INTERIM REPORT
OCTOBER 2022
EXECUTIVE SUMMARY

The Hakai Institute and the False Creek Friends Society (FCFS), in collaboration with the City of Vancouver and several local community partners, undertook community engagement activities (i.e. outreach, education and community science) and scientific initiatives between April and September 2022 to provide a comprehensive understanding of the biodiversity of the seafloor, the water and the shorelines of the False Creek area in Vancouver. While full analyses of the scientific initiatives are ongoing, preliminary results are presented in this interim report. The collaborators look forward to providing an update to this report in early 2023 when more results will be available.

LEAD COLLABORATORS

The Tula Foundation’s Ocean Decade Collaborative Center for the Northeast Pacific led coordination of this effort as part of their mandate to build capacity and provide support for co-designed Ocean Science initiatives in the region.

The Hakai Institute is a non-profit scientific institution conducting long-term environmental research on the coastal margin of British Columbia. Interdisciplinary teams blend science and technology to understand and monitor environmental processes from icefields and watersheds to the nearshore and coastal oceans. The Hakai Institute is supported by the Tula Foundation, and partners with universities, NGOs, First Nations, government agencies, businesses, and local communities. The Hakai Institute coordinated the scientific component of the BioBlitz.

The False Creek Friends Society is a non-profit society that works to restore the False Creek marine environment in alignment with First Nations stewardship values and marine science, with recognition and respect for the presence and rights of all people to enjoy and use False Creek in sound and healthy environmental ways. False Creek Friends Society coordinated the community engagement, outreach and media relations components of the BioBlitz. Significant financial resources provided from Nature Canada to the False Creek Friends Society was greatly appreciated to support hiring a Sustainability Scholar from the University of British Columbia (UBC) to pilot community engagement initiatives and write an Action Plan to provoke questions and provide suggestions for future initiatives (Spence, 2022).

The City of Vancouver was part of the planning committee for the BioBlitz. Results will help inform ongoing City and Park Board work on coastal adaptation, the City’s Healthy Waters Plan, and general environmental planning.
False Creek and the City of Vancouver are located on the traditional, unceded territories of the xʷməθkwəy̓əm (Musqueam), Skwx wú7mesh (Squamish) , and səlilwətaɁ (Tsleil-Waututh) Peoples, who have provided stewardship to these lands since time immemorial. Effort was made to raise awareness and provide opportunities for consultation or direct involvement in this project with Nation contacts during conception and planning stages with the three local Nations, with direct contact being established with the Tsleil-Waututh Nation who confirmed their awareness of the project and receptivity to its findings. All reports will be shared in full with all local Nations at the earliest opportunity.

**INTRODUCTION**

English Bay and the small inlet of False Creek - water features adjacent to what is now known as the port city of Vancouver - have interesting and significant geographic, biological and cultural histories. The historical shoreline, identified by the Tsleil-Waututh Nation, of what is now known as False Creek, stretched beyond the current region to an area five times its present size. The head of this body of water was known to have been a large and productive tidal mudflat and estuarine environment with thick eelgrass, abundant clam beds and dense forests of spruce, fir and hemlock trees (Figure 1).

![Figure 1: Draft map of Indian villages and landmarks, Burrard Inlet and English Bay, before the whiteman came (Matthews, 1932).](image-url)
Heavy industrialization and urbanization during the 19th and 20th century reshaped Vancouver’s shoreline particularly in False Creek. Periods of intense activity and structural change including filling the mudflat to create land deemed usable at the time by industry, hardening of the shoreline, and the introduction of pollutants, both directly from industry and indirectly through sewer and stormwater outfalls all led to an extended period of time where False Creek was considered to be a highly inhospitable environment for both humans and marine organisms.

However, following the cessation of heavy industry use of this waterway, signs of recovery are evident. Shore and seabirds and harbour seals are now routinely spotted in the area along with an occasional whale sighting. Along with this return of marine and terrestrial life, an estimated 200,000 people or more interact with False Creek every day, crossing over its three bridges, going under it on the Canada Line, walking or rolling along its seawall, or through various boating activities. And an even greater number of people live along its shores and enjoy its beauty from within their homes. Yet, despite all this activity and signs of life, we know relatively little about its current biodiversity and by all accounts it is still considered to be a heavily polluted environment in need of significant restoration.

