Apr 5th, 2:15 PM - 2:30 PM

Exposure time of juvenile sockeye salmon to Discovery Islands salmon farms

Erin Rechisky
Kintama Research Services, Canada, erin.rechisky@kintama.com

Aswea Porter
Kintama Research Services, Canada, Aswea.porter@kintama.com

David Welch
Kintama Research Services, Canada, david.welch@kintama.com

Christine Stevenson
The Univ. of British Columbia, Canada, c.stevenson847@gmail.com

Stephen Johnston
The Univ. of British Columbia, Canada, stephendanjohnston@gmail.com

See next page for additional authors

Speaker

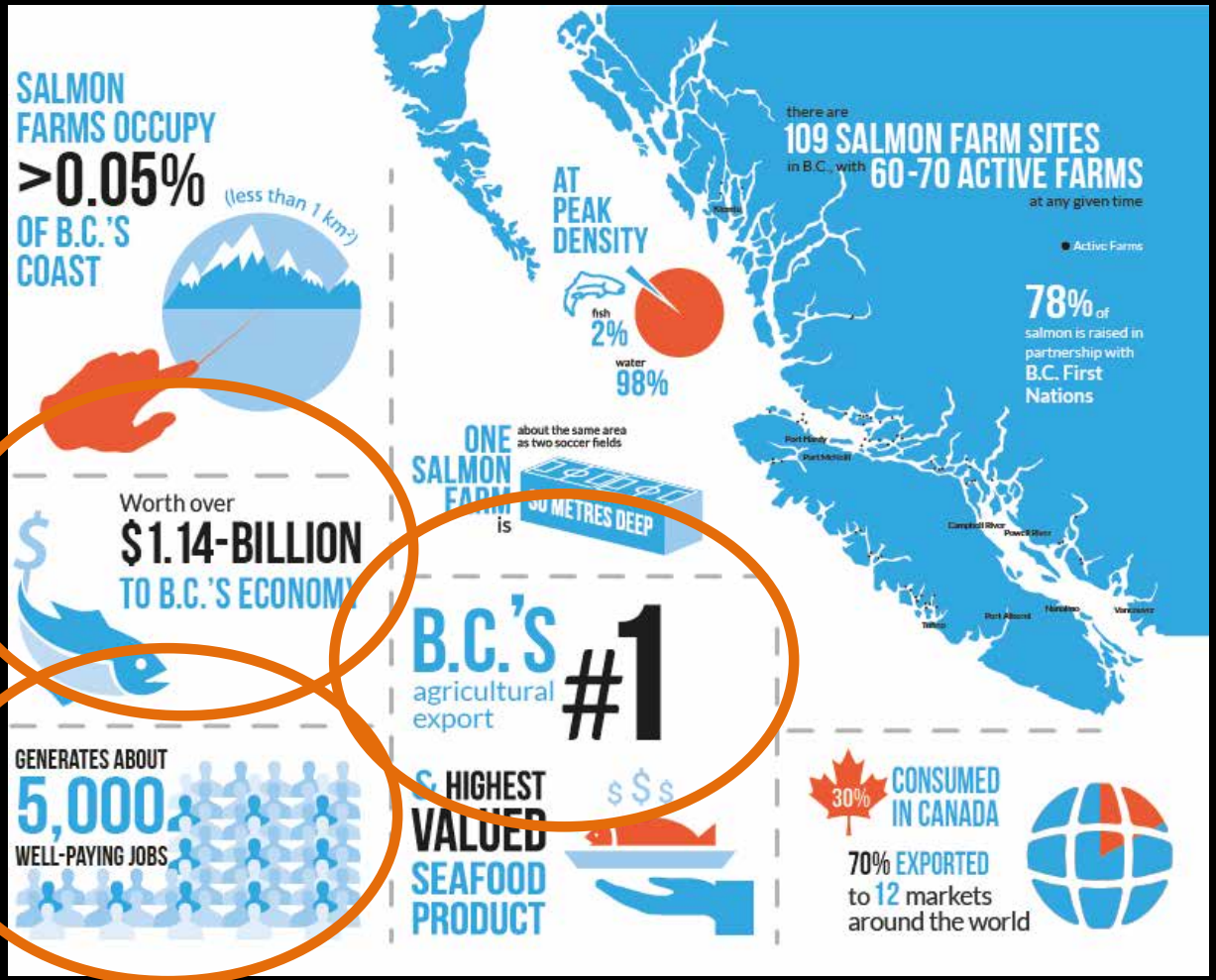
Erin Rechisky, Aswea Porter, David Welch, Christine Stevenson, Stephen Johnston, Nathan Furey, and Scott Hinch

