



Oyster Monitoring Programs

PEI Aquaculture

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March 5th , 2024



Outline

- Oyster Monitoring Program
- Oyster Growth
- Water Quality
- Shellfish Health
- Mortality Investigation



Oyster Monitoring Program

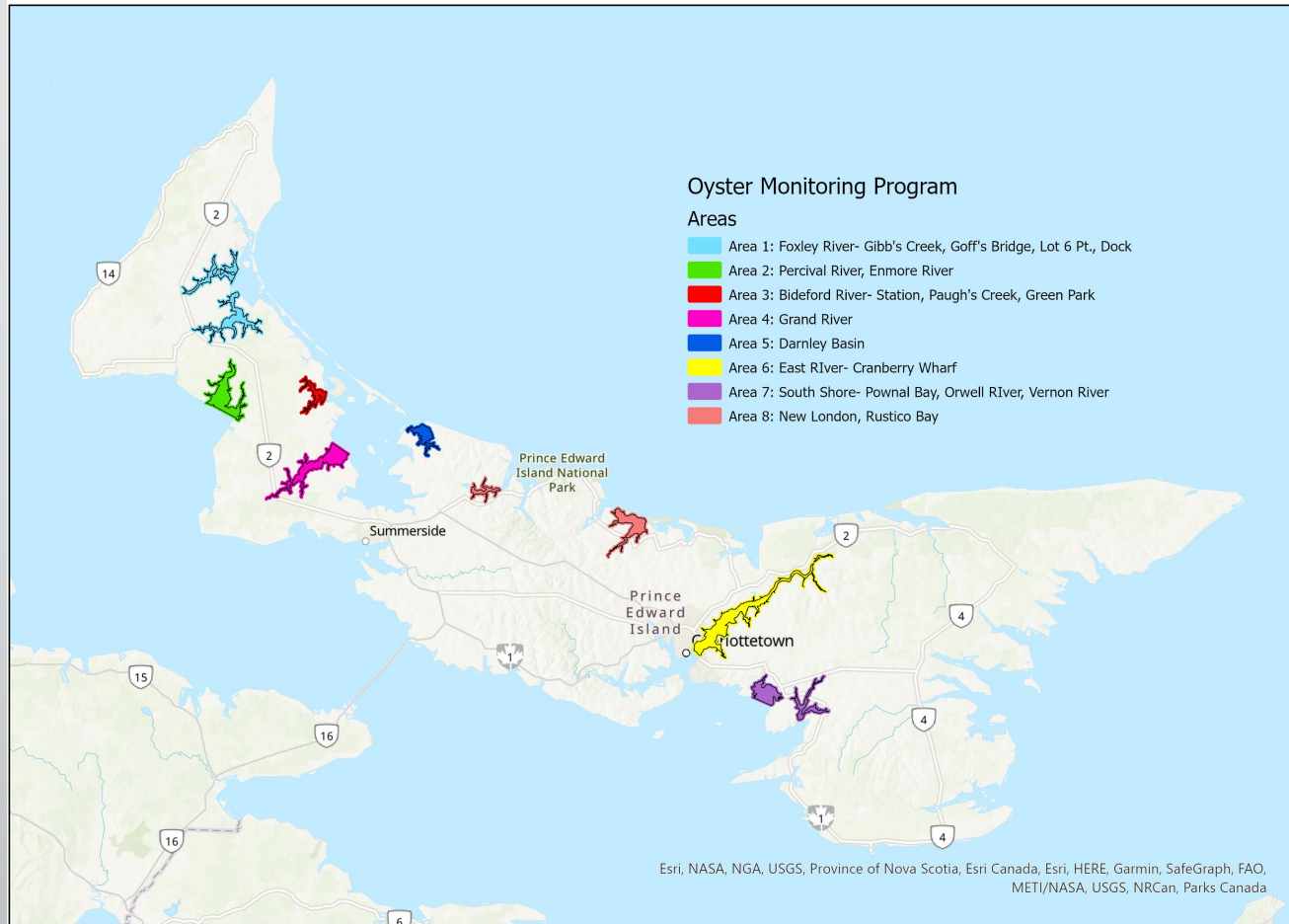
OMP Methods

Plankton Tows



- 5-minute tows; surface to mid-water
- Using a subsample, larvae counted and sized in the lab using microscope
- Total number, size ranges and concentration of larvae reported
- Comments – weather, tidal conditions and notes of interest