A pilot initiative under the Northeast Pacific Biodiversity Action Network, a UN Decade of Ocean Science for Sustainable Development (Ocean Decade) endorsed project, was established to begin addressing this lack of knowledge. Scientists from the Hakai Institute, community members from the False Creek Friends Society, and collaborators from the City of Vancouver came together in early 2022 to co-design and co-produce the False Creek BioBlitz 2022. The goals of the BioBlitz were to:

1. Create a baseline inventory of the current biodiversity of False Creek through a scientific BioBlitz using a reproducible methodology; and

2. Raise community awareness about the current biological diversity of False Creek to start a larger community conversation and process about how to revitalize and sustain False Creek going forward.

The project was designed to increase community awareness and provide meaningful opportunities for involvement through stewardship, advocacy and hands-on activities. It was also designed to provide a comprehensive understanding of the ecology of False Creek that will help inform decision-making and activities about the waterfront, its land use and stormwater management, targeted community-led initiatives designed to further
stewardship and restoration and possibly support a business case to establish an urban marine protected environment.

Figure 2. Map of sampling location for the scientific portion of the BioBlitz, including marked locations (o) of eDNA sampling, light traps, plankton tows, settlement plates, intertidal collections, and insect collections.

This report details the steps that were taken to co-design and co-produce the False Creek BioBlitz 2022 and highlights initial outcomes from both the community engagement and scientific activities undertaken during the BioBlitz. It is anticipated that more results from the scientific activities will be available in early 2023.

The BioBlitz - An Overview

A BioBlitz is a biological inventory conducted to identify as many species as possible in a defined area and period of time. From April to September 2022, the Hakai Institute and the False Creek Friends Society, in collaboration with the City of Vancouver and other local organizations, conducted a BioBlitz of False Creek.

In the early stages of the BioBlitz, valuable community science observations were documented through the creation of a project on the California Academy of Sciences and
National Geographic’s iNaturalist app (the project opened to coincide with the international “City Nature Challenge” campaign), an effort that continued for the duration of the project (False Creek BioBlitz 2022 iNaturalist Project). These observations were both opportunistically contributed through observations uploaded that were captured within the project area and through community engagement efforts designed to include youth participation led by False Creek Friends Society.

Figure 3. Map of iNaturalist observations contributed to the False Creek BioBlitz 2022 project. Colors represent different taxonomic groups.

During this time, the False Creek Friends Society also hosted a light trap at Heather Civic Marina (as part of the Hakai Institute-led Sentinels of Change project designed to improve our understanding of larval Dungeness crab populations up and down the Salish Sea), and settlement plates located at 9 locations in False Creek. These activities were supported by a cadre of volunteers recruited by the False Creek Friends Society to engage the False Creek community and local school and community groups in citizen science. All observations of marine life collected through these initiatives were included in the BioBlitz iNaturalist project.
Over the Labour Day weekend (from September 2-7) 2022, representing the culmination of the BioBlitz, scientists from the Hakai Institute and partners from UBC, the Beaty Biodiversity Museum, and Biologica Environmental Services Ltd. collected data from the shore and water using a variety of scientific methods including:

- Shoreline and intertidal surveys on foot
- Subtidal surveys: plankton, soft sediment, diving, remotely operated vehicle, docks, eDNA, light traps

Figure 5. A researcher prepares a voucher specimen. Photo credit: Josh Silberg, Hakai Media.
The False Creek Friends Society also garnered participation from several local organizations during the Labour Day weekend to raise public awareness of some of the issues facing the False Creek environment. Community engagement events during this period included:

- Tables in various False Creek locations with the aim to activate conversations and encourage participation in the BioBlitz
- Tours of False Creek
- Photo exhibit and open-door lab to provide visual representation of life observed in False Creek
- Social media and traditional media campaigns