EXPOSURE TIME OF JUVENILE SOCKEYE SALMON TO DISCOVERY ISLANDS (BC) SALMON FARMS

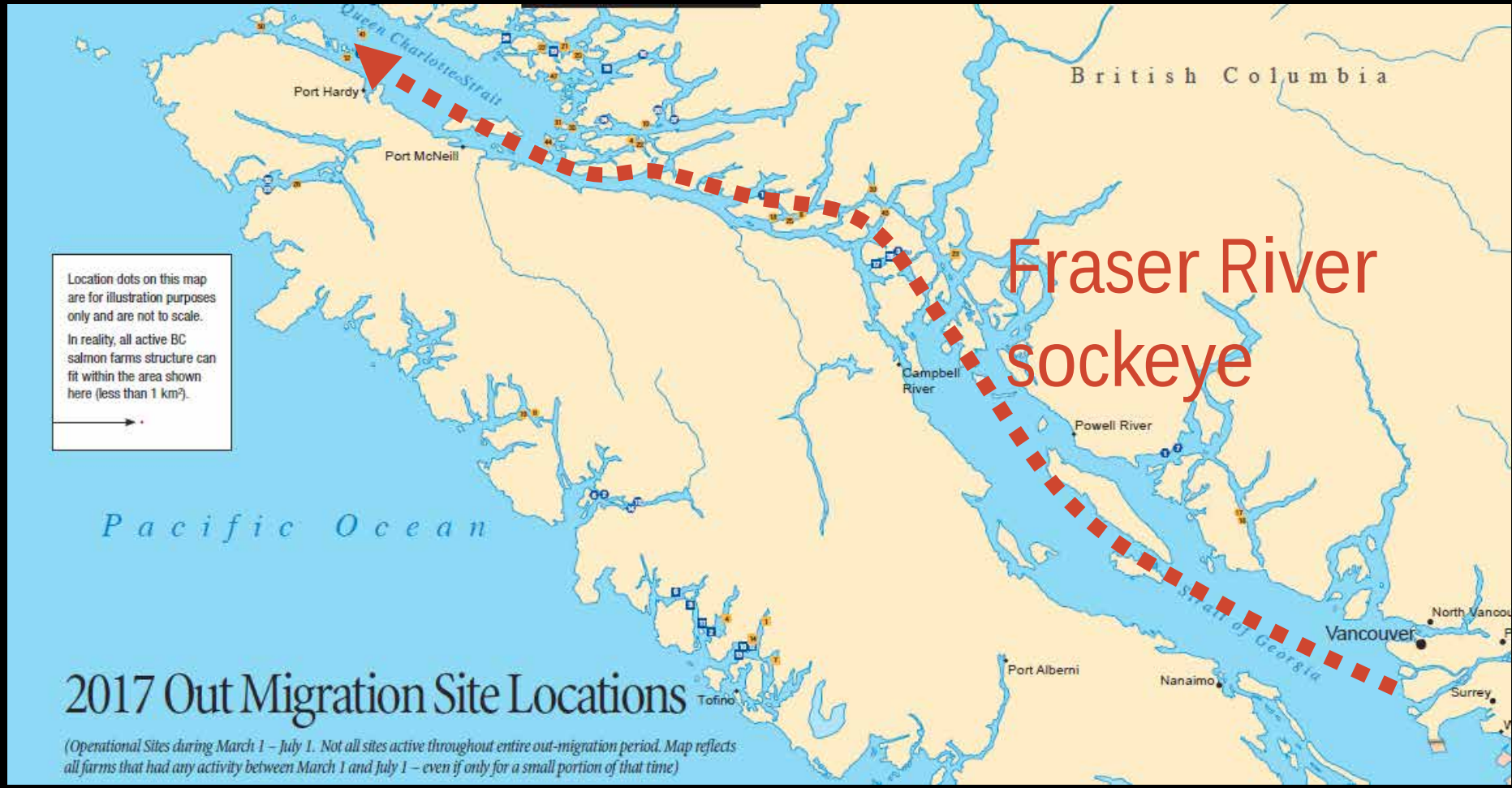
Erin Rechisky
Aswea Porter & David Welch
Kintama Research Services, Nanaimo, BC
Christine Stevenson, Stephen Johnston, Nathan Furey & Scott Hinch
UBC Dept of Forest and Conservation Sciences

