

# Sentinels of Change

## Larval Crab Light Trap Monitoring

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## Introduction

Dr. Bill Heath holds a Ph.D. in Marine Zoology from University of British Columbia

- 30+ years of research in shellfish biology and estuary restoration
- Co-Chair and Director on Board of Cowichan Estuary Restoration and Conservation Association (CERCA)
- Coordinator of Cowichan Bay site of the Larval Crab Light Trap Monitoring Study led by the Hakai Institute (<https://sentinels.hakai.org>)

# Overview

This Citizen Science-based study is focused on learning about the dispersal and arrival of Dungeness Crab larvae each year in BC coastal waters.

This information may be used to predict future crab population health. This crab species supports BC's second largest commercial fishery.

Background and Methods

Arrival and Dispersal of Larvae

Other Species Caught in Trap

## Life Cycle of a Dungeness Crab



# Light trap

## Components

- Plastic body with funnel entry
- Cod end for sample extraction
- Light bar to attract animals
- Timer and battery in Pelican case and floatation in bucket.

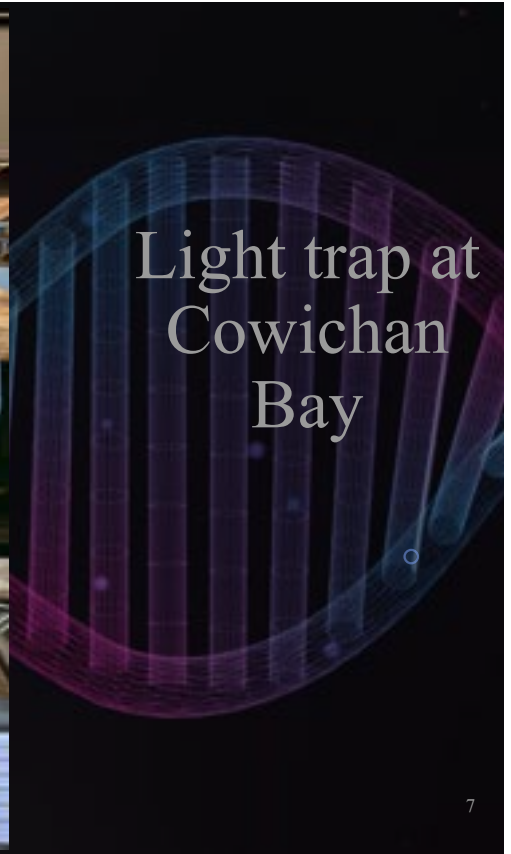
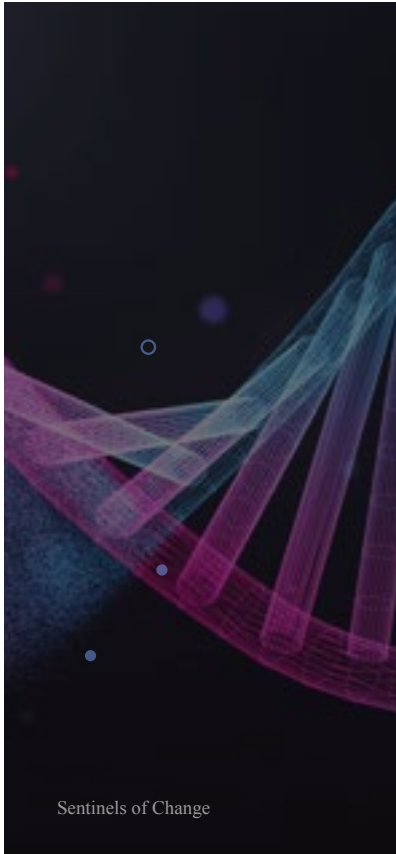
## Deployment

- On rope from floating dock
- 3 nights fishing per week, mid-April to September
- timer set to turn ON from dusk to dawn



# Light Trap “fishing”





# Light trap at Cowichan Bay

## Light Trap Sites and Dispersal Reporting (Hakai Institute)

### 2023 Larval Dungeness Crab Arrival



### Data form submission

- Observations are entered into a digital template or form in a.m. after fishing
- Form is submitted to Hakai via WiFi linked smartphone
- Hakai staff compile data and photos of sample and megalopae
- send out updates in Sentinels newsletter and at wind-up meeting in October.

# Dungeness megalopa larva

The main target in catch is megalopa (~3mm)

Counting or subsampling



# Example of whole Catch



# Interesting "Others"



Larval Opalescent Squid

# Gallery of Species



# iNaturalist project



## Stats

### Totals

**377**

Observations »

**76**

Species »

**28**

People »

### Most Observations

- cthorophila**  
38 observations
- janis2**  
33 observations
- alyson1201**  
32 observations
- heather805**  
28 observations
- nanoskiba**  
25 observations

### Most Species

- janis2**  
22 species
- cthorophila**  
12 species
- heather805**  
11 species
- nanoskiba**  
9 species
- grayshale**  
8 species

### Most Observed Species

- Dungeness Crab**  
25 observations
- Blacklegged King Crab**  
18 observations
- Kelp Pogonichthys**  
13 observations
- Pacific Sand Lance**  
11 observations
- Threespine Stickleback**  
10 observations

13

# 2022 Dungeness Results

Light Trap Site	First Dungeness	Total Dungeness
Boot Cove	July 1st, 2022	460
Cortes Bay	June 12th, 2023	75
Cowichan Bay	June 27th, 2022	421
Descanso Bay	June 14th, 2022	274
False Bay	July 9th, 2022	37
Ford Cove	June 4th, 2022	396
Heather Marina	June 22nd, 2022	1207
Heriot Bay	June 23rd, 2022	11
Hope Bay	June 4th, 2022	5015
Horseshoe Bay	June 20th, 2022	4094
Institute of Ocean Sciences	May 25th, 2022	83
Miners Bay	May 11th, 2022	4550
Pacific Biological Station	June 20th, 2022	105
Pacific Science Enterprise Centre	June 20th, 2022	3352
Pender Harbour	June 16th, 2022	110
Retreat Cove	May 9th, 2022	52
Silva Bay	June 7th, 2022	1761
Surge Narrows	June 10th, 2022	20

# 2023 results: Cowichan Bay

First Arrival: June 1

Total Dungeness megalopae and first juvenile instar: 5040

(Highest count for sites on southern Vancouver Island & S. Gulf Islands)

## Wind-up meeting at Hakai, Quadra I.







# Thank you

Bill Heath

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Co-Chair of CERCA

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