2023 Monitoring Sites

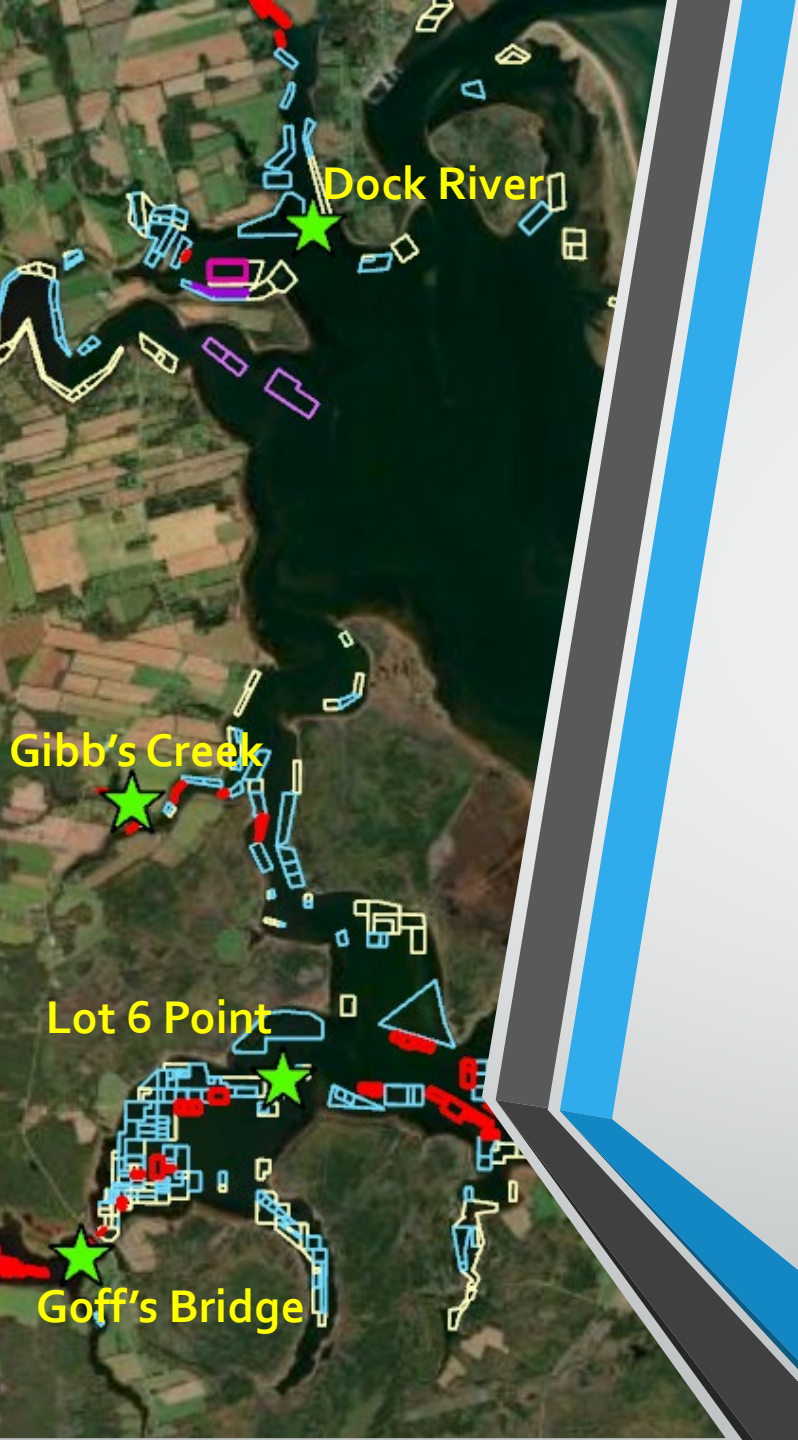


➤ Central/ Eastern PEI - 6 Sites

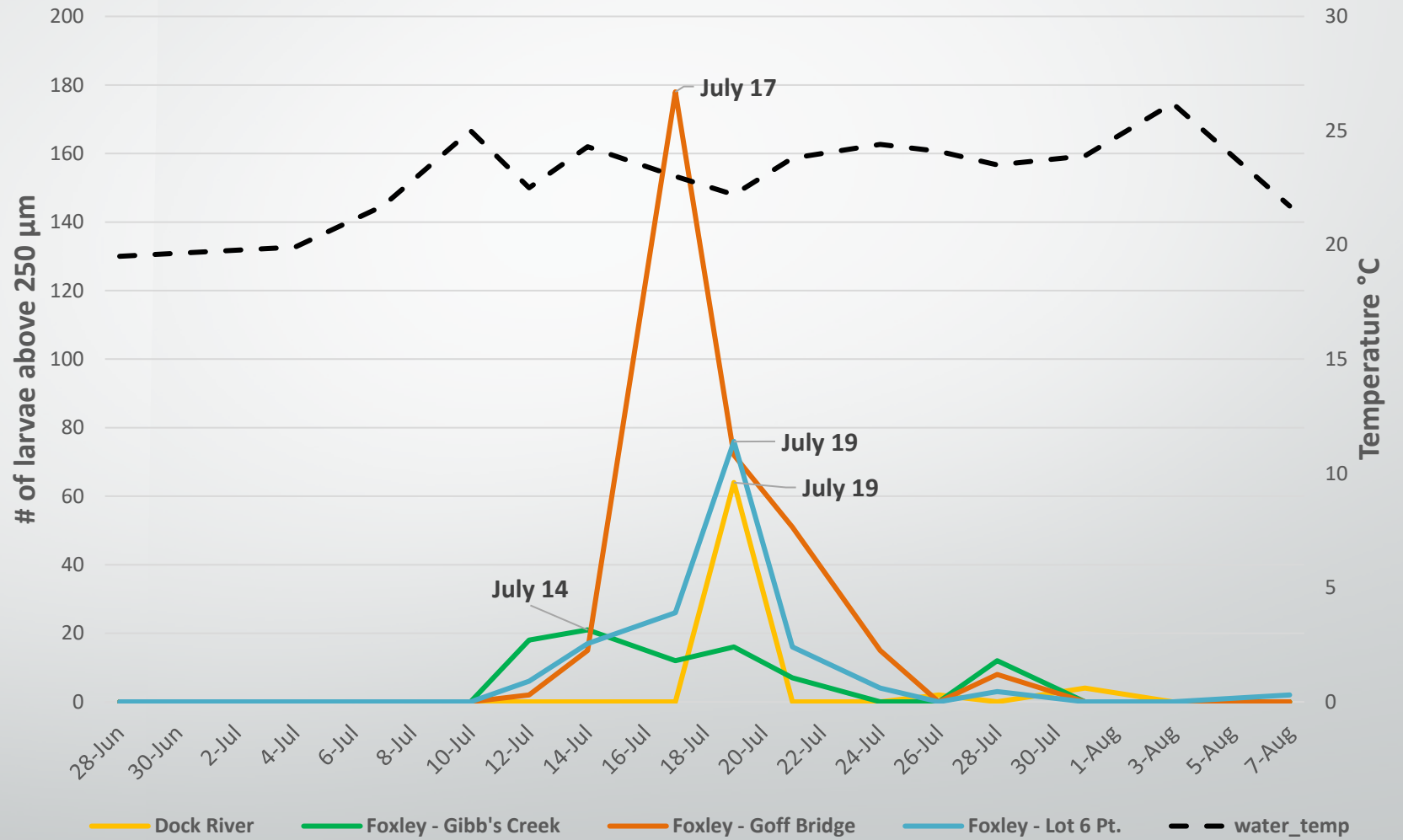
- East River
- Pownal Bay
- Orwell River
- Vernon River
- New London Bay
- Rustico Bay