Simon Ager Photography

BC SALMON FARMING INDUSTRY



ACTIVE BC SALMON FARMS IN 2017



SALMON FARMS CHALLENGES IN BC

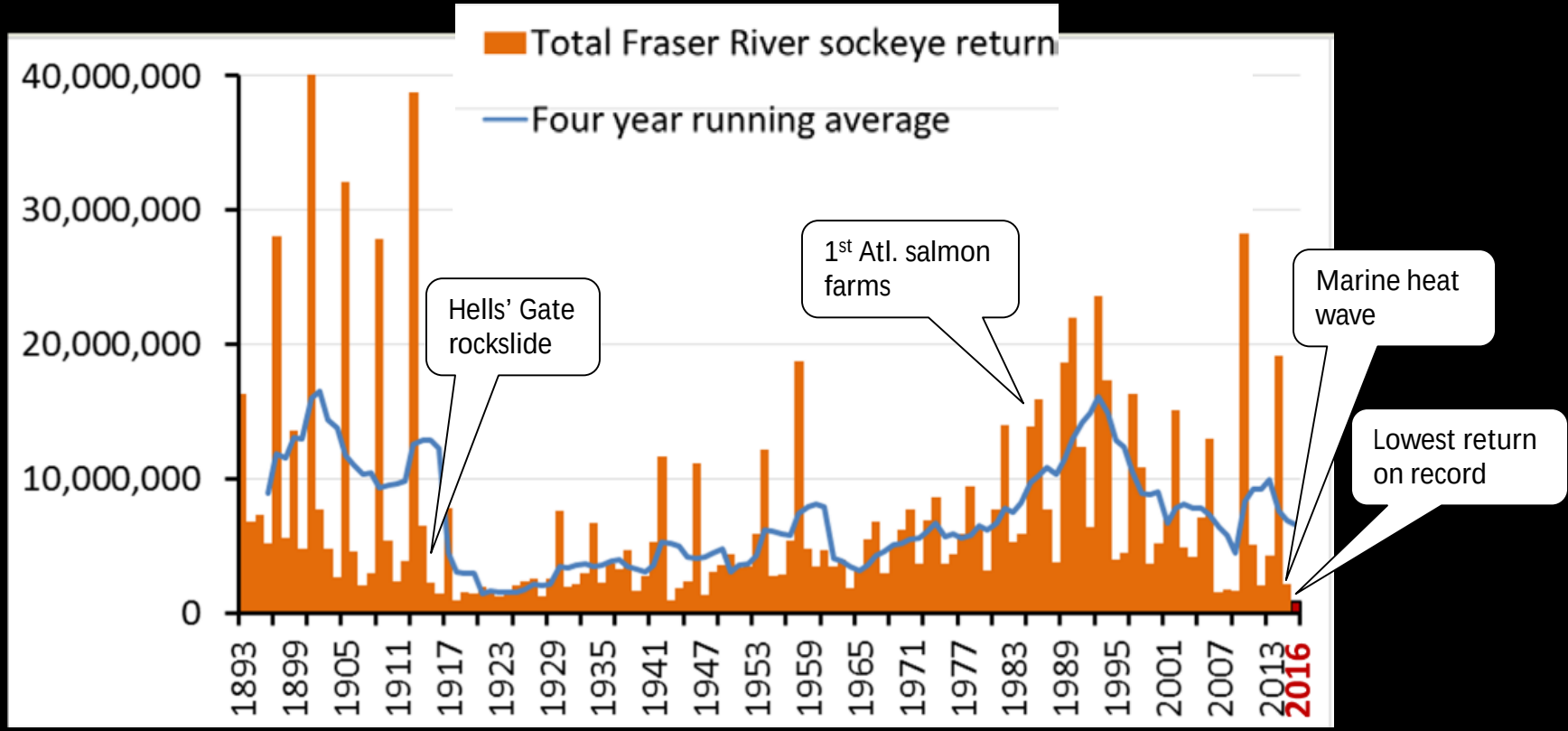

Watershed Watch Salmon Society


Alexandra Morton


Tavish Campbell

The Canadian Press

Fraser River Sockeye



What is the degree of risk?

Among the 75 recommendations made by Justice Cohen:

- net-pen aquaculture in the Discovery Islands be shut down by September 2020 "…*if, by that date, DFO cannot confidently say the risk of serious harm [to salmon] is minimal*"

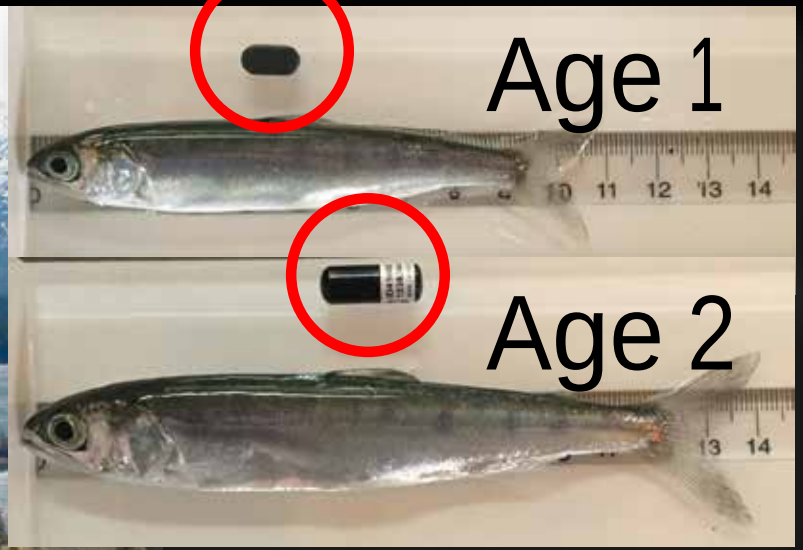
and that

- "*DFO should explicitly consider proximity to migrating Fraser River sockeye when siting salmon farms*".

Study Goals

- Determine migration route of acoustic tagged sockeye through the Discovery Islands
- Measure baseline exposure time (travel time) in Hoskyn and Okisollo Channels and at individual farms

