



The Friends of Semiahmoo Bay Society,

is a non-profit with community volunteers of all ages & cultural backgrounds engaged in community science, habitat enhancement and environmental education in Boundary Bay & the Fraser River delta.



www.birdsonthebay.ca

With community partners,
we focus on planting coastal indigenous species,
removal of invasives and environmental
education in community & in the schools .



We host Community Science Methods Workshops that include:

Eelgrass mapping & monitoring



Coastal Shoreline Inventory Mapping Workshop

Global Positioning Systems Workshop

Forage Fish Spawning Habitat Monitoring

Beached & Waterbird Surveys with Bird Studies Canada



Olympic Oyster Survey with DFO Canada

More recently our projects focus on forage fish spawn habitat monitoring - working with the BC Forage Fish Monitoring Network and the trapping the invasive European green crab - working with A Rocha and DFO Canada.



The invasive European **green** crab

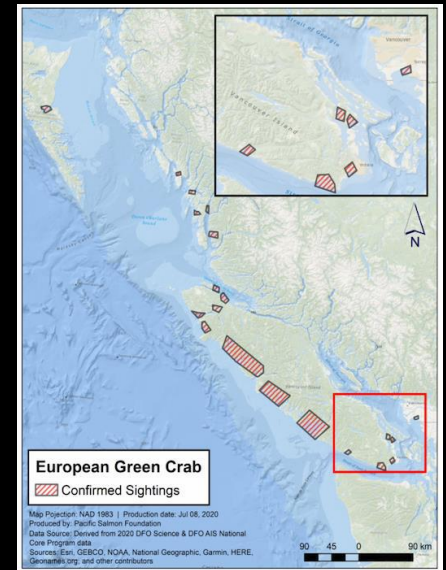
- Arriving in Puget Sound and the Strait of Juan de Fuca in 1998, the European green crab has become one of the ten most unwanted invasive species in the world.
- Due to the ability of early life stages of the crab to travel easily as plankton via ship ballast water and ocean currents, European green crab has continued to spread throughout the Pacific Northwest arriving in the San Juan Islands in 2016.
- Canada discovered it in Boundary Bay in 2019. It is an effective predator of native clams and oysters, destroys eelgrass beds and negatively impacts native invertebrates and fish.

* The **green** crab has spread north along the eastern Pacific coast. In July 19, 2022, a carapace was found in Metlakatla, Ketchikan, Alaska. 62 captured by October.

* 8,950 were caught in a single day in 40 traps in the Tranquil R. estuary, Clayoquot Sound, Tofino.

* Can we eat them? In Oregon, you can bag 35 a day.

* Tamworth Distillery in New Hampshire offers a crab whiskey!



How to identify the European **green** crab

- Key is the five spines or marginal teeth to the outside of each eye.
- Up to 10cm across the carapace.
- Although referred to as **green**, the actual colour can vary from **dark mottled green**, **brown** to **orange**.