“The FCFS has worked hard to increase inclusivity throughout the campaign. This has been demonstrated through various engagement activities that have diversified the core team, opened discussions with Indigenous groups and nurtured partnerships across sectors.”
- FCFS Advisor

COMMUNITY ENGAGEMENT - Activities and Outcomes

A community engagement strategy for the False Creek BioBlitz was led by False Creek Friends Society with contributions from the lead collaborators and involved several other community partners:

- Vancouver School Board
- SeaSmart
- OceanWise
- Ocean Bridge
- Swim Drink Fish
- Science World
- Nature Vancouver
- Vancouver Maritime Museum
- False Creek Watershed Society
- Year of the Salish Sea

The community engagement success of the False Creek BioBlitz would not have happened without the buy-in and support from these organizations as well as the substantial support of the False Creek Friends Society cadre of over 40 volunteers.
Community Event Outreach

False Creek Friends Society kicked-off its outreach to the community and schools during the one-day Wild About Vancouver’s *TidalWAV 2022* event in May 2022. During the event False Creek Friends Society engaged with student groups and other community members about opportunities to participate in the BioBlitz.

School Activities

False Creek Friends Society connected with two experienced environmental educators from šxʷwəθəqʼət Crosstown Elementary to introduce them to the False Creek BioBlitz and determine if there was interest in participating with their students. These teachers reached out to their colleagues at False Creek Elementary and Elsie Roy Elementary and provided leadership and support for teachers to create learning plans, develop resources, and to introduce the iNaturalist and Seek apps as a way to collect observations. Between May and June 2022, classes from these schools captured observations within the project area, with each class focusing on a separate group of wildlife (e.g., bird, insect, native plants), a successful strategy developed by the teachers to ensure students could achieve success with identification.

Light Trap Outreach

To create opportunities for community involvement in the light trap project, False Creek Friends Society invited several kids’ groups (e.g. a class from Elsie Roy Elementary, and youth groups from Wild Outside and NatureKids Vancouver) to visit the light trap to learn about the Sentinels of Change initiative and the BioBlitz, and to gain a “hands on” understanding of the role of community science and stewardship of place.

Figure 6: Wild Outside visit the light trap at Heather Civic Marina. Photo credit: Maggy Spence, FCFS.
Summer Camp

SeaSmart, a local marine conservation education organization that runs summer camps for children on the edge of the BioBlitz project area, was approached by members of False Creek Friends Society to consider including BioBlitz activities in their camp. Campers and camp leaders were introduced to a BioBlitz scientist which provided a valuable career experience and camp leaders were supported to learn how to lead a BioBlitz. Campers were also supported to identify species and made aware of the biodiversity of their camp location. Through these activities, campers developed an understanding of their role in a community science initiative.

Figure 7: SeaSmart campers participate in a BioBlitz at Kits point. Photo credit: Maggy Spence, FCFS.

"There was a mutual benefit to visiting the Sea Smart camp and introducing the BioBlitz: I was able to share my interest and passion for biodiversity with the campers and they were able to learn what this kind of scientist does for work and grow their understanding of their backyard."

- Kate Henderson, Tula Foundation

Youth Group

As a pilot strategy to explore how to connect youth to their local marine environment, youth volunteers were invited to participate in the BioBlitz by gathering bi-weekly during the summer to collect iNaturalist observations as a group. This was a rewarding and engaging activity for both the youth and False Creek Friends Society.