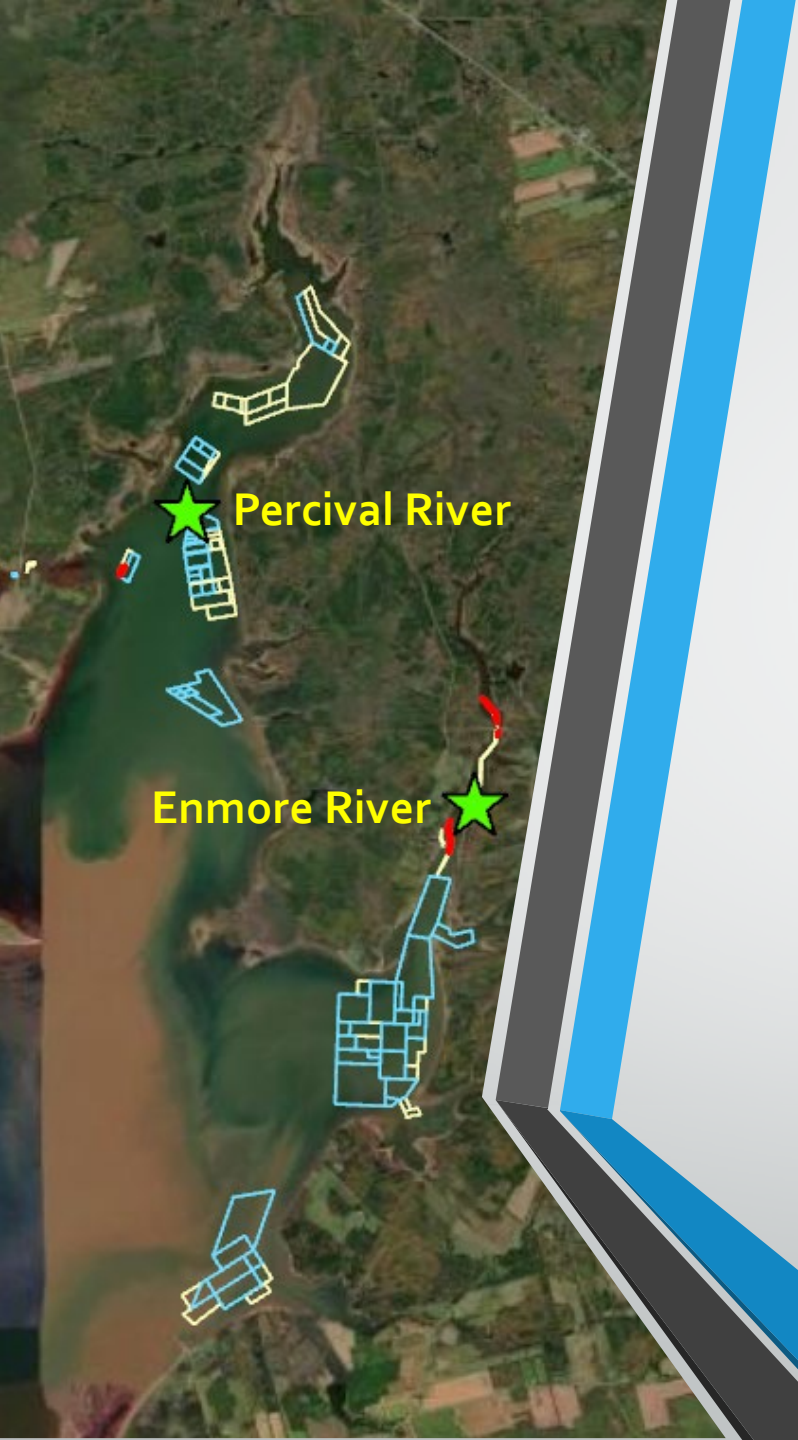
➤ Western PEI - 11 Sites

- Bideford River (3)
- Foxley River (3)
- Enmore River
- Percival River
- Dock River
- Darnley Basin
- Grand River

