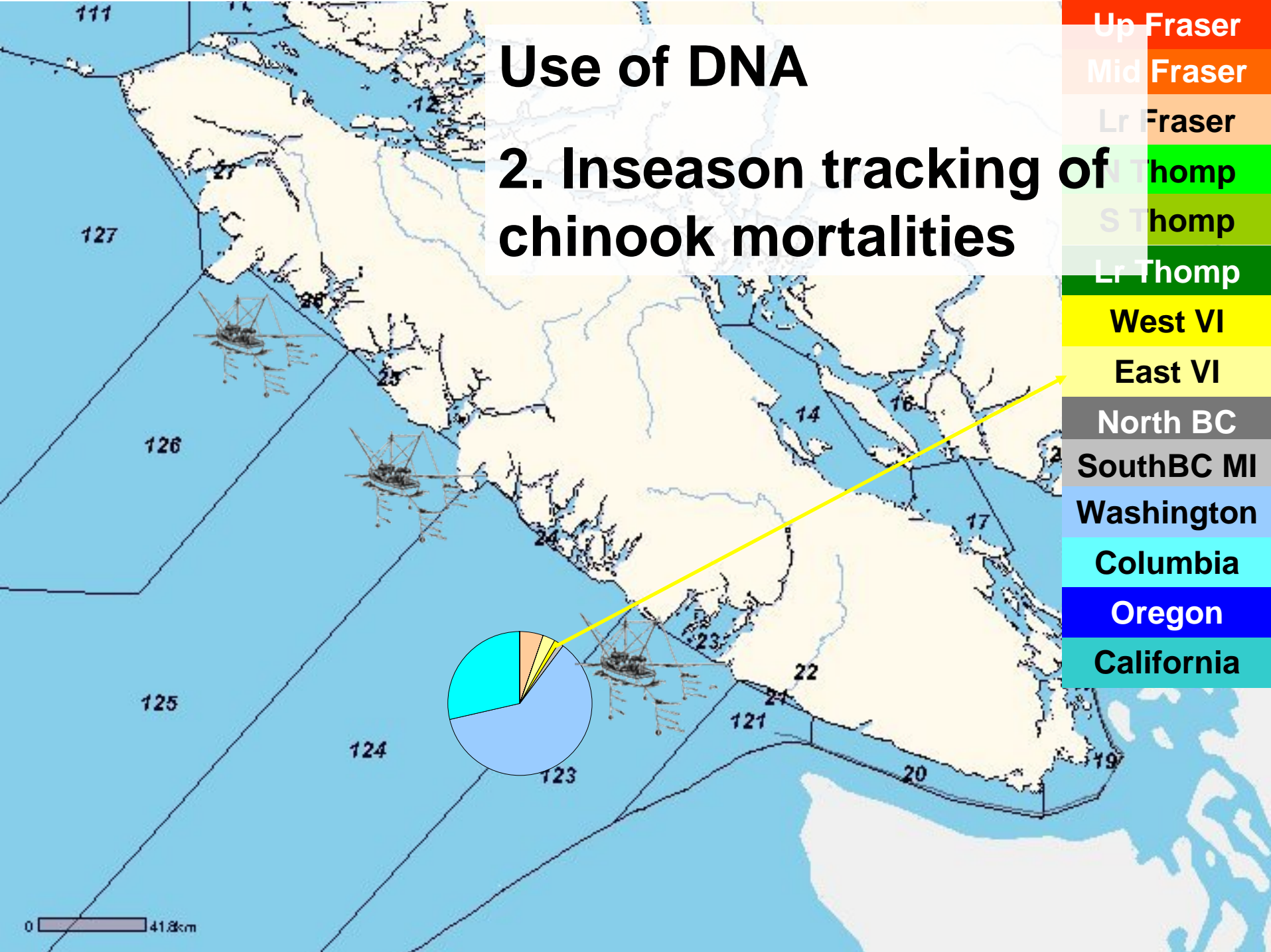
Jun 2000

2000



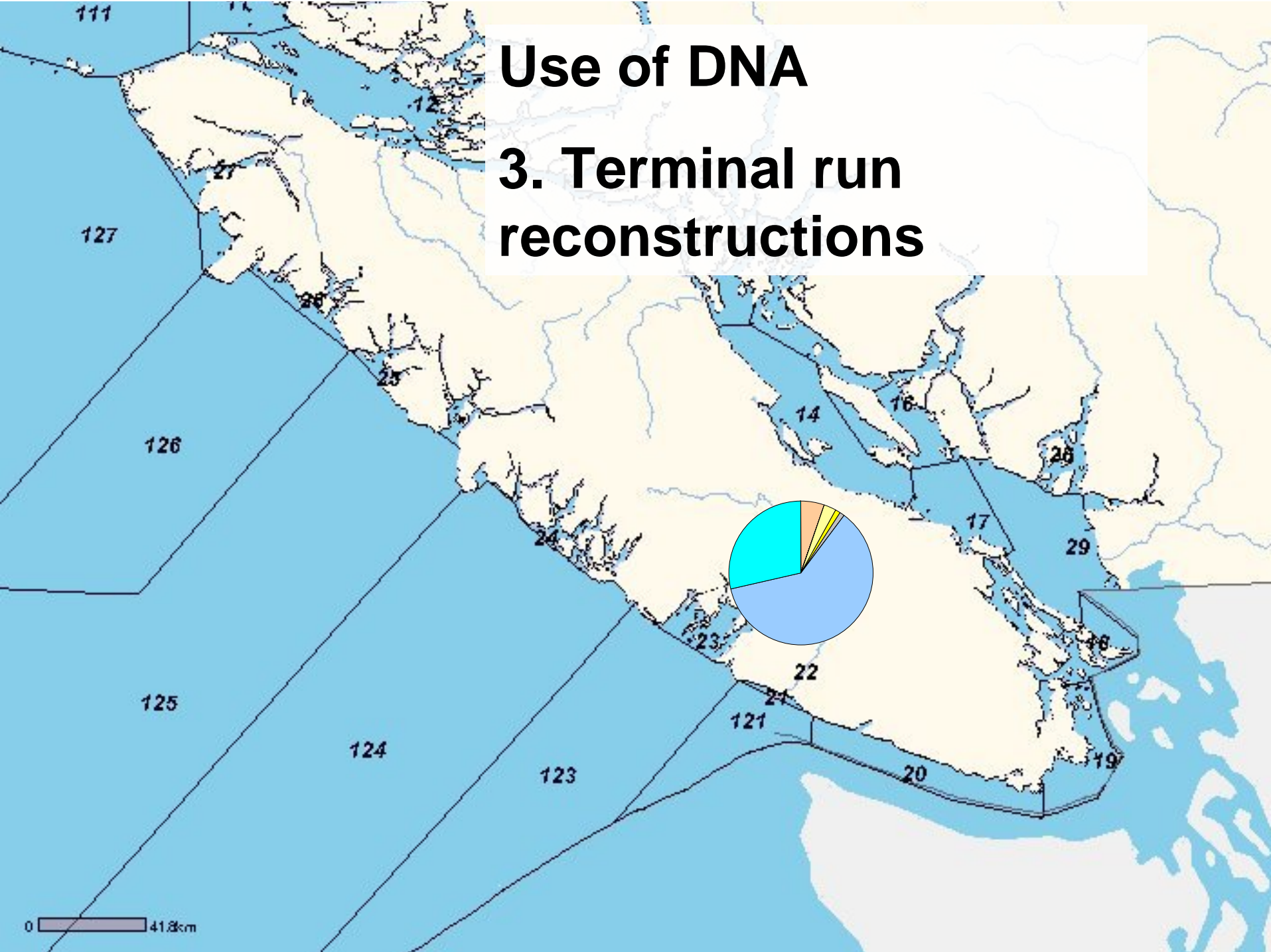
Use of DNA

2. Inseason tracking of chinook mortalities



Use of DNA

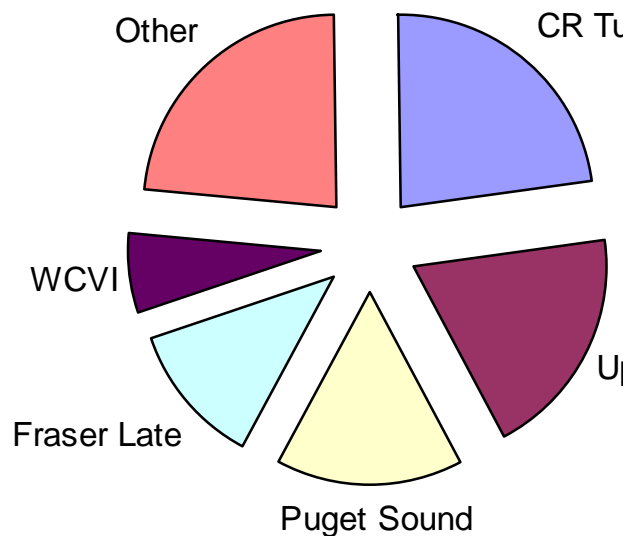
3. Terminal run reconstructions



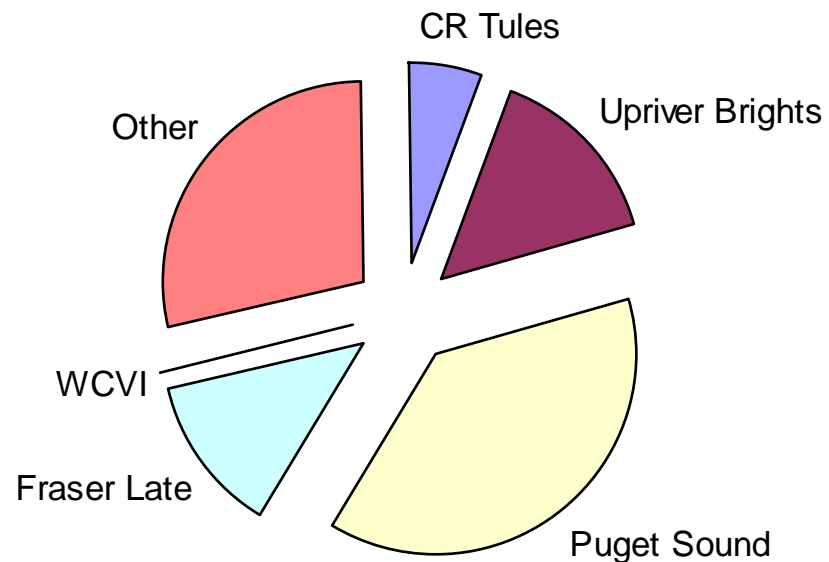
Use of DNA.