Labour Day Weekend Outreach

Key outreach over the Labour Day weekend intensive BioBlitz period was led by False Creek Friends Society to raise awareness, provide opportunities for education, and to encourage participation in the BioBlitz. Over the weekend outreach activities included:
- False Creek Friends tabling to educate and encourage participation about the False Creek BioBlitz
- Community partners tabling to educate and encourage participation about the False Creek BioBlitz (Science World, Nature Vancouver, Vancouver Maritime Museum, False Creek Watershed Society and Year of the Salish Sea)
- The Fernando Lessa ‘False Creek is Alive’ exhibit and Find the Creature activity for kids
- ‘Meet a Scientist’ tables (Science World and Hakai Institute)
- Social media outreach
- iNaturalist project outreach (journal updates)
- False Creek Revisited cultural tour, hosted by Ocean Bridge with presentations by Chief Bill Williams (Squamish Nation) and Talaysay Tours (affiliated event)
- Water Pollution in False Creek: After Settlement and Now: A walking tour on the shores of False Creek hosted by False Creek Watershed Society’s Celia Brauer and Dr. Vicki Marlatt (affiliated event)

Figure 8. Activity for children to accompany the False Creek is Alive exhibit. Photo by FCFS.
Strategic locations were identified for tables, including outside the community centres being used as labs and popular tourist attractions (Science World, Vancouver Maritime Museum) to maximize opportunities for conversation with the public along the False Creek seawall.

All community partners and volunteers received an Info Package (Appendix 1: Community Partner Package) that outlined relevant details and provided a day-by-day overview of all activities and partners involved.

All community partners were responsible for tracking the number of interactions with the public and the number of False Creek Friends Society volunteers involved (Table 1). Overall, just over 1,180 members of the public visited an outreach activity during the four days of activities and over 40 volunteers provided support.
Table 1. BioBlitz Labour Day Weekend outreach numbers

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th># Public Interactions</th>
<th># FCFS Volunteers</th>
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<tr>
<td><strong>Friday</strong></td>
<td></td>
<td></td>
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<td><strong>September 2</strong></td>
<td>1) False Creek Friends/Nature Vancouver - Table</td>
<td>33</td>
<td>2</td>
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<tr>
<td></td>
<td>2) OceanWise - Table</td>
<td>48</td>
<td>8</td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
<td></td>
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<td><strong>September 3</strong></td>
<td>1) Vancouver Marine Museum - Table</td>
<td>26</td>
<td>1</td>
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<td></td>
<td>2) False Creek Friends Society – Table</td>
<td>45</td>
<td>6</td>
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<tr>
<td></td>
<td>3) Fernando Lessa exhibit</td>
<td>206</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>4) Meet a Scientist – Table</td>
<td>32</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>5) OceanWise – Table</td>
<td>55</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>6) Science World – Table</td>
<td>180</td>
<td>0</td>
</tr>
<tr>
<td>Sunday</td>
<td>September 4</td>
<td></td>
<td></td>
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<tr>
<td>---------------</td>
<td>-------------------------------------------------</td>
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<tr>
<td>1)</td>
<td>Vancouver Maritime Museum – Table</td>
<td>45</td>
<td>1</td>
</tr>
<tr>
<td>2)</td>
<td>False Creek Friends Society – Table</td>
<td>23</td>
<td>6</td>
</tr>
<tr>
<td>3)</td>
<td>Meet a Scientist – Table</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>4)</td>
<td>Ocean Bridge Boat Tour</td>
<td>35 (full capacity)</td>
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<th>September 5</th>
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<tbody>
<tr>
<td>1)</td>
<td>Lessa Exhibit/False Creek Friends/Year of the Salish Sea</td>
<td>600</td>
<td>8</td>
</tr>
<tr>
<td>2)</td>
<td>Ocean Bridge Boat Tour – Girls and STEAM</td>
<td>35 (full capacity)</td>
<td>0</td>
</tr>
<tr>
<td>3)</td>
<td>False Creek Watershed Society – Water Pollution in False Creek Walking Tour</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>4)</td>
<td>OceanWise – Table</td>
<td>31</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 11. False Creek is Alive exhibit at Granville Island. Photo credit FCFS.
MEDIA AND SOCIAL MEDIA

Given the location of False Creek and the extent to which the area forms a significant destination for multitudes of activities in and around its shoreline, it was not hard to imagine that initiating a significant activity such as a BioBlitz would generate attention both from traditional (e.g. TV, print and radio) and social media sources.