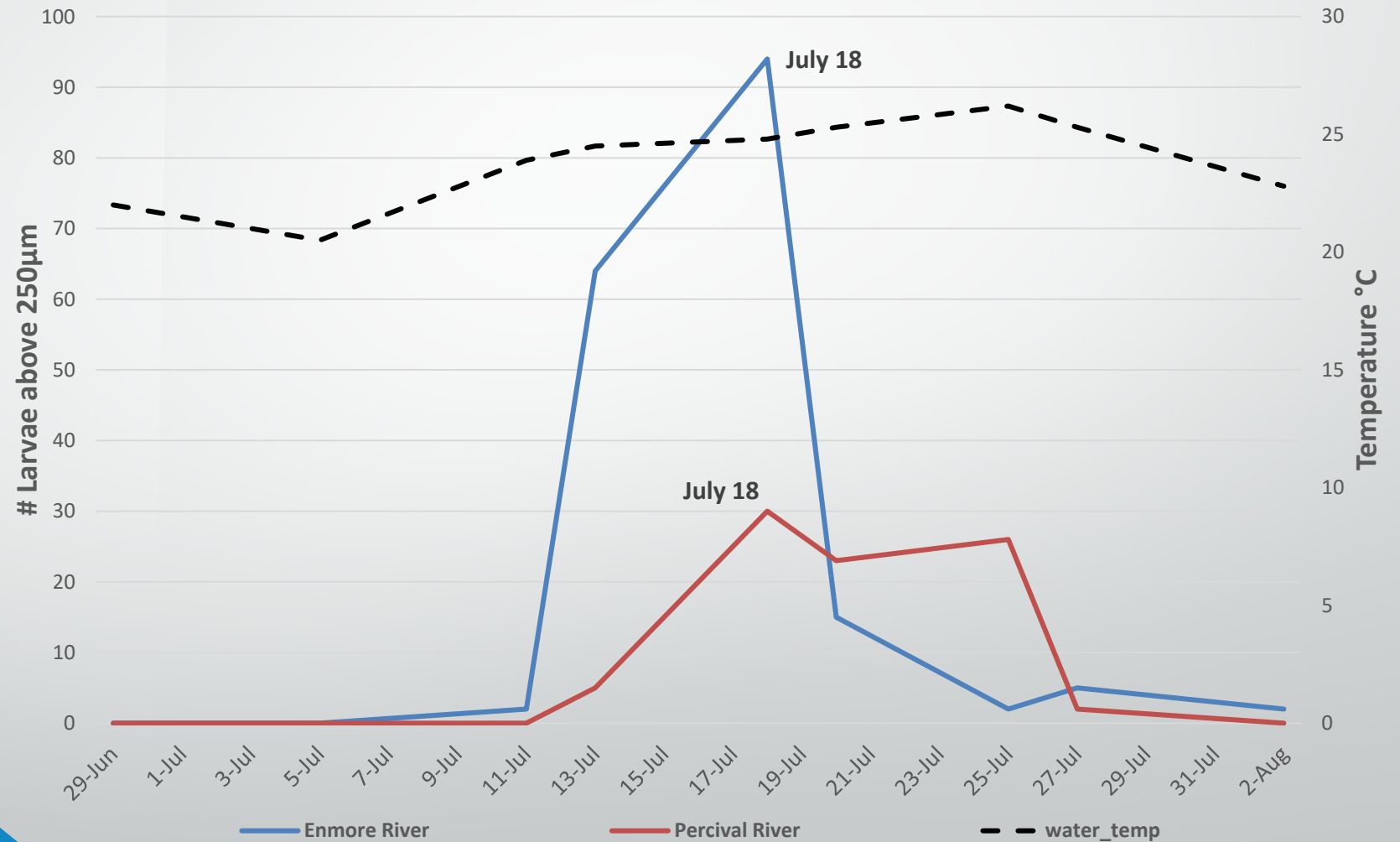


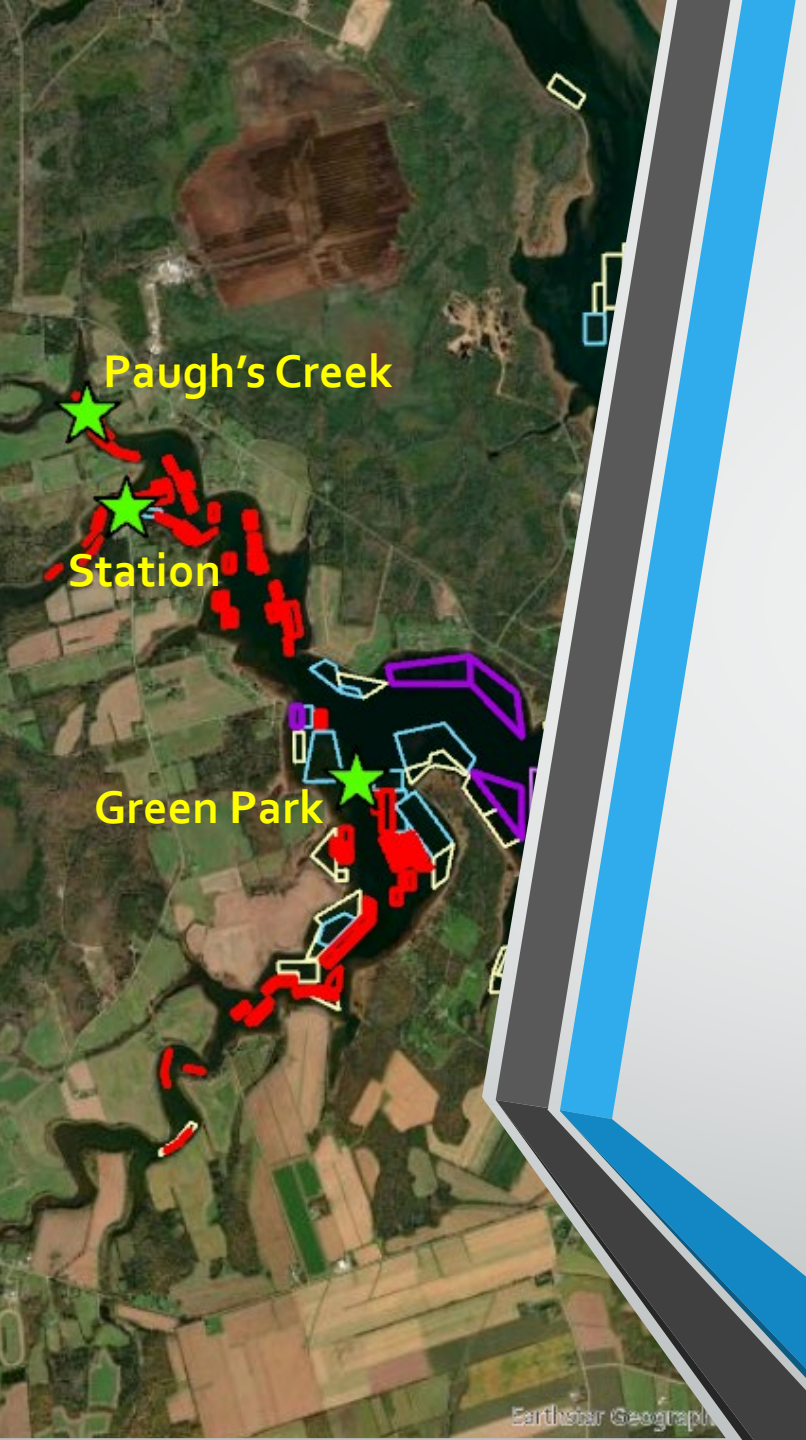
Oyster Larvae $>250\mu\text{m}$ *Foxley River*



