MEOPAR

MARINE ENVIRONMENTAL OBSERVATION
PREDICTION & RESPONSE NETWORK

Salish Sea Fixed Modelling

By: Susan Allen, Nancy Soontiens, Doug Latornell,
& Ben Moore-Maley
Earth, Ocean & Atmospheric Sciences,
University of British Columbia

MEETING THE CHALLENGES OF OUR CHANGING OCEAN

Team Members

- Susan Allen
- Nancy Soontiens, post-doctoral fellow
- Doug Latornell, research software engineer
- Ben Moore-Maley, masters student
- Kate Le Souëf, research assistant

Collaborators

- Youyu Lu, J-P Paquin (Prediction Core)
- Keith Thompson, Vasily Korbel and Fatemeh Chegini (Relocatable Model)
- Luc Fillion, Kao-shen Chung (Prediction Core)

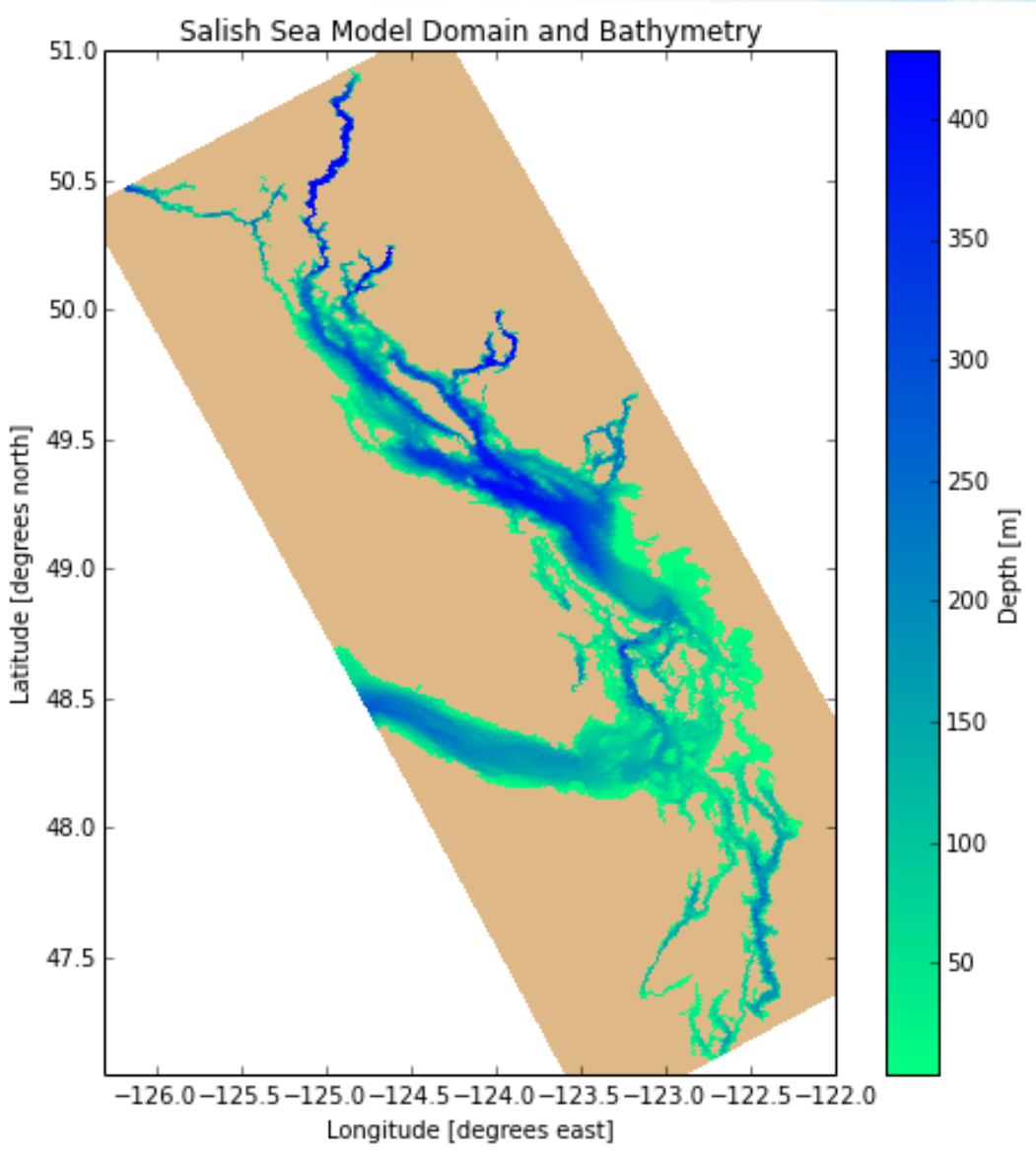
Research Project

Configure and Evaluate a Coupled Biological-Chemical-Physical Model of the Strait of Georgia for Prediction and Now-Casts