Attracting media attention for the project was a deliberate goal of the project as it had the potential to significantly raise the profile of the False Creek area and increase community and partnership buy-in to ensure the area continues to recover from its industrial past. It was also recognized as a way to augment the key messages and vision of the partners and their primary stakeholder/supporter the City of Vancouver. To this end a media and social strategy were developed and used to guide overall communications during the Labour Day event (Appendix 2: Media Report).

There was significant activity across many partner social media handles throughout the duration of the project. Key highlights from the social media attention include the following:

1. False Creek Friends Society used BioBlitz content to build their social media presence on Twitter and Instagram:
   a. Twitter: gained 209 followers between March and September; Twitter had the highest engagement overall for False Creek Friends Society, with the highest post (video) receiving 986 impressions
   b. Instagram: gained 69 followers from Aug 15-Sept 15

2. Engagement by members of the Hakai Institute twitter community on the #FalseCreekCreatureCrown bracket post-event campaign:
   a. 14,000 impressions and 1,229 engagements on first bracket tweet
   b. >60,000 impressions on bracket tweets as a whole
   c. ~3,000 total votes across rounds
   d. 200% increase in profile visits compared to previous month

3. The City of Vancouver Greenest City social channels were utilized, leveraging a large local following to promote the Labour Day event:
   a. A total of 14,572 impressions and 416 engagements from 13 Instagram, Twitter and Facebook posts between August 22 and September 5.
   b. The highest achieving post was a single Twitter post on August 22 that gained 5,293 impressions and was retweeted 24 times.

4. The iNaturalist platform garnered opportunistic awareness of the BioBlitz, leading to the following participants:
   a. 279 observers
   b. 381 identifiers
Overall Twitter, Instagram and iNaturalist provided important online platforms for community members to learn more and get involved with the False Creek BioBlitz. They encouraged many people to participate in the BioBlitz in an easy-to-use and accessible way and allowed inclusion of people outside of the local area. Posts with the highest engagement can be summarized into the following areas:

1. Short videos (reels) highlighting people and specific events or efforts
2. Educational content - ex. “What is a BioBlitz” post
3. Posts about upcoming events and a link to learn more
4. Posts about how to get involved and participate in the BioBlitz

Leading up to the start of the Labour Day weekend, traditional media outlets in British Columbia were sent a media brochure outlining the event and planned activities, and a media announcement and FAQs were posted on the False Creek Friends Society website. Despite early attempts to generate media coverage, no responses were received from these efforts. However, this lack of early engagement did not mean that the event was not of interest to the media in the end.

While an article was published about the event in The Tyee prior to the weekend, it was not until September 3 that the majority of traditional media began covering the event. This included interviews with Dr. Matt Whalen of Hakai Institute and Tim Bray, co-founder of False Creek Friends Society who participated in several interviews that were subsequently aired on CBC, CTV and Global TV. The Vancouver Sun ran a print article on September 7 and Kate Henderson from the Tula Foundation and Kira Leeb from FCFS participated in a radio interview with CKNW as the BioBlitz wrapped up on September 8. The full media report can be found in Appendix 2. Overall, there were 12 individual news items across the traditional media outlets. Key messages from both partner organizations were reflected in the coverage and the lead spokespeople did a fantastic job of conveying the goals of the BioBlitz.

The traditional media coverage also served the intended purpose of drawing attention to the objectives of the False Creek Friends Society and creating greater community momentum and potential for future involvement in initiatives.

Photographers and videographers from the Beaty Biodiversity Museum and the Hakai Institute were involved each day to document the field and outreach efforts each day to provide media assets upon request.
SCIENTIFIC INVESTIGATION: Methods and interim results

While quantitative assessment of biodiversity changes in False Creek are difficult, previous studies (see References) provide a touchstone to work undertaken during the 2022 False Creek BioBlitz and helped formulate the guiding scientific hypotheses as follows:

$H_1$: False Creek today contains linear gradients in biodiversity from English Bay to False Creek Flats due to differences in water residence time and levels of pollution.

$H_{1o}$: There is no consistent gradient in biodiversity as one traverses False Creek from one end to the other.