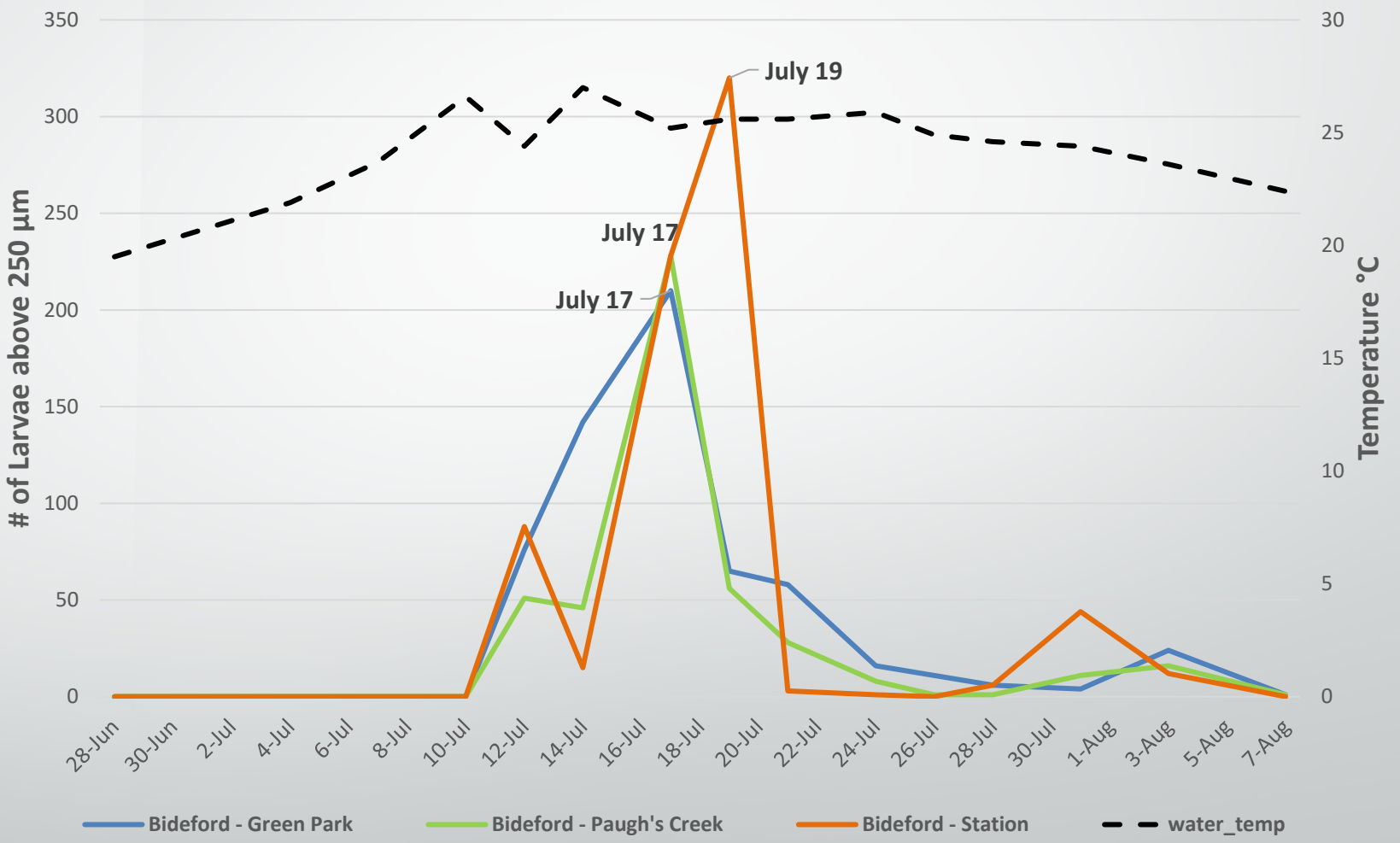


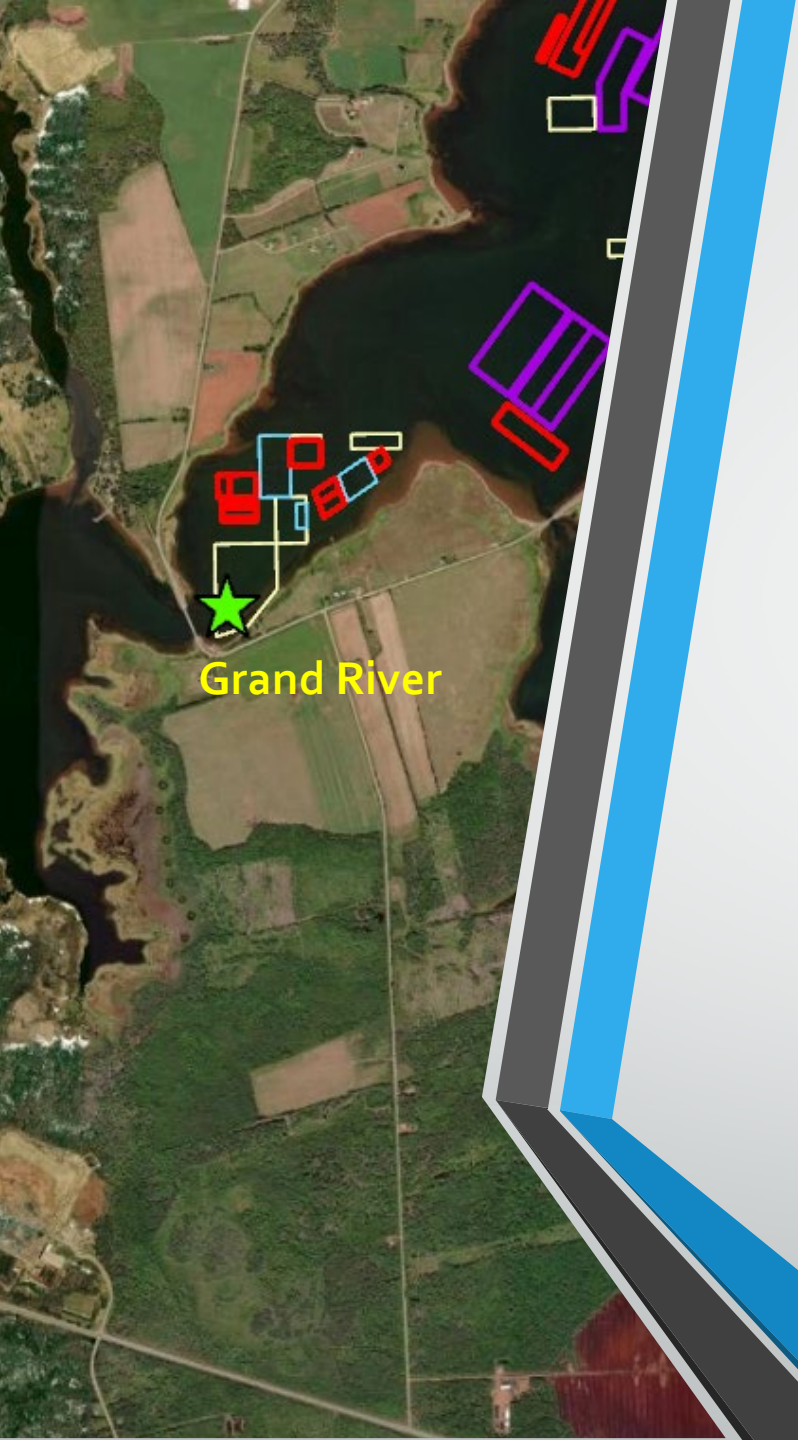
Oyster Larvae >250 μ m *Percival/Enmore Rivers*