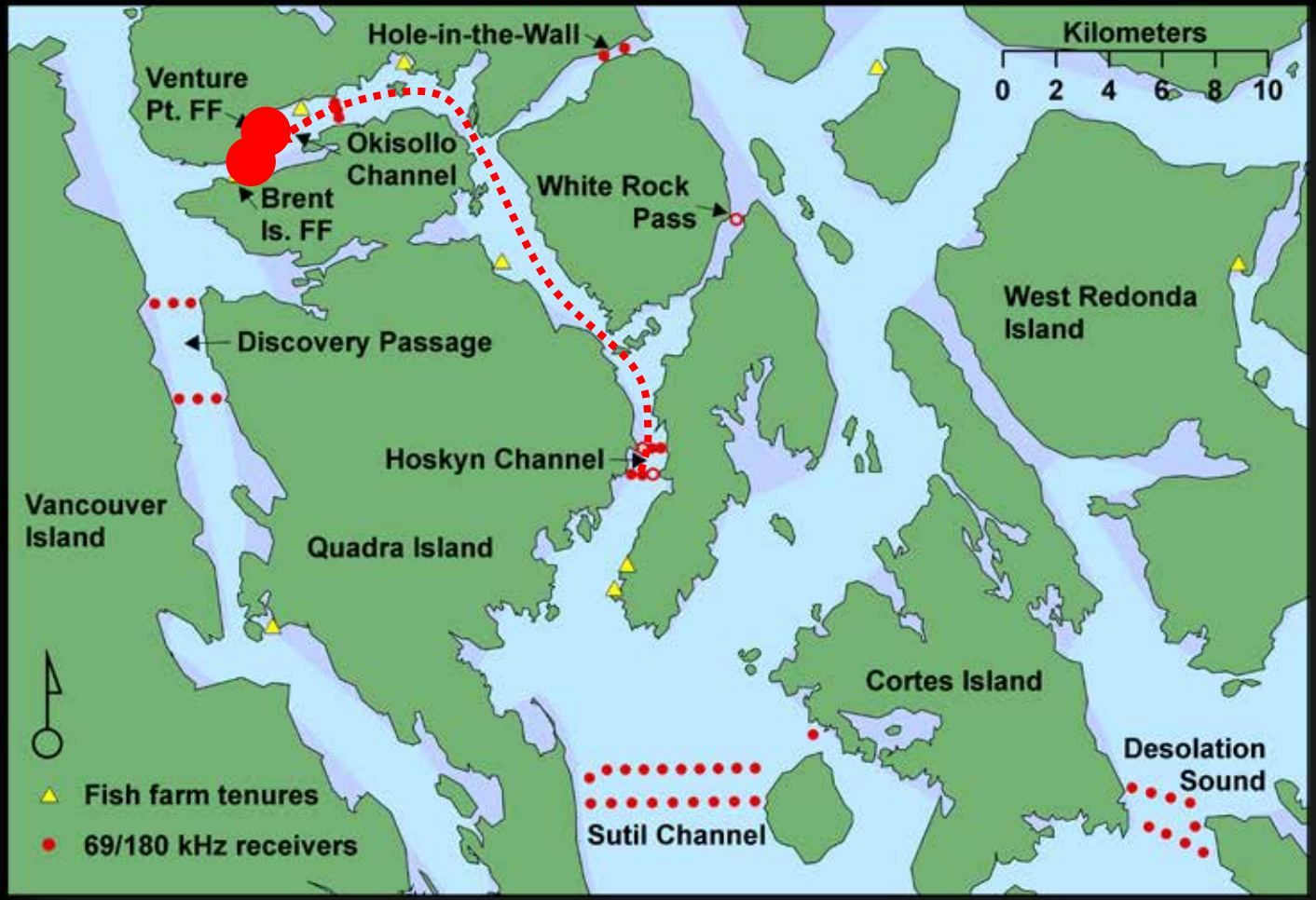
Acoustic Tagging at Chilko Lake, BC



~150 age 1 fish and 150 age 2 fish were tagged and tracked in 2017.


USA
Canada
USA
Sivash Bridge
Chilko R.
Chilcotin R.
Henry's Bridge
Chilko Lake
Fraser R.
Queen Charlotte Strait
British Columbia
Johnstone Strait
Discovery Islands
Northern Strait of Georgia
Derby
Mission
Fraser Mouth
Washington
Juan de Fuca Strait
69 kHz
69/180 kHz
Release site
Kilometers
0 25 50 75 100 125