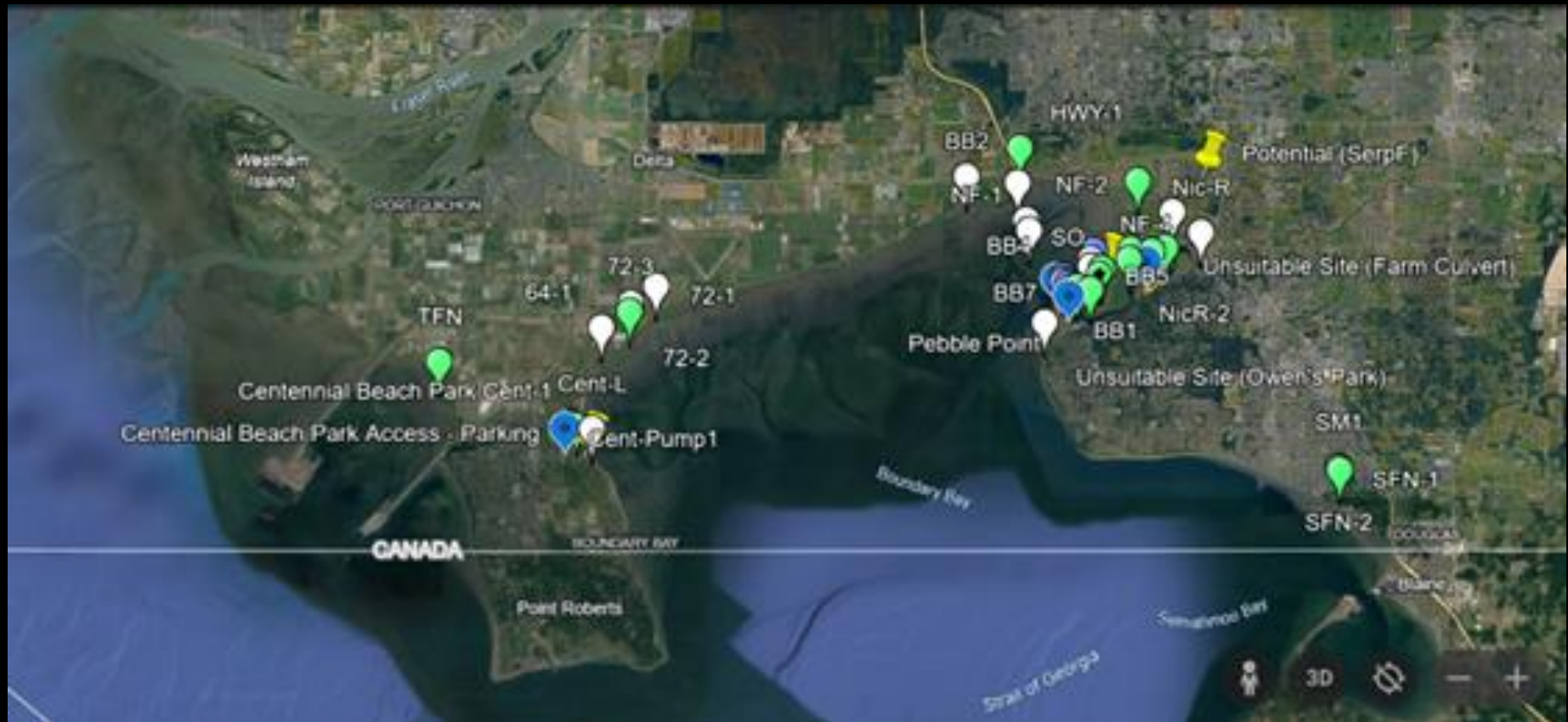


Photo: Site leader Phillip Milligan with captured **green** crab at the Blackie Spit location.

Do not confuse with our native crabs with the European **green** crab



Boundary Bay trapping locations by DFO since 2019, includes sites categorized as high, medium and low priority.



*The Friends of Semiahmoo Bay Society (FoSBS) was alerted to the presence of the European green crab in the Fraser Delta region in late 2019 and joined the Working Group composed of DFO, Tsawwassen First Nation (TFN) , the Vancouver Fraser Port Authority (VFPA) & Invasive Species Council Of BC in 2020 to continue in our mission of protecting Boundary Bay.

*FoSBS quickly responded to this critical concern by launching a trapping project with DFO Canada with a call for volunteers to help, to take a methods training, collect equipment, conduct a field training and schedule trapping days May – October 2020.

As DFO advised, FoSBS began trapping at four priority sites:

1. Elgin Heritage Park in the Nicomekl estuary, moved in 2023 to Pebble Point Backchannel, (closer to Blackie Spit), Surrey
2. Blackie Spit Park salt marsh, in the Nicomekl estuary, Surrey
3. Centennial Beach, Boundary Bay Regional Park, Delta
4. Little Campbell River estuary on Semiahmoo First Nation Reserve



The Trapping

*FoSBS was notified in late 2021 of DFO's shift away from Fukui-style traps because of increased marine mammal bycatch at trapping sites throughout BC.

*For the 2022 trapping season, FoSBS was advised to use 6 prawn traps and 3 minnow traps per site (9 in total) at 4 sites (36 traps in total). Monitoring and trapping began May 16/17th with a field training and continued through October.