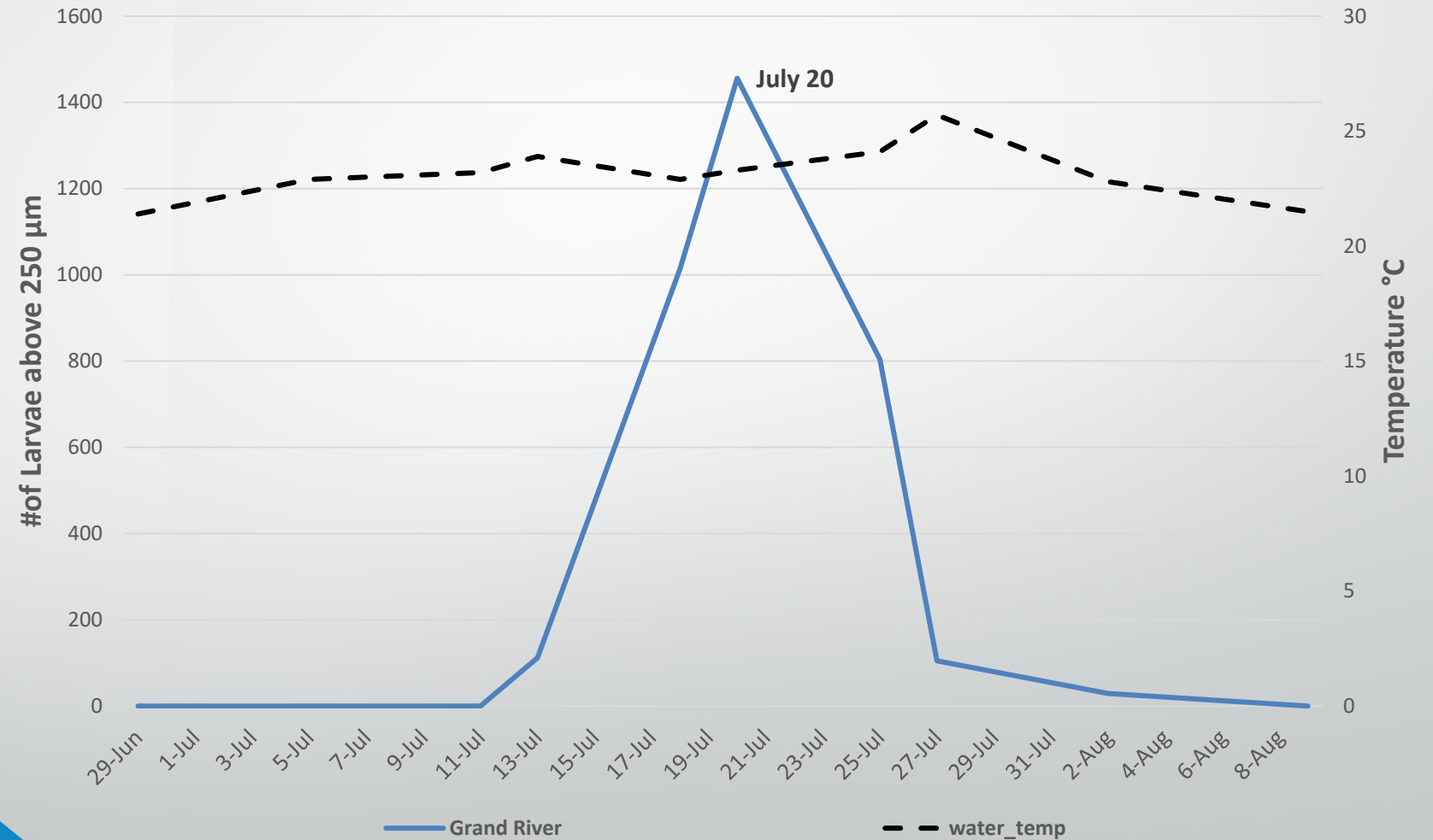


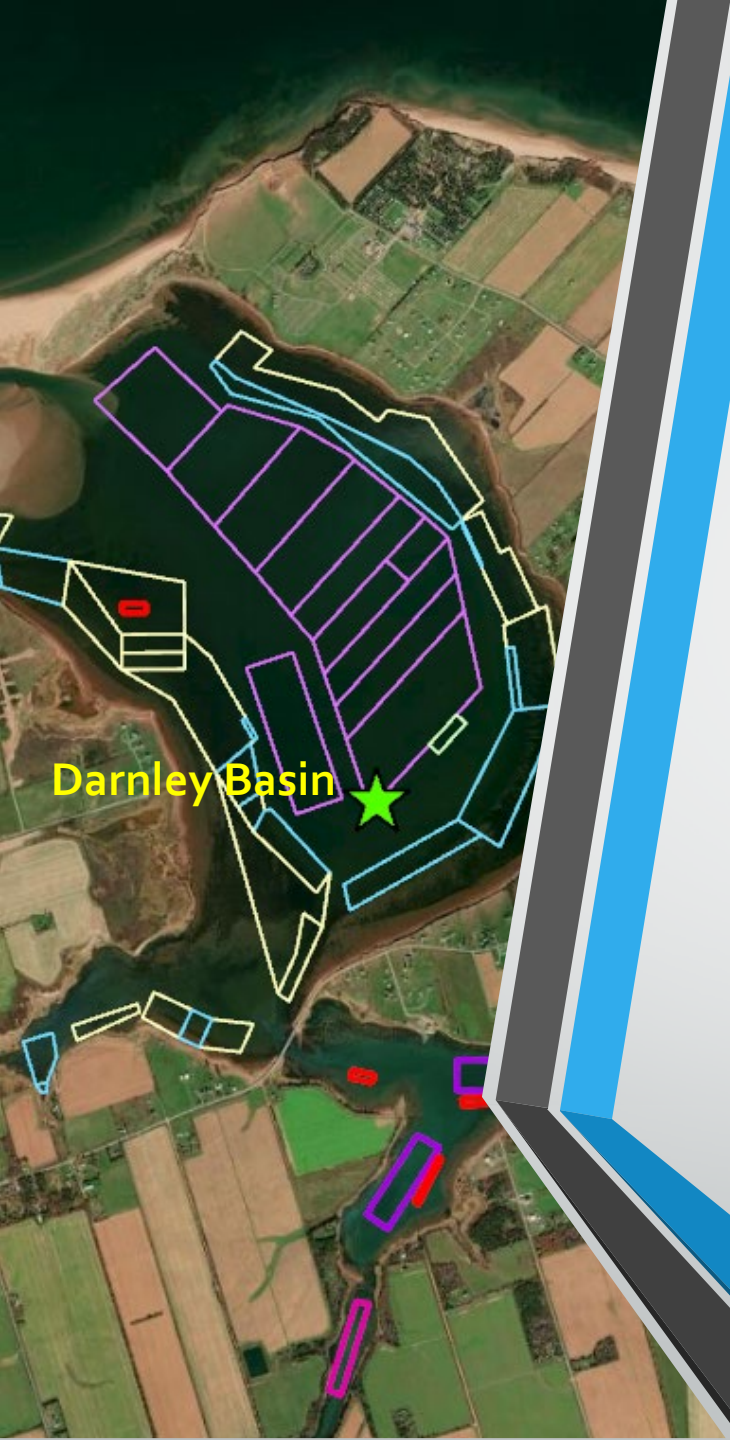
Oyster Larvae >250µm *Bideford River*