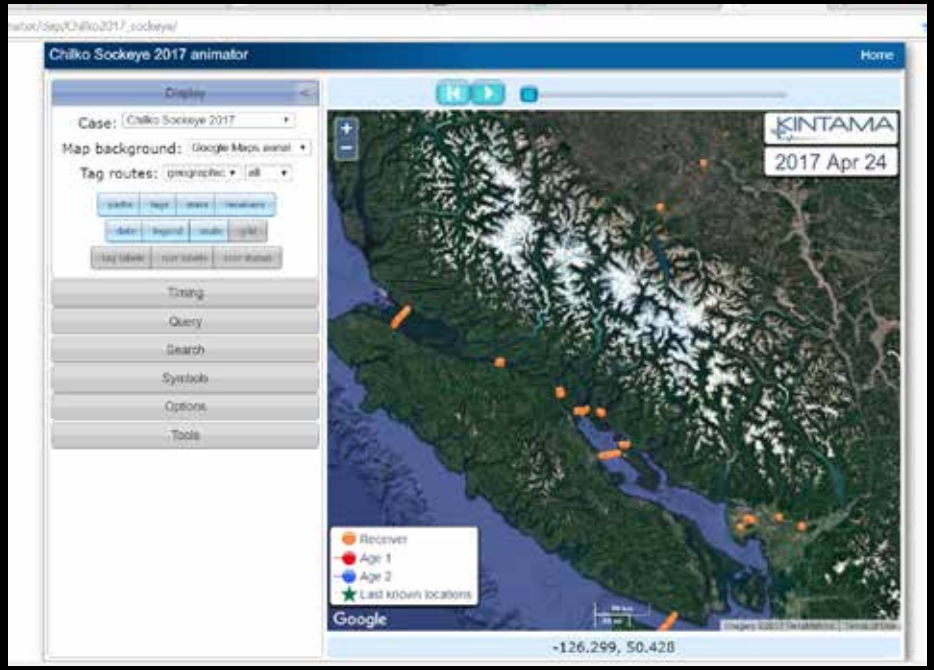
ACOUSTIC RECEIVERS IN HOSKYN AND OKISOLLO CHANNELS



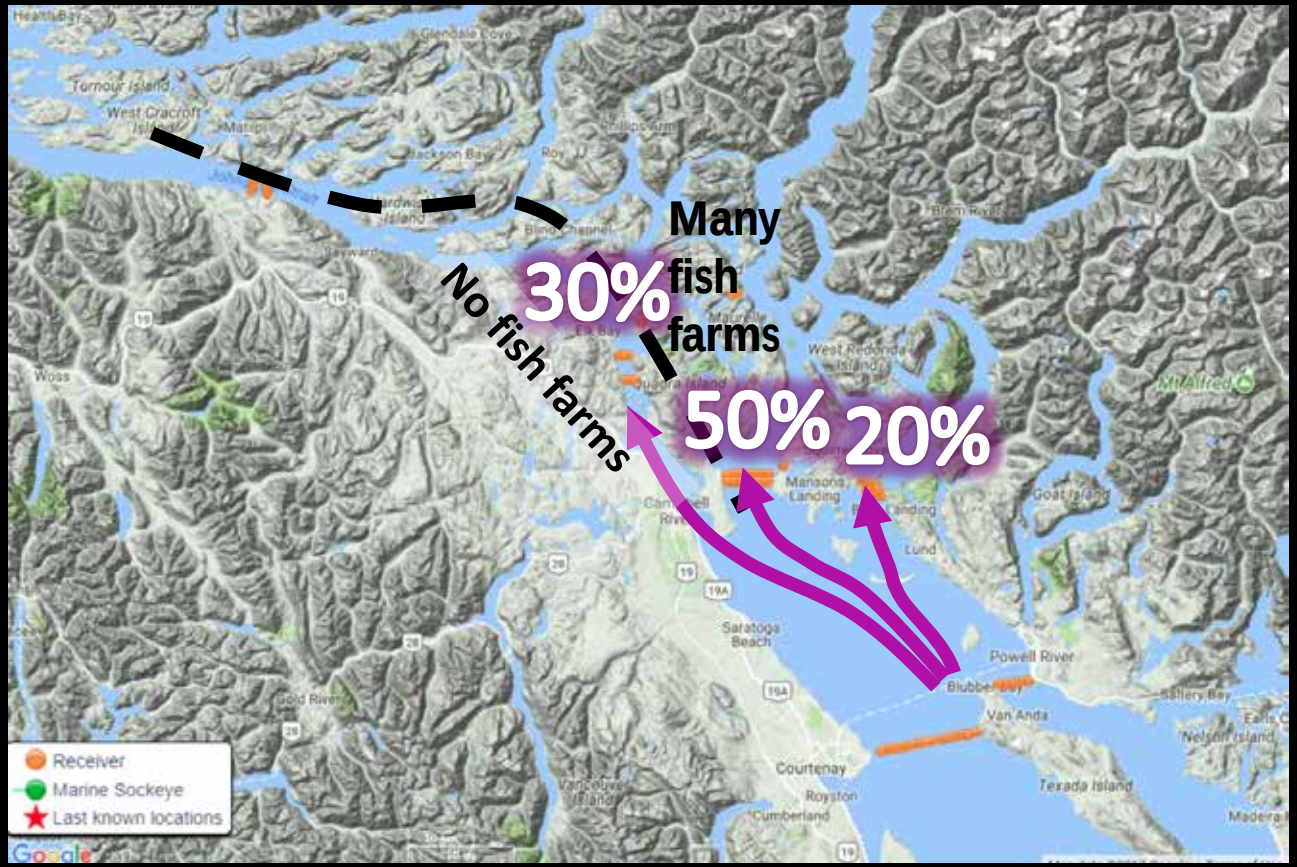
Exposure time= time between 1st and last detection:

1. Hoskyn to Okisollo (5 farms)
2. Okisollo east to west (3 farms)
3. Fish farm receivers

http://kintama.com/animator

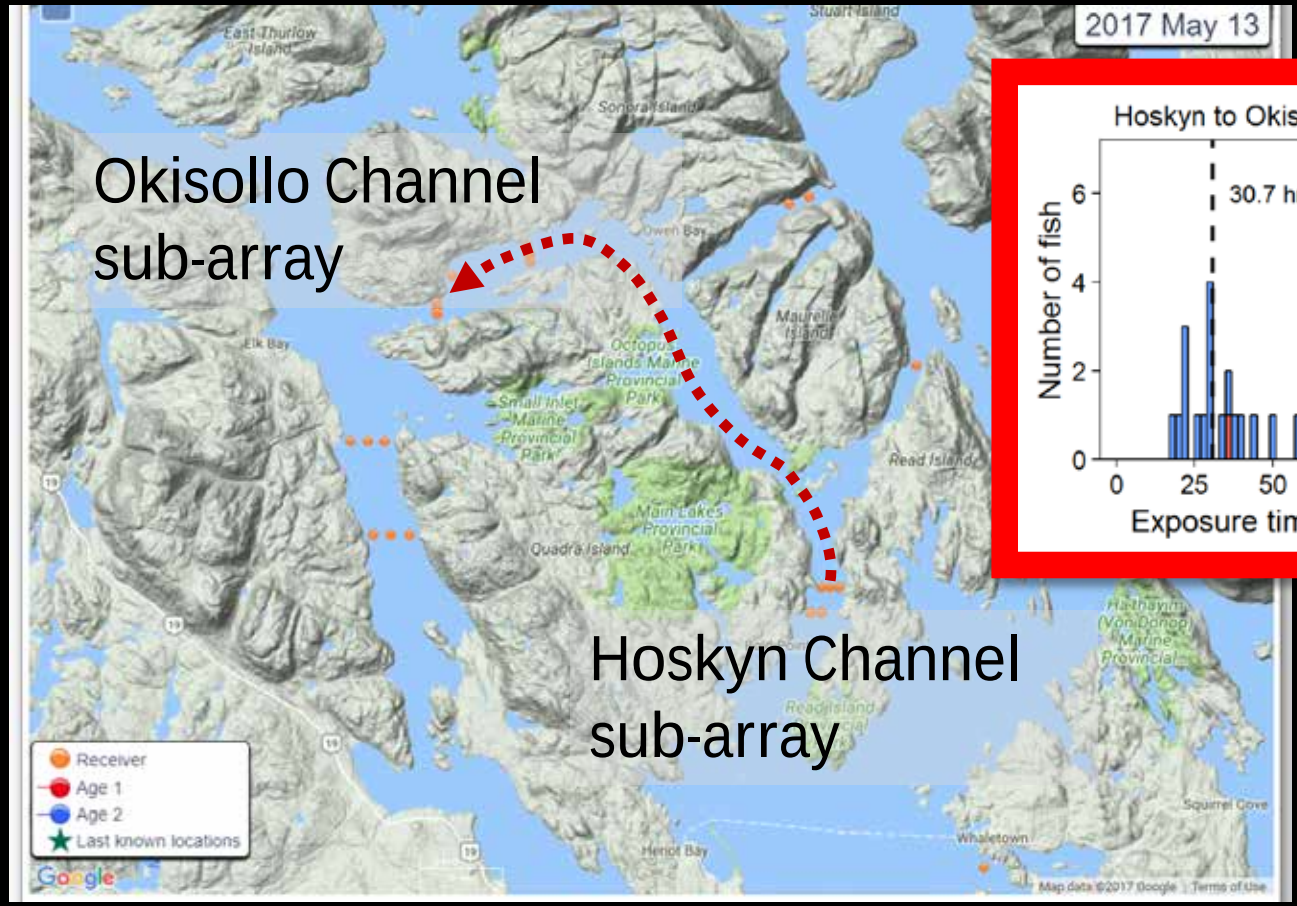


Migration Route

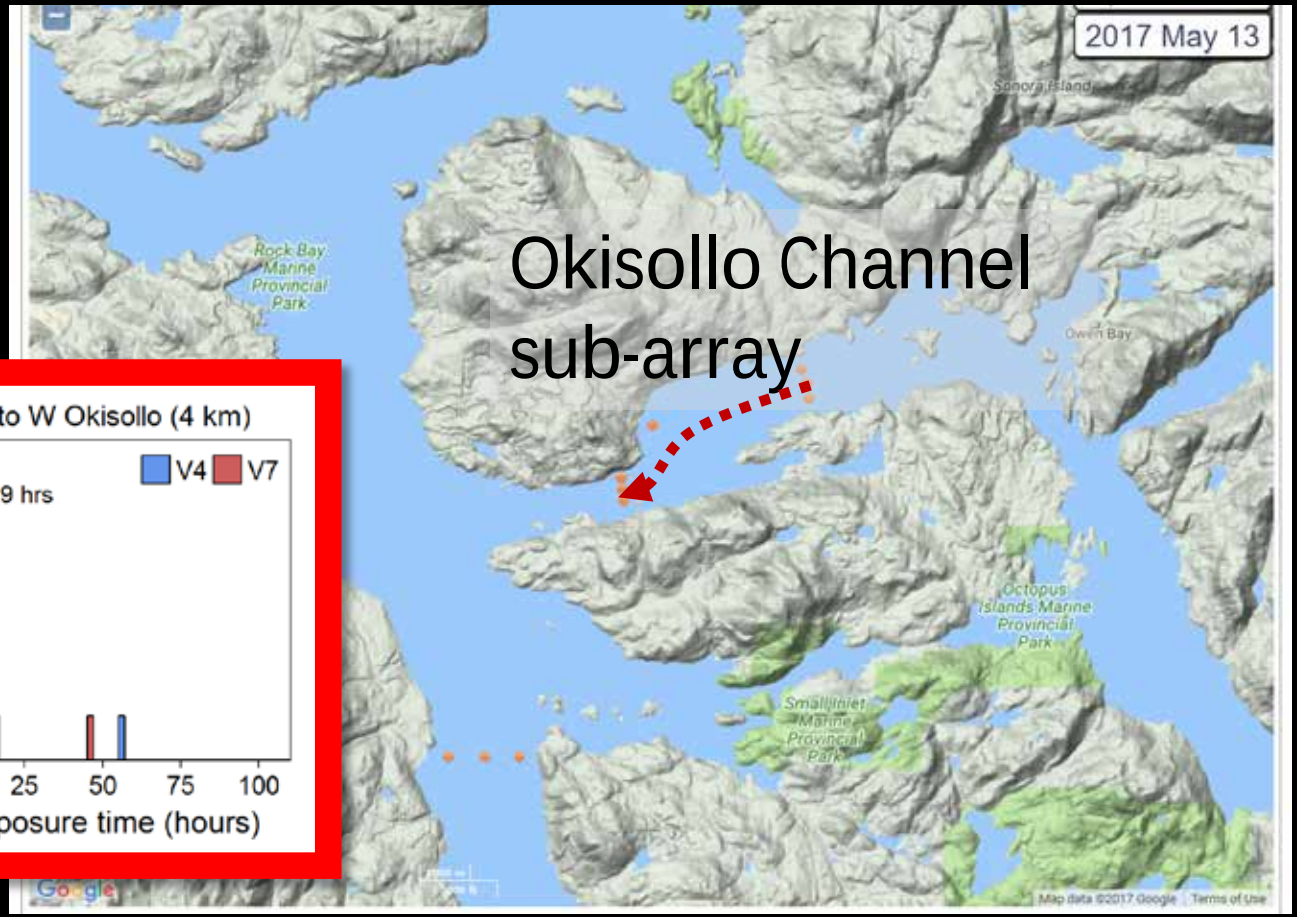


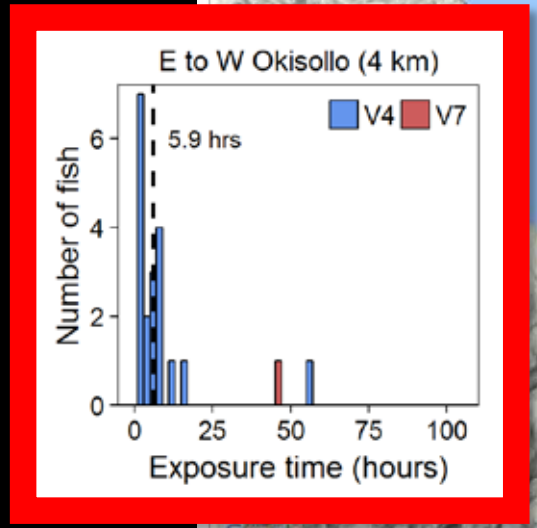
~70% of Chilko Lake sockeye migrated past fish farms in 2017