NASA

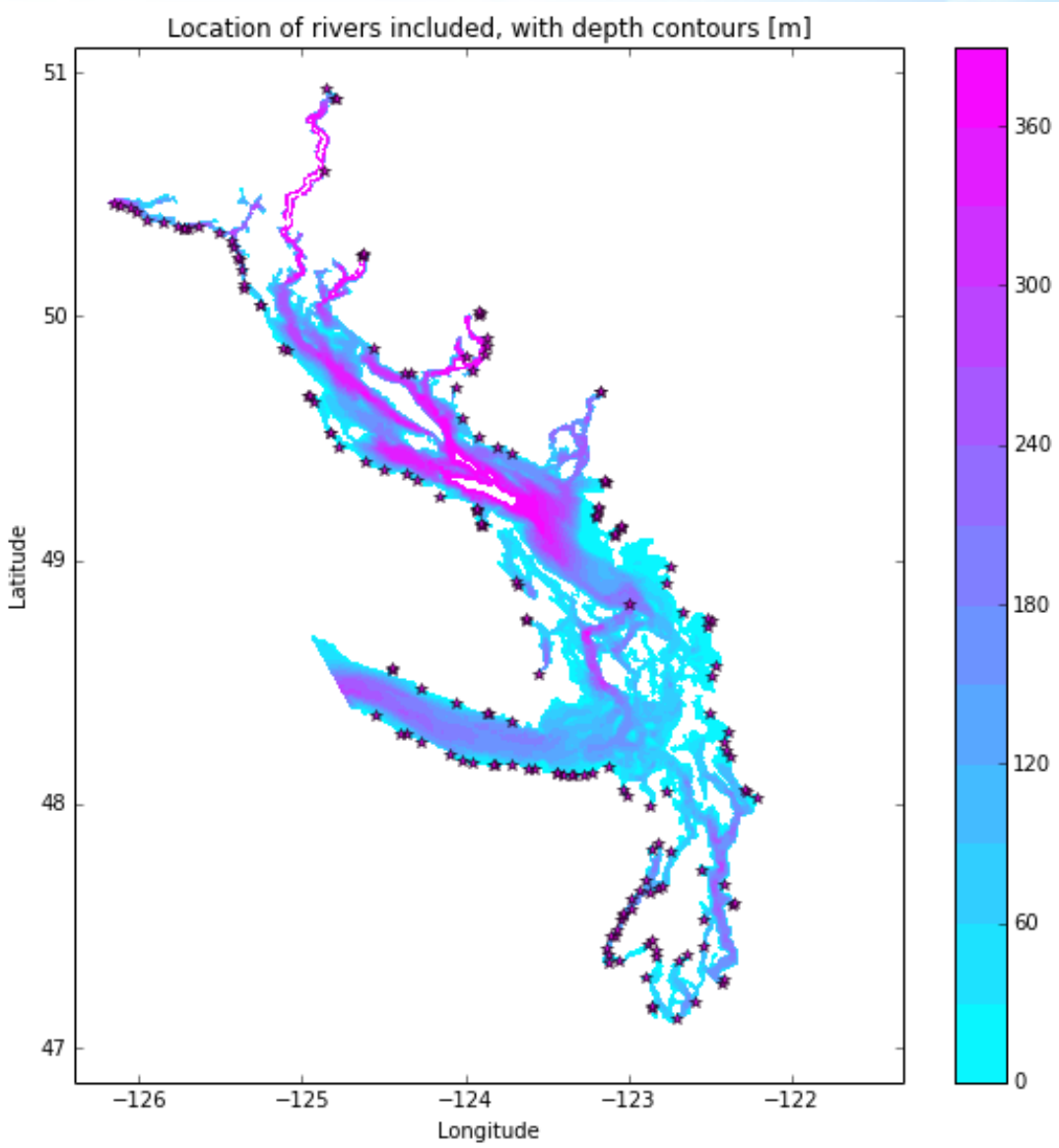
Physical Model

- NEMO model
- Version 3.4
- Grid resolution 500 m x 440 m and down to 1 m near surface