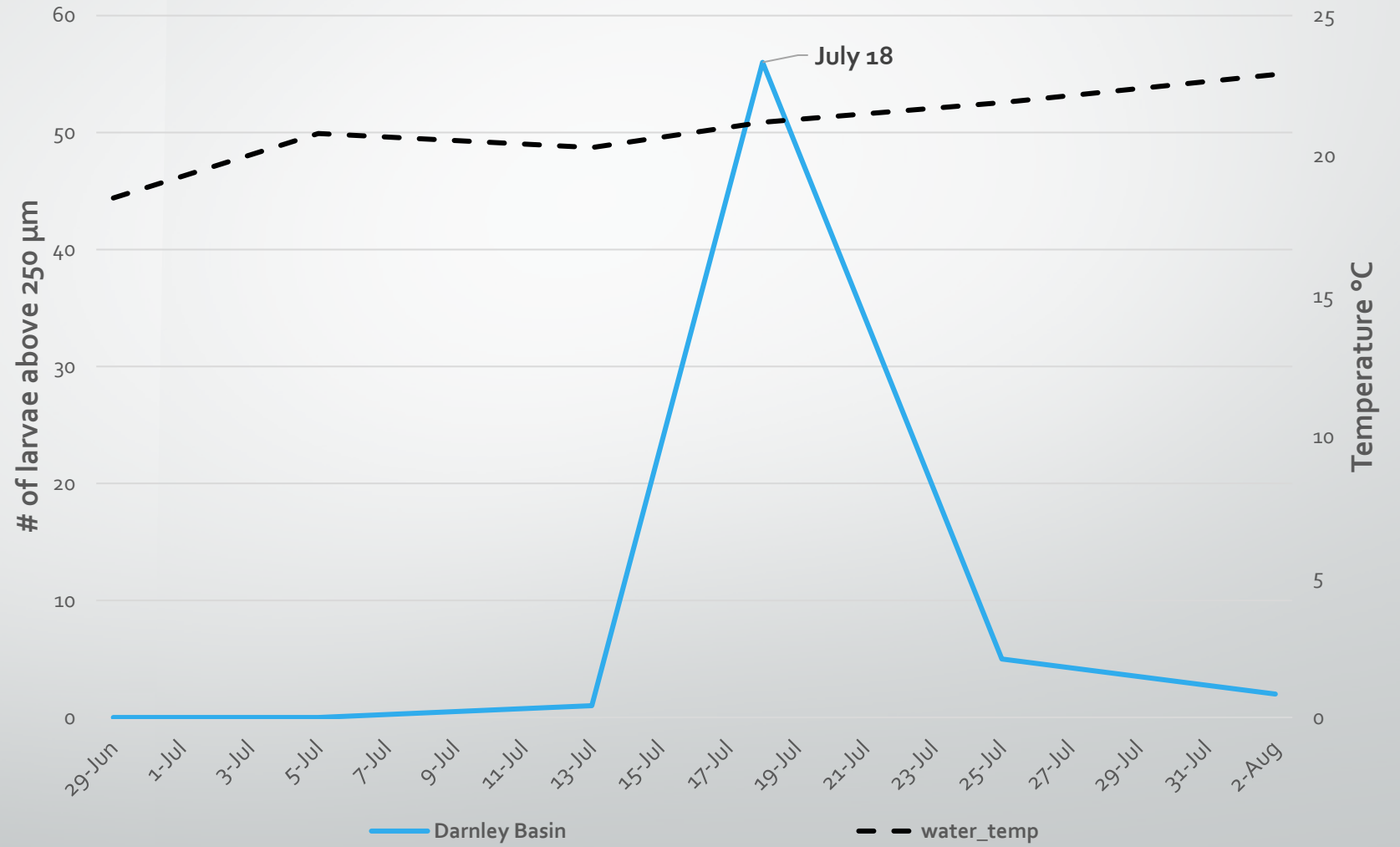


Oyster Larvae $>250\mu\text{m}$ *Grand River*