4. Comparison of CWT vs DNA stock composition; WCVI troll 2005-2006

CWT (Chinook Model Output)



DNA

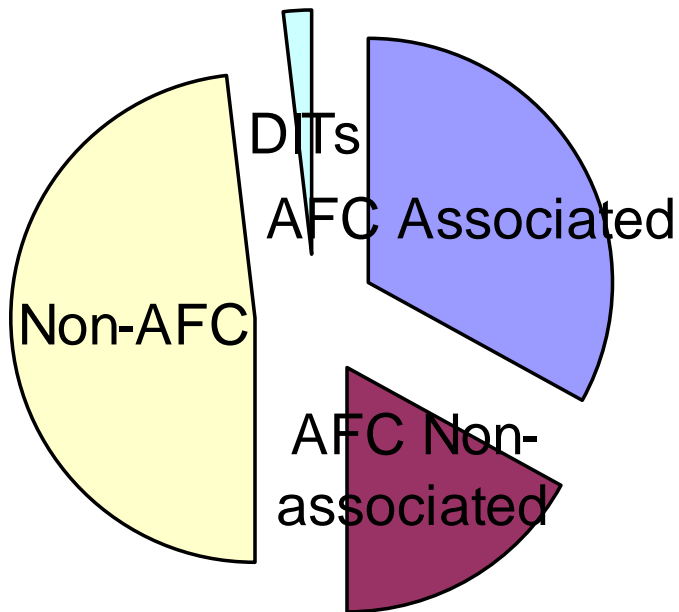


Message

- Important fishery declined rapidly in 1990's for a variety of reasons. Low points with major closures 1996-1998.
- Tools improved understanding of stock behavior. DNA stock id was an important tool used on an exploratory basis.
- Changes were implemented to reopen or maintain fisheries (fishing period, closed areas, gear restrictions).
- Management is more complicated. Restrictions are not easily understood by fishing community, especially sport.
- Changes have created technical difficulties.
- Need to resolve some issues.