- 10 s time step
- tidal currents greater than 8 m s^{-1} horizontal and 2.4 cm s^{-1} vertical



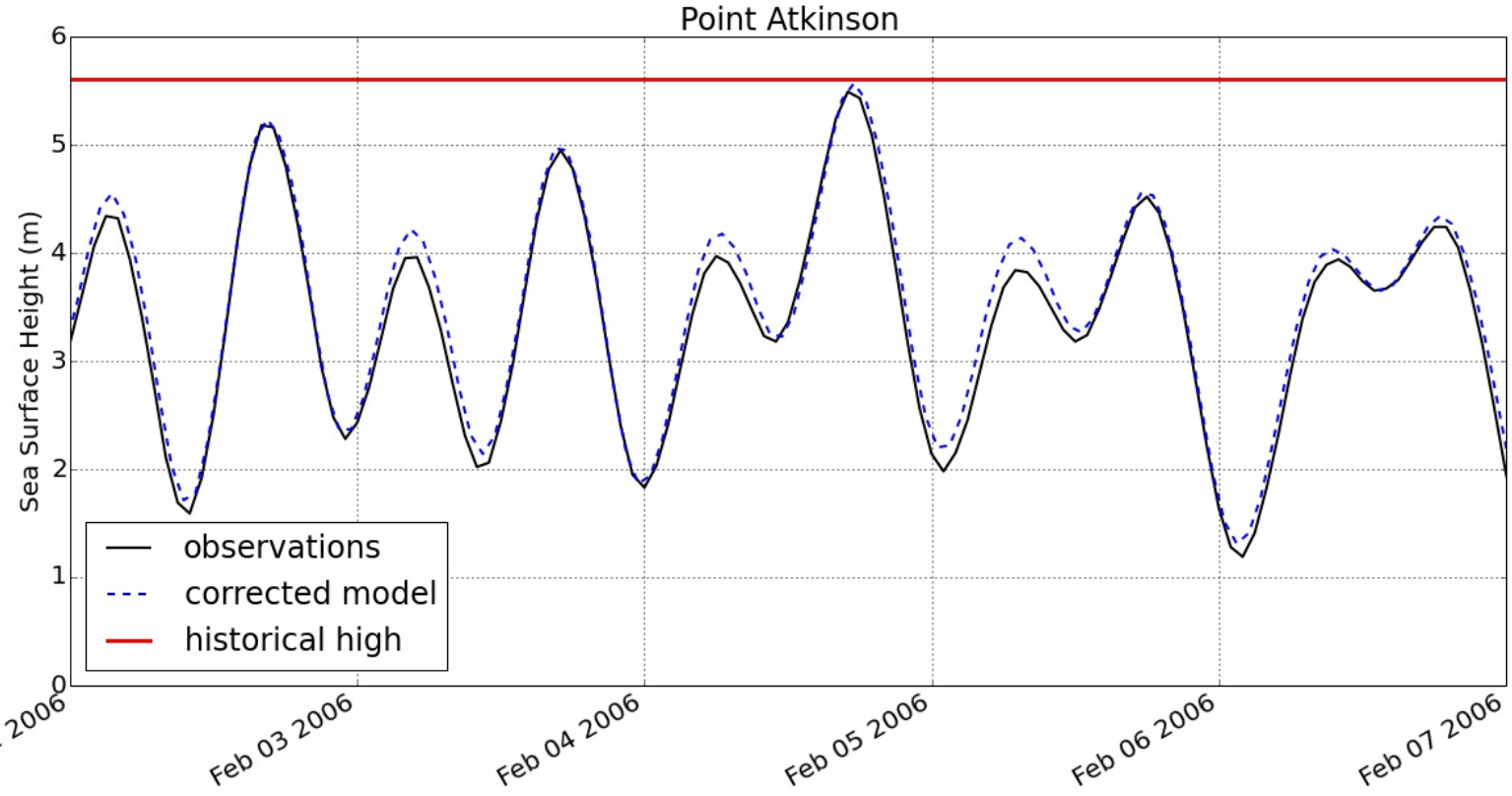
Forced By:

- At two open boundaries
  - 8-tidal constituents
  - SSH
  - Temperature and Salinity
- Wind, radiation, precipitation, air pressure currently based on EC re-forecasts at 33 km (CGRIF)
- 150 rivers



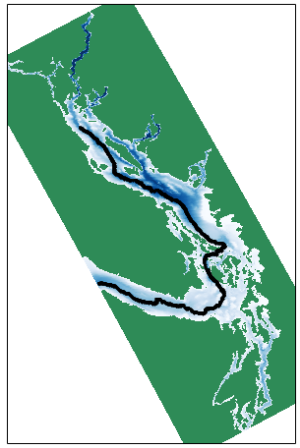
Successes: #1

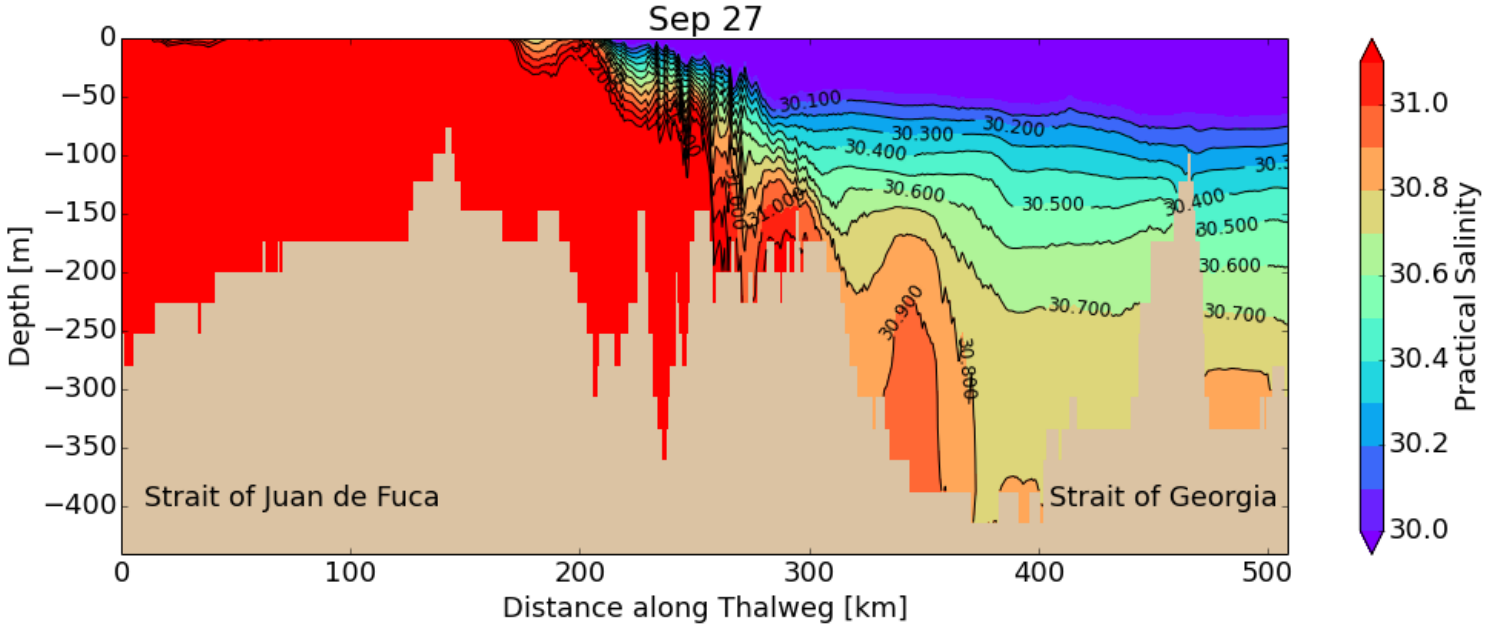
- Tides
- **Storm Surge**



Successes: #2

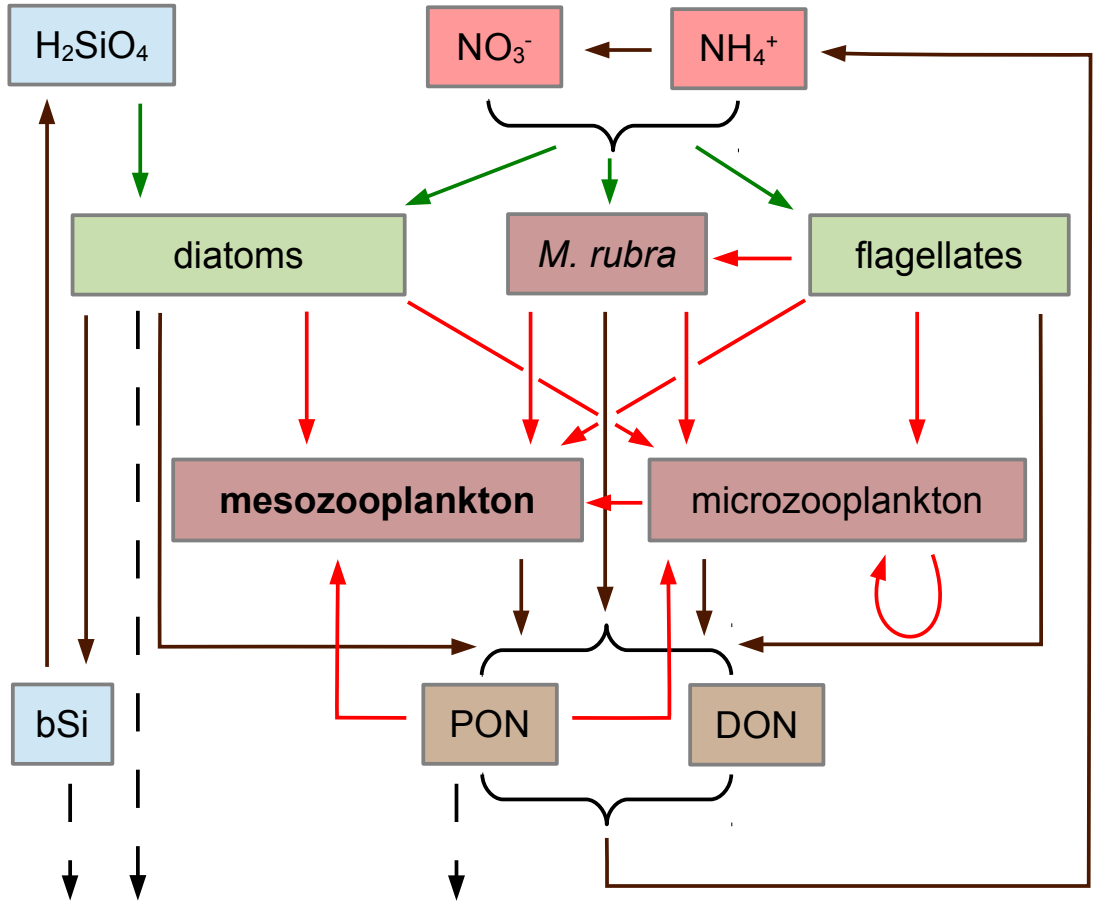
- Stratification
- **Deep water renewal**
- Incoming currents





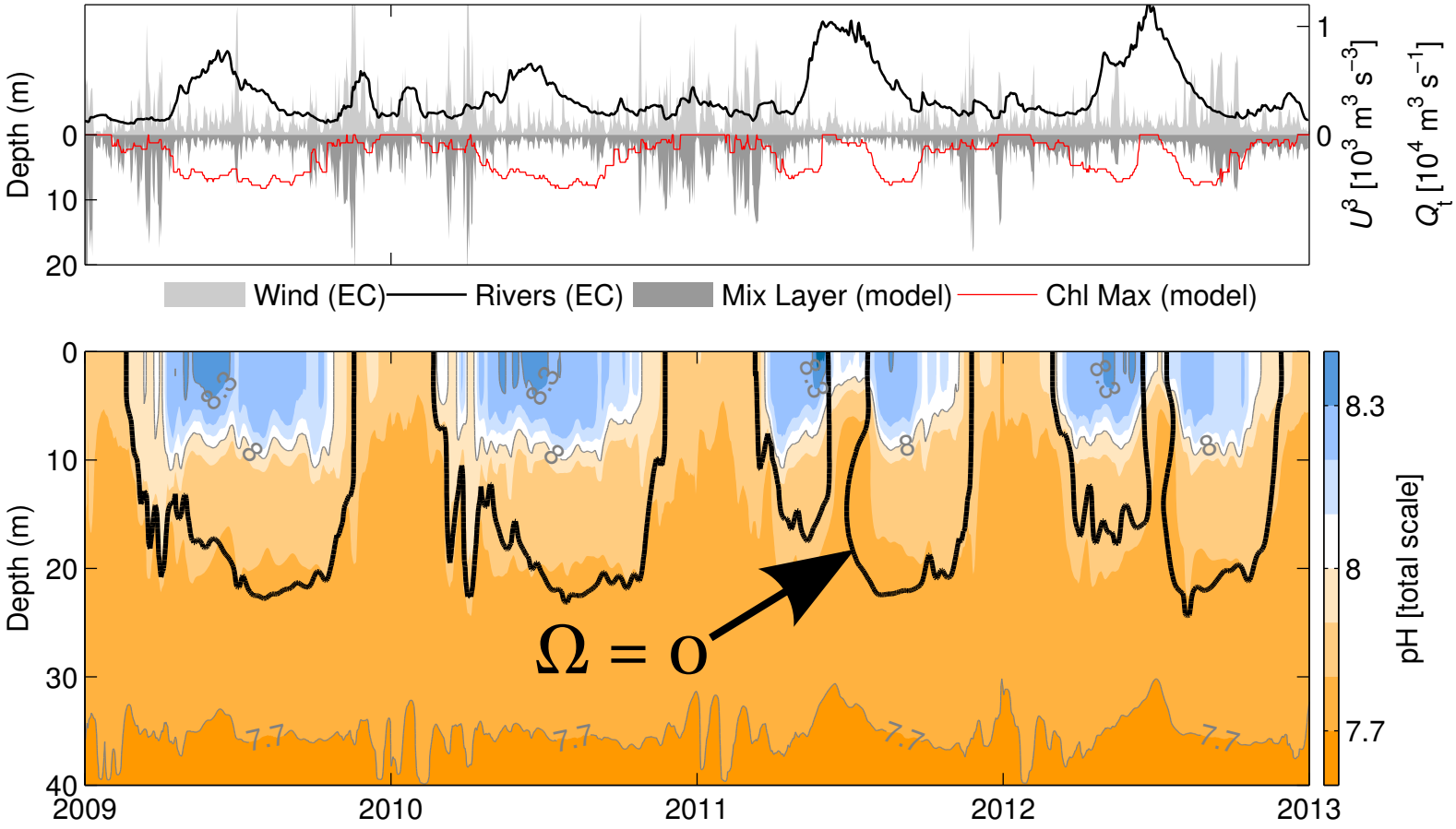
Bio/Chem Model

- SOG model
- 1-D model of the southern Strait of Georgia
- biological and chemical models
- “Mature”
- biological and chemical components will be ported to NEMO



Successes: #3

- Spring Bloom Timing
- **Seasonal cycles of pH and Aragonite Saturation**



Into the Future:

- Storm Surge and Model Set-up Publication
- Carbon Cycle in SoG Publication
- Nancy: mixing in the Islands
- Ben: wind-driven flows
- Jie Liu: plume dynamics
- new post-doc: porting SOG into NEMO
- High resolution atmospheric data
- Fraser River from data
- SSH from NOAA forecast
- running Real-time
- precipitation to rivers parametrization

Long Term Goal

Coupled Biological-Chemical-Physical Model of the Strait of Georgia for Prediction and Now-Casts

Questions?

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www.meopar.ca

902-494-4384

Susan Allen
sallen@eos.ubc.ca