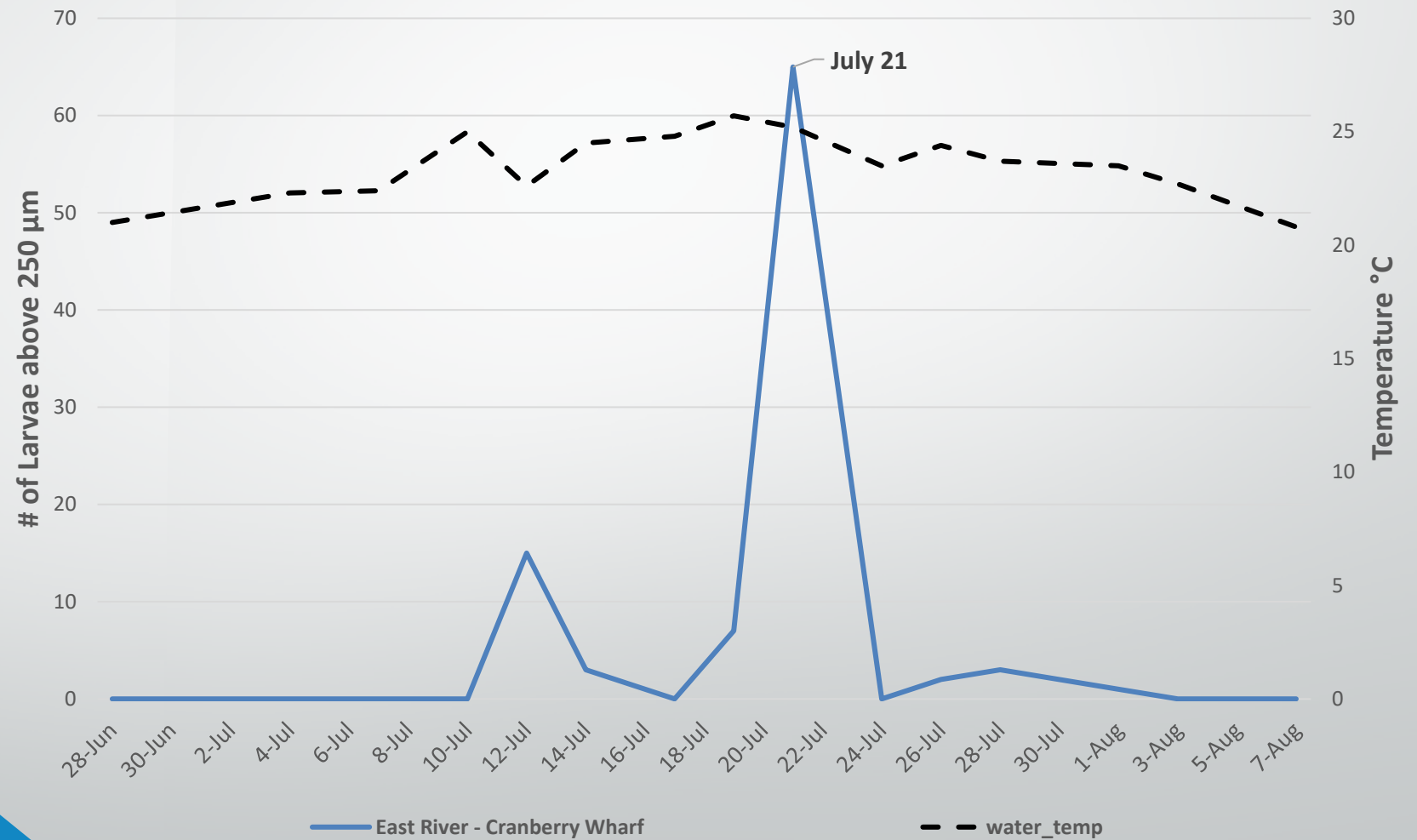


Oyster Larvae >250 μ m *Darnley Basin*



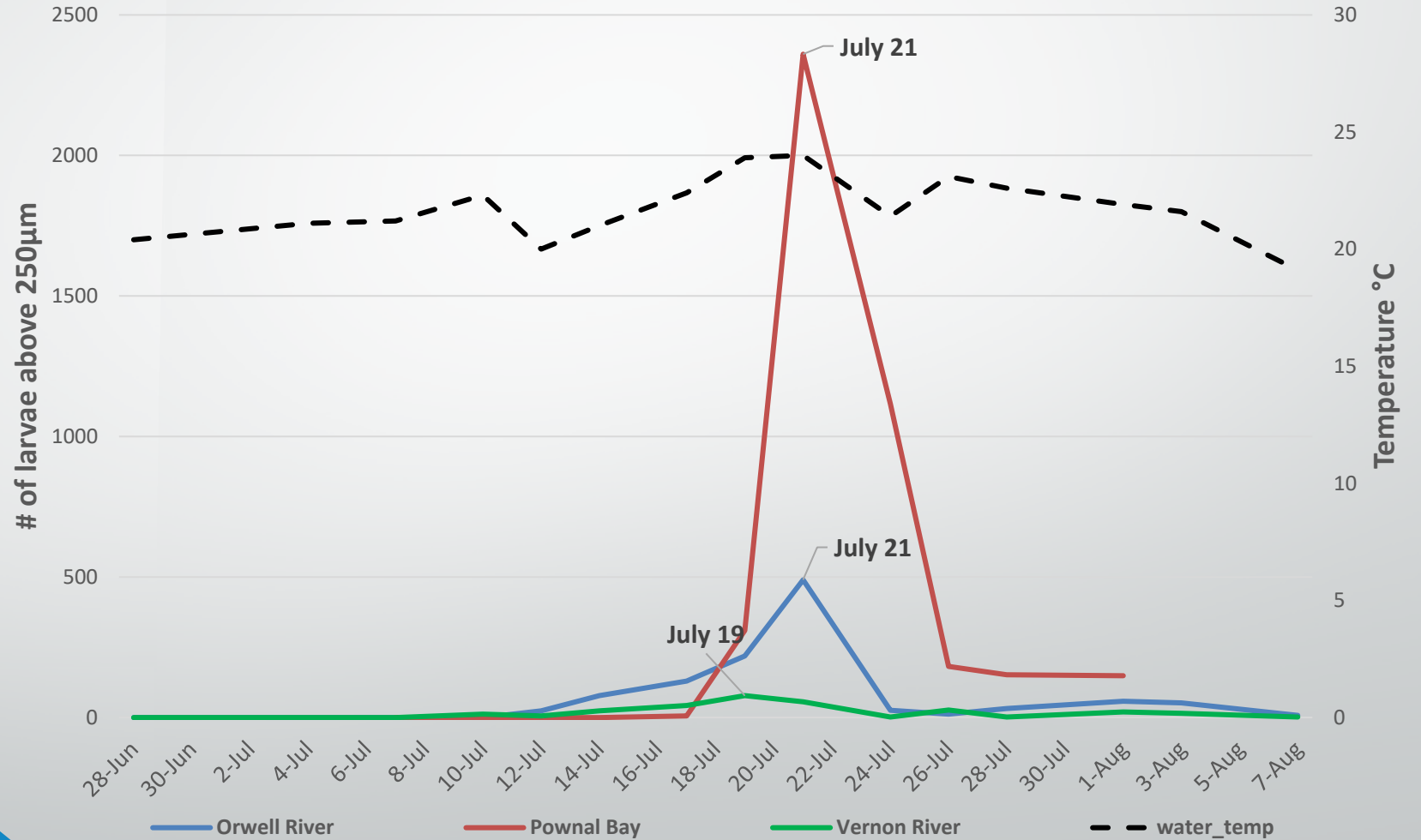