$H_2$: Biodiversity in False Creek is increasing over time following some unknown nadir during the period of heavy industrial activity

$H_{2o}$: Biodiversity is not changing over time in False Creek

$H_3$: Sediment pollution levels are decreasing in False Creek over time due to discontinued use and sediment remediation.

$H_{3o}$: Pollution levels remain at similar levels to what they were 50-100 years ago.

SCIENCE COLLABORATORS

Three additional collaborators beyond the core partners were pivotal to the successful planning and execution of the scientific portion of the BioBlitz. Specifically, these partnerships were with Biologica Environmental Services Ltd. (Biologica), Emerald Sea Protection Society, Skookum Yacht Services and the University of British Columbia.

Biologica co-designed the sediment grab sampling for the BioBlitz with Hakai scientists and contributed staff, time, and materials towards field work, laboratory processing of invertebrate specimens during the BioBlitz, and further processing of invertebrate samples (taxonomic identification, sorting, enumeration) at their lab space in Victoria, BC, after the BioBlitz.

Emerald Sea Protection Society provided their time and expertise on the vessel Storm, a 40 ft. aluminum craft often used by the Society to remove and haul derelict fishing gear. Founder Bourton Scott provided his time as boat captain during the eDNA and oceanography sampling and during the benthic invertebrate sampling (four days total). This level of in-kind support was critical to fulfilling project objectives.

Skookum Yacht services provided personnel time and the vessel, Lucky Dog (24 ft Maritime Weedo 710 Tug), for a variety of activities including plankton tows, settlement
plate retrieval, light trap collections, and ROV operations. They provided a captain for the boat each day, and the time for the captain and use of the boat were offered in-kind.

Additionally, multiple groups and individuals within University of British Columbia participated in the BioBlitz: 1) Members of the Pelagic Ecosystems Lab from UBC joined in the lab work and outreach events over three days, 2) Derek Tan from the Beaty Biodiversity Museum covered the event taking photographs and conducting interviews, 3) Karen Needham and her team conducted a survey of insects, and 4) members of the Martone, Harley, and O’Connor Labs participated in field surveys.

Figure 12: Hakai scientists collecting specimens under the Granville St. Bridge. Photo credit: Kelly Fretwell, Hakai Media.

OVERVIEW OF METHODS

Gathering data in and around the False Creek area involved a multi-pronged data collection approach. The majority of data were collected during the Labour Day weekend event. The following were utilized for each type of sampling:

eDNA

We conducted an urban environmental DNA (eDNA) study within False Creek to survey biodiversity broadly across the tree of life and across hypothesized gradients in biodiversity from one end of False Creek to the other. In total, we visited 12 sampling locations aboard Storm, which were the same 12 stations visited for oceanographic sampling.
Oceanography
A suite of oceanographic data was collected from the 12 sites described for eDNA sampling above in order to establish the environmental context for biodiversity patterns from other biological sampling, especially eDNA and sediment infauna. These samples included CTD measurements, nutrient samples, fixed phytoplankton samples, and carbon dioxide partial pressure samples. Additionally, opportunistic zooplankton tows were conducted from the mouth of False Creek on the mornings of 3-5 September.

Sediment Grab Sampling
We targeted sediments for biodiversity collections because the fauna in these environments are known to reflect environmental conditions including water quality and
disturbance regimes. We collected sediments from eight of the 12 sites sampling visited for the paired urban eDNA and oceanography components of the study.

Figure 14: Hakai scientist processes a sediment sample. Kelly Fretwell, Hakai Media.

**ROV and other underwater videography**

Hakai Institute brought ROV *Tilden* to False Creek to survey habitats on the seafloor. The surveys consisted of target geolocations for launching the ROV, followed by roving surveys of the seafloor in a circular radius around each location. The ROV was occasionally diverted from this circular reconnaissance to seek areas of interest observed while underway.

Additionally, towed video and baited traps operated by Joe Valencic supplemented the footage from the ROV and captured several organisms and habitat features not observed by ROV.