Issue: Ability to find small stocks needs increased sample size

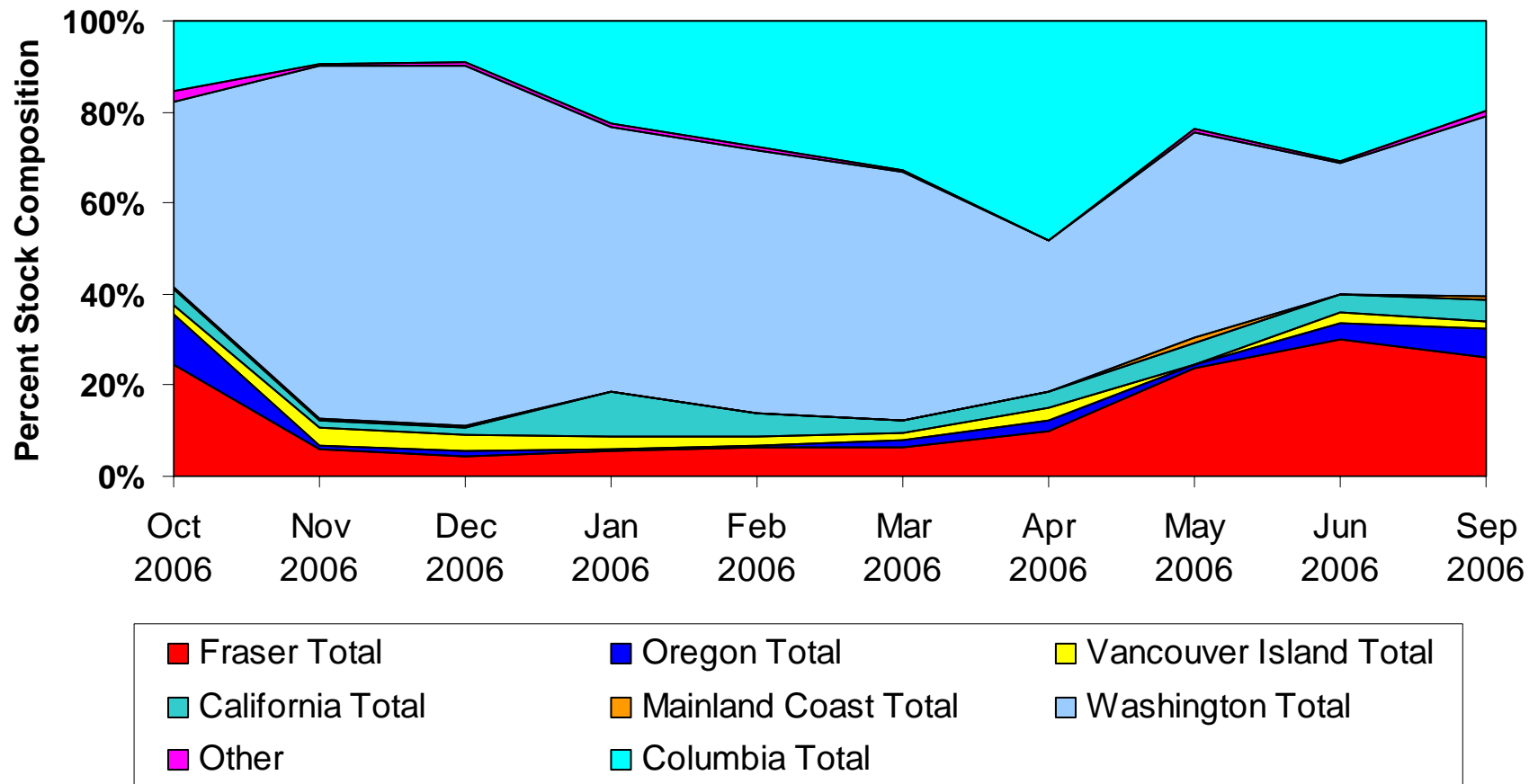
WCVI Troll Catch 2005



- Sampling AFC chinook for DNA; Pre 2005 and 2005+
- In order to reduce cost by sampling only nonAFC, require all AFC hatchery releases to be associated with CWT
- Recommendation: Ensure all AFC are associated with CWT

ISSUE: NEED TO UNDERSTAND VARIATION WITHIN A YEAR.

WCVI Troll Chinook Monthly Stock Composition (DNA)
October 2005 to September 2006



Issues

- Ability to find small stocks needs increased sample size
- Changing environment = changing behavior and distribution
- Utility of baseline in terminal area
 - Need to have all stocks represented
- Evolving methodology; how much to invest.