In 2023 DFO advised FoSBS to use 6 prawn traps and 6 minnow traps per site (12 in total) at 4 sites (48 traps in total). Field training was held at 3 sites. Trapping continued until late September 2023.



*Caution was taken to prevent damage to the site, fish sp. were photographed then released quickly.

*Location, soaking time, trap number, and each organism were recorded.

*If EGC were captured, the size and sex was Recorded before separating to be destroyed (usually by freezing).

*In 2022, 14 green crab were captured at Blackie Spit, none at the other 3 sites.

*In 2023 none were captured at Blackie Spit but were captured at the other 3 sites.

Blackie Spit, Surrey

Site leaders, Phillip Milligan & Bridgette Epp.



left: Surrey Youth Stewardship team participation in July.



*In addition to the field training April 12/13th, five trappings at Blackie Spit were conducted, May 7/8, June 15/16, July 4/5, August 18/19 & September 23/24.



Centennial Beach, Boundary Bay Regional Park, Delta Site Leader, Kristina Johnson Two **green** crab were captured in 2023.



*In addition to the April 22/23rd field training, eight trappings at Centennial Beach were conducted, May 5/6, May 18/19, June 2/3, June 15/16, July 13/14, July 29/30, August 14/15, and August 28/29 (the September 26/27 trapping was cancelled).

Pebble Point Backchannel, Crescent Beach, Surrey
Site leader, Kathy Takasaki
One green crab was captured.



*Six trappings at Pebble Point Backchannel were conducted, April 24/25, May 23/24, June 19/20, July 6/7, August 18/19 and September 12/13.

Little Campbell Estuary



Site leader Lanie Fung, project partner, A Rocha Canada
36 **green** crab were captured.

*It was an adventure to canoe up the Little Campbell River estuarine channel to get difficult to reach areas to set traps. For some of our team, it was their first time being in a kayak/canoe!



Eight trappings were conducted on the Semiahmoo First Nation Reserve, June 20/21, July 4/5, July 18/19, August 1/2, August 18/19, August 29-31, September 12-14 and on September 26-29 (ARC appreciated DFO assisting with a blanket trapping capturing 18 **green** crab).

An Age Class Table & two basic histograms detailing the breakdown of age classes caught in the Little Campbell estuary in 2023.

Table 1. Age class structure for *Carcinus maenas* recommended for the coast of British Columbia, from Behrens Yamada and Gillespie (2008).

Age Class	Age	Sex	Size
Young of the Year	Within 1 year from larval settling	Both	< 40 mm
Mature Male	1-2 years from larval settling	Male	40 – 70 mm
Mature Female	1-2 years from larval settling	Female	40 – 65 mm
Older Male	2-6 years from larval settling	Male	> 70 mm
Older Female	2-6 years from larval settling	Female	> 65 mm