**Settlement Plates**

Fabrication of the settlement plates was conducted by volunteers during an event organized by False Creek Friends Society. Settlement plates were made out of 13cm x 13cm PVC, and attached to bricks and 2m lengths of rope. Eight civic dock sites were identified as settlement plate locations. Each site was adopted by a FCFS volunteer who installed groups of 5 plates at 1m depth at each site. Plates were submerged for 60 days, at which time they were brought to surface, photographed and percent coverage of each
visible species was recorded. Plate retrieval and photography was completed with support of volunteers adoptive when possible. Remaining material was brought to the lab for further identification by Hakai and Biologica science teams.

Light Trap
Light traps were submerged at two locations (Heritage Harbour and Heather Civic Marina). The main trap, located at Heather Civic marina, was checked by Friends of False Creek volunteers every other day between 15 April and 1 September, and both traps were checked daily by FCFS volunteers or Hakai Institute staff during the Labour Day weekend event. All larger species collected were photographed with a ruler, and added to iNaturalist, while bulk collections were returned to the pop-up laboratory for further analysis.

Figure 15. Hakai scientists check a light trap at Heather Civic Marina. Photo Credit: Josh Silberg, Hakai Media.

“Seeing the creatures in the light trap has given me a far greater understanding of the biodiversity of False Creek, and of how all of the waterways are connected and are impacted by the urban environment.”

-False Creek Friend volunteer
Intertidal Sampling

On three occasions (July 13 and 14, and September 6) a small team of researchers (2-8 people) ventured into the intertidal zone in and around False Creek to contribute iNaturalist observations and collect specimens.

Figure 16. Hakai scientists survey the intertidal zone at Kits Point. Photo credit: Kelly Fretwell, Hakai Media.

Insect Sampling

A team from the Beaty Biodiversity Museum visited the ponds at Vanier Park on a one-day survey to contribute iNaturalist observations and collect insects. A total of 27 vouchers were collected, including two newly reported species introduced to British Columbia: *Myathropa florea* (2nd specimen accessioned at the Beaty Biodiversity Museum), *Isodontia mexicana* (first specimen accessioned at the Beaty Biodiversity Museum).

Bird Survey

Faye Manning from Hakai Institute and Ben Freeman of UBC designed a near synoptic one-day survey of birds around False Creek to be compatible with contributing observations to eBird and iNaturalist. Survey participants split into two teams, starting at either side of the mouth of False Creek and each team walked east until they met. Results are in progress.
Table 2. High-level schedule of sampling methods by date.

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<tr>
<th>Date</th>
<th>Methods</th>
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<td>July 13-14</td>
<td>Intertidal Sampling</td>
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<td>Friday September 2</td>
<td>Field: iNat meetup terrestrial focus&lt;br&gt;Lab: Set up</td>
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<tr>
<td>Saturday September 3</td>
<td>Field: eDNA&lt;br&gt;Oceanography&lt;br&gt;Plankton tow&lt;br&gt;ROV surveys&lt;br&gt;Settlement plate collection&lt;br&gt;Lab: Invertebrate ID, voucher prep</td>
</tr>
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<td>Sunday September 4</td>
<td>Field: eDNA collection&lt;br&gt;Oceanography surveys&lt;br&gt;ROV surveys&lt;br&gt;Settlement plate&lt;br&gt;Lab: Invertebrate ID, voucher prep</td>
</tr>
<tr>
<td>Monday September 5</td>
<td>Field: Settlement plate&lt;br&gt;Sediment grab sampling&lt;br&gt;Lab: Invertebrate ID, voucher prep</td>
</tr>
<tr>
<td>Tuesday September 6</td>
<td>Field: Sediment grab sampling&lt;br&gt;Intertidal survey and sampling&lt;br&gt;Lab: Invertebrate ID, voucher prep</td>
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<tr>
<td>Wednesday September 7</td>
<td>Lab: Invertebrate ID, voucher prep&lt;br&gt;Take down</td>
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HIGH-LEVEL RESULTS

The tables below provide a summary of the bio-sampling by the numbers as well as observations collected in the iNaturalist app.