FAR-FIELD EXPOSURE TIME AT SALMON FARMS

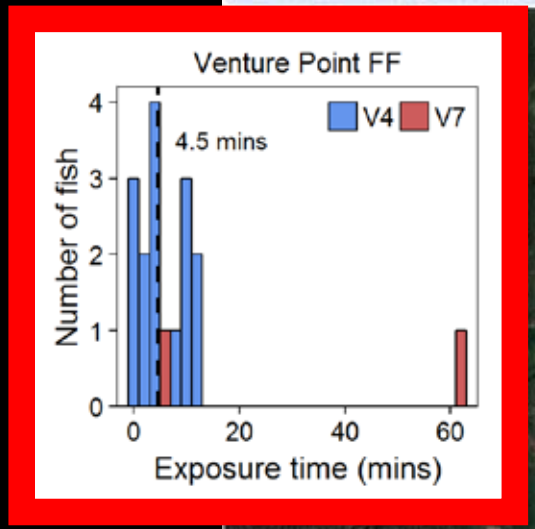


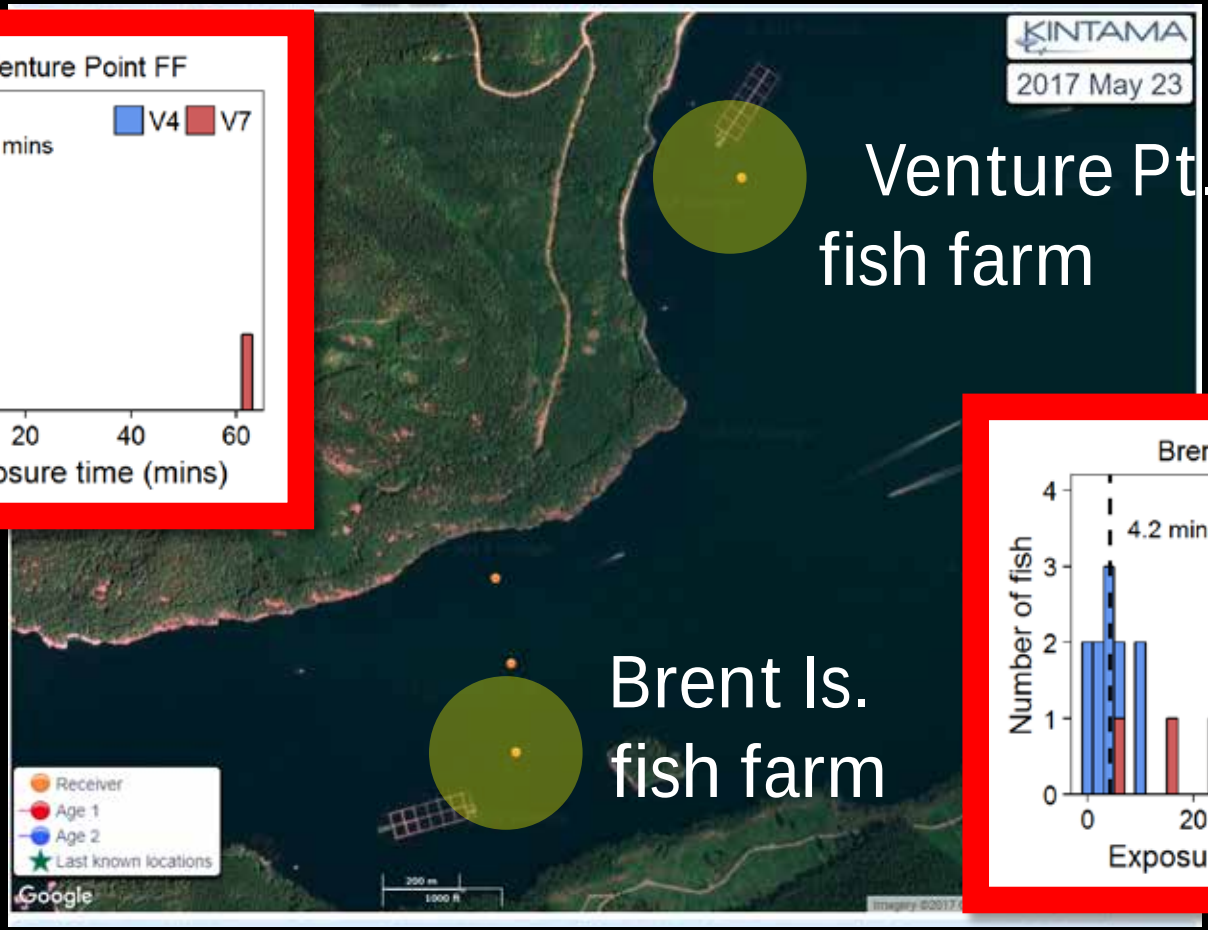
FAR-FIELD EXPOSURE TIME AT SALMON FARMS

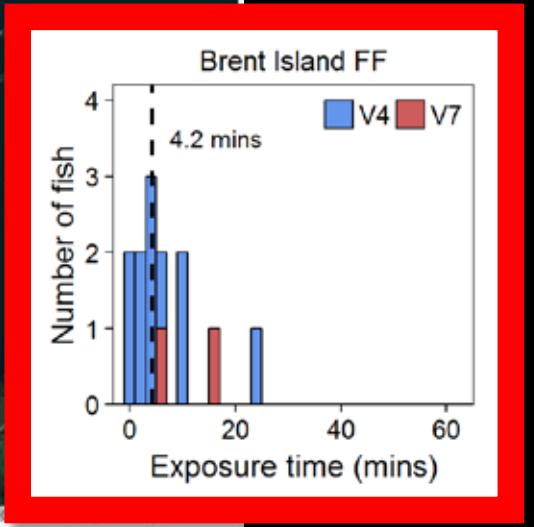




NEAR-FIELD EXPOSURE TIME AT SALMON FARMS







SIGNIFICANCE OF FINDINGS:

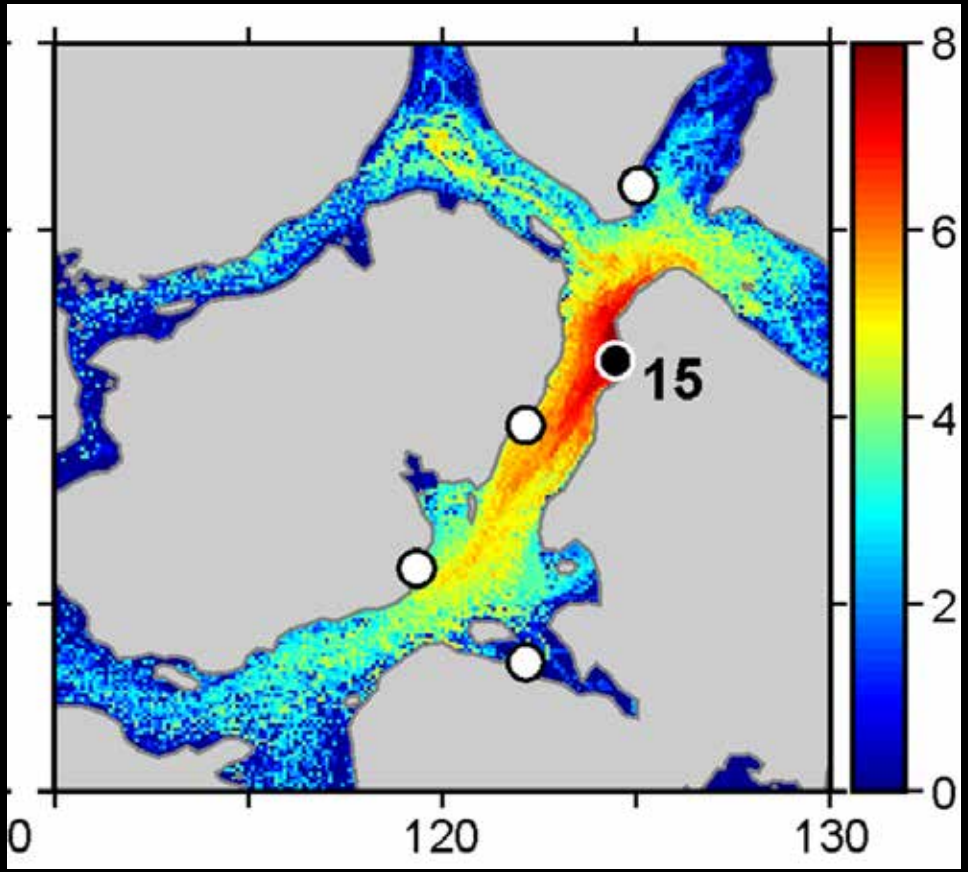
- The majority of fish migrated past fish farms
- Baseline exposure times were short:
  - less than 15 min near individual farms (farms were fallow).
  - 6 hours in Okisillo Channel
  - ~30 hours through Hoskyn & Okisollo Channels

Next Steps:

- Do the exposure times increase when the farms are stocked with Atlantic salmon?
- Does this exposure harm fish and make them more susceptible to predation?

2018

- Repeat the study with stocked fish farms



Foreman et al. 2015. PLOS One

Modelling Infectious Hematopoietic Necrosis Virus Dispersion from Marine Salmon Farms in the Discovery Islands, BC

Acknowledgements

Funding : Pacific Salmon Foundation &
Salish Sea Marine Survival Project

BC Salmon Farmers Assn.
Paul Winchell- Kintama
Hinch Lab
Hakai Institute
Xeni Gwet'in First Nation
Chilko DFO field camp
DFO - Keri Benner, Brian Leaf
Xeni Gwet'in First Nation