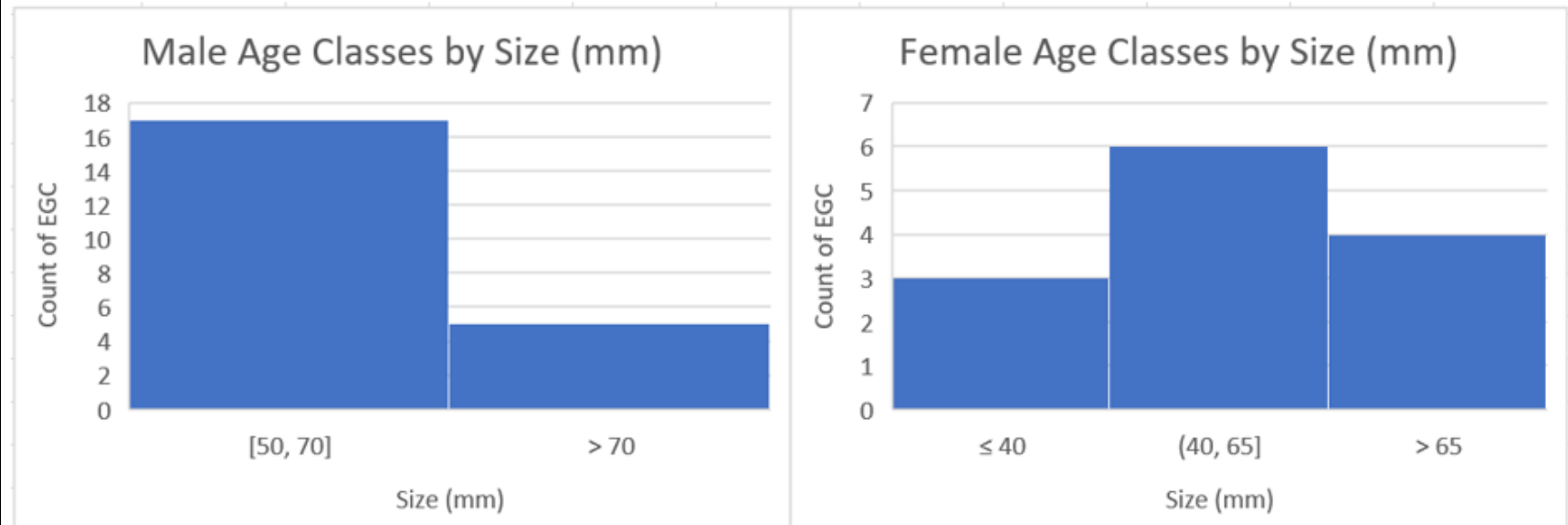


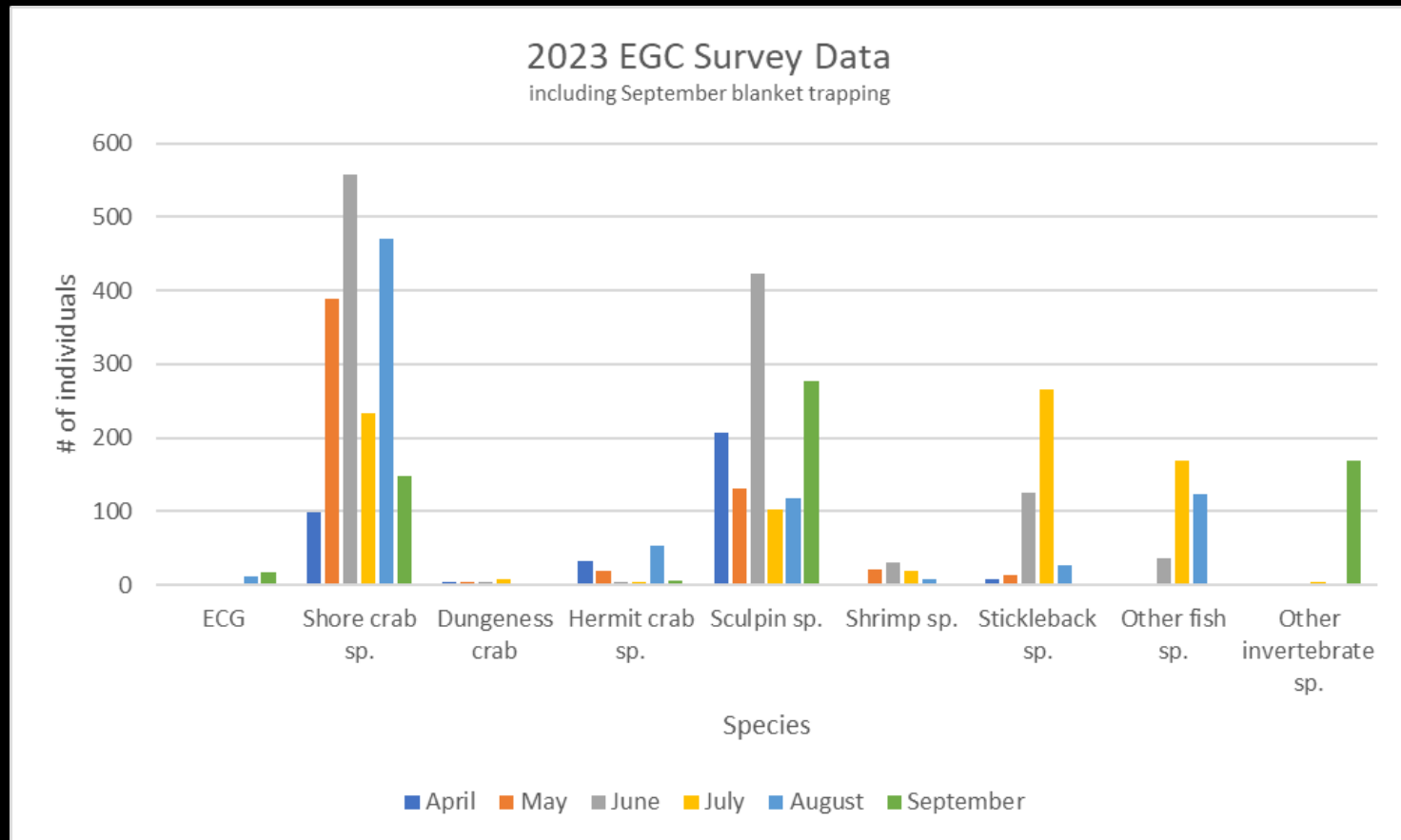
Figure 1. Count of EGC caught in Little Campbell River Estuary in 2023, separated into age class bins according to age classes defined by Behrens Yamada & Gillespie (2008).

*We saw a diversity of intertidal wildlife in our traps including starry flounder, perch, staghorn sculpin and broken-back shrimp amongst others.

*One unexpected visitor to our traps was the Western Terrestrial Garter Snake! A garter snake species that regularly forages in the intertidal zone and known to cross water bodies.



Results of species collected during the green crab trapping at the four sites in Boundary Bay (FoSBS with A Rocha, includes blanket September trapping at LCE). Special thanks to Diane Watson for preparing the species table.



Drayton Harbor



Leah Robison, Ecosystem Projects Specialist, Northwest Straits Commission



143 **green** crab captured

The 2023 EGC field season was a collaborative effort between the Northwest Straits Commission and the WA Department of Fish and Wildlife with great contributions from various volunteers and conservation corps interns!

From April – October we captured 127 EGC in 2,167 trap-sets, plus an additional 16 removed by Drayton Harbor Oyster Company. Our Catch per Unit Effort (CPUE) was 5.86 EGC/ 100 24-hr trap-sets. This metric for tracking capture rate combines all three trap types that we use (Minnow, Fukui, & Shrimp traps).

This is about a 50% decrease in the overall capture rate compared to 2022 (CPUE=10.9) when there was a large boom of Young-of-the-Year (YOY) crab in the fall. Many of the EGC captured this year were likely 'Year 1' crabs from that 2022 cohort.



So far, the 2023 YOY cohort is not nearly as strong as it was last year as we have only captured 2 or 3 YOY this fall in Drayton Harbor.

Our final numbers for the season will be after our last trapping effort scheduled for the last week of October.

Map of the 2023 Drayton Harbor capture locations



Special thanks to:

*Community volunteers, especially to Diane Watson, co-coordinator and trapping site leaders, Phillip Milligan, Bridgette Epp, Kristina Johnson, Kathy Takasaki and Lanie Fung;

*Project partners & collaborators: Fisheries and Oceans Canada, A Rocha Canada, Semiahmoo First Nation, Invasive Species Council of BC, Northwest Straits Commission & U of Washington, Sea Grant;

*Funders: Fisheries and Oceans Canada, Little Campbell Hatchery Society, Rotary District 5050 and the Vancouver Fraser Port Authority.



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SEMAIHMOO FIRST NATION

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COLLEGE OF THE ENVIRONMENT



Web sites of interest:

www.dfo-mpo.gc.ca/species-especes/ais-eae/index-eng.html

www.sogdatacentre.ca/biota/aquatic-invasive-species

<https://bcinvasives.xactlms.com/program>

www.alaskainvasives.org

www.coastrestore.com

<http://doi.org/10.3391/mbi.2018.9.1.04>

wsg.washington.edu/crabteam/greencrab/

**Thank you for inviting us to share
this alien species of crucial concern.**

**Today's environmental challenges are
an opportunity for us to work together as a
community in a meaningful way.**

Questions?

How Can You Make a Difference?

Participate with us,

visit & sign up at:

www.birdsonthebay.ca