Table 3: Hakai Institute effort - by the numbers

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<tr>
<th>Item</th>
<th>Details (if applicable)</th>
<th>Count</th>
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<td>Sampling days</td>
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<tr>
<td></td>
<td>September (Labour Day event)</td>
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<td>Unique sampling stations</td>
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<tr>
<td></td>
<td>insects</td>
<td>27</td>
</tr>
<tr>
<td>eDNA samples</td>
<td>triplicate measurements per site, two depths per</td>
<td>72</td>
</tr>
<tr>
<td>Item</td>
<td>Details (if applicable)</td>
<td>Count</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Benthic invertebrate grabs</td>
<td>fixed</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>extra (specimens, sediments)</td>
<td>8</td>
</tr>
<tr>
<td>Plankton Tows</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Light trap nights</td>
<td>two traps total</td>
<td>8</td>
</tr>
<tr>
<td>Settlement plates retrieved</td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

Table 4: iNaturalist effort - by the numbers. Status is incomplete; last updated 29 September 2022.

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>observations</td>
<td>2,116 (940 research grade)</td>
</tr>
<tr>
<td>observers</td>
<td>279</td>
</tr>
<tr>
<td>identifiers</td>
<td>381</td>
</tr>
<tr>
<td>research-grade species</td>
<td>250</td>
</tr>
<tr>
<td>days</td>
<td>109</td>
</tr>
<tr>
<td>unique taxa</td>
<td>551</td>
</tr>
<tr>
<td>project members</td>
<td>51</td>
</tr>
</tbody>
</table>
CONCLUSIONS AND NEXT STEPS

The BioBlitz 2022 project achieved both high levels of engagement across the many activations and outreach, and succeeded in capturing observations of biodiversity from a wide variety of survey methods. Overall reach of the BioBlitz through community engagement and science initiatives, both through public interactions and the development of a volunteer cadre, exceeded the expectations of lead partners. With respect to the scientific component of the BioBlitz, the execution of the methods went as planned and successful data collection occurred. Observations will continue to be added to the iNaturalist project and other open-source biodiversity databases (e.g., OBIS, eBird) once further steps to provide identification have occurred. When this information is paired with the oceanographic data collected, the picture of the environment of False Creek in summer 2022 will be described in an update to this report.

For False Creek Friends Society, next steps include continuing to strengthen and build relationships with community partners and continuing to work towards developing a roadmap to the establishment of a protected urban marine park in False Creek.

“I think that there has been a general increase in awareness and care about False Creek - not solely because of FCFS but because of opportunities like UN Decade of Ocean, IMPAC5 being in Vancouver, Hakai involvement, and people like Fernando Lessa and Streamkeepers and Swim Drink Fish and others working to advance collective goals.”
- False Creek Friend Director

For the Hakai Institute and the Ocean Decade Collaborative Center for the Northeast Pacific a future output for this project is to create a template and reproducible methodology for similar co-designed projects to take place in urban and non-urban areas throughout the Salish Sea as part of the Northeast Pacific Biodiversity Action Network project. Additionally, Hakai Institute is planning for continuing opportunities to engage the public in community science initiatives.

“When I see people in my community care about the ecosystems in which they live, it inspires me to do more.”
- Matt Walen, Hakai Institute Scientist
Figure 18: *False Creek is Alive* exhibit on the seawall beside Science World. Photo credit: False Creek Friends Society.

**ACKNOWLEDGEMENTS**

We are grateful to the x̱m̕məθkw̓əy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), and səl̓ilwətaɁ (Tsleil-Waututh) Peoples, who have provided stewardship to these lands since time immemorial.

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**APPENDICES**

APPENDIX 1: [Community Partner Information Package](#)
APPENDIX 2: [Media Report](#)

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REFERENCES AND RESOURCES


Cecilia Wong, unpublished Environment Canada (ECCC) report.


Historical shoreline information was accessed online at: waterproperties.ca