Monitoring of harmful algal blooms in the Strait of Georgia, Canada with a Citizen Science program 2015

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Strait of Georgia

marinesurvivalproject.com
Background

- Citizen science is defined as "scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions" (Oxford English Dictionary)

Citizen Scientist Project - unique data on entire Strait of Georgia
Video
~3 min

Citizen Science Project

https://www.youtube.com/watch?v=bgdr2wkVhWk
Sampling areas

• Citizen Scientists sample in: Victoria, Cowichan Bay, Nanaimo/Qualicum, Baynes Sound, Campbell River, Lund, Powell River, Irvine’s/Sechelt, Steveston

• Sampling is done on the same day every 2-3 weeks between February and October
Sampling

- Properties/samples that are measured/collected are: conductivity, temperature, depth, dissolved nutrients, fluorescence, oxygen, zooplankton, phytoplankton, turbidity.

- The majority of collected data can be found on the Ocean Networks Canada and Strait of Georgia Data Centre websites.
Data – Ocean Networks Canada

www.oceannetworks.ca/

“Data preview and search” tab

Register and log-in “Oceans 2.0”

Or

Contact Marlene Jeffries
(Data Manager)
jeffries@uvic.ca
Sample of plotted data
Strait of Georgia Data Centre  www.sogdatacentre.ca

Dissolved Oxygen

Temperature
Phytoplankton sampling

• At each of 9 areas (Victoria, Cowichan Bay, Nanaimo/Qualicum, Baynes Sound, Campbell River, Lund, Powell River, Irvine’s/Sechelt, Steveston) there are about 7 individual stations.

e.g. Victoria chart with sampling locations

 e.g. Cowichan Bay chart with sampling locations
Phytoplankton sampling

• Most of the station sampling at the surface, 1 station at 0, 5, 10, 20 m
• Water preserved with Lugol’s Iodine
• Processed under light microscope
• Biomass and constituent groups are estimated, dominant species & species known harmful to fish are enumerated
• To date 923 samples have been analyzed
• Several hundreds will be added by the end of the year
• Example of phytoplankton data for Victoria area.
Concentrations of harmful algae, Victoria

- Chaetoceros convolutus and concavicorne
- Rhizosolenia setigera
- Alexandrium spp.
- Gymnodinium mikimotoi
- Cochlodinium fulvescens
- Chattonella marina
- Heterosigma akashiwo
- Dictyocha spp.
- Pseudochattonella cf. verruculosa
- Pseudopedinellapyriformis
Biggest stories of 2015, Strait of Georgia

oceanography

• unusually warm sea surface temperatures
• warm winter, very little snow
• Early warm spring
• Very low Frazer River discharge

phytoplankton

• Unusually early spring bloom confirmed by both sample analysis and remote sensing
• No *Heterosigma* blooms were recorded throughout sampling period in the Strait
• Unusually long and persistent high concentrations of *Chaetoceros convolutus* and *C. concavicorne*
Stay in touch

Facebook page “Phytoplankton - Citizen Science Program” was created for informal communication between citizen scientists on the topics concerning phytoplankton in the Strait of Georgia

- Environmental data – Ocean Networks Canada http://www.oceannetworks.ca/

- Phytoplankton data – Coordinator of the Salish Sea Marine Survival Project: Isobel Pearsall pearsalli@shaw.ca and/or Svetlana Esenkulova svesen@uvic.ca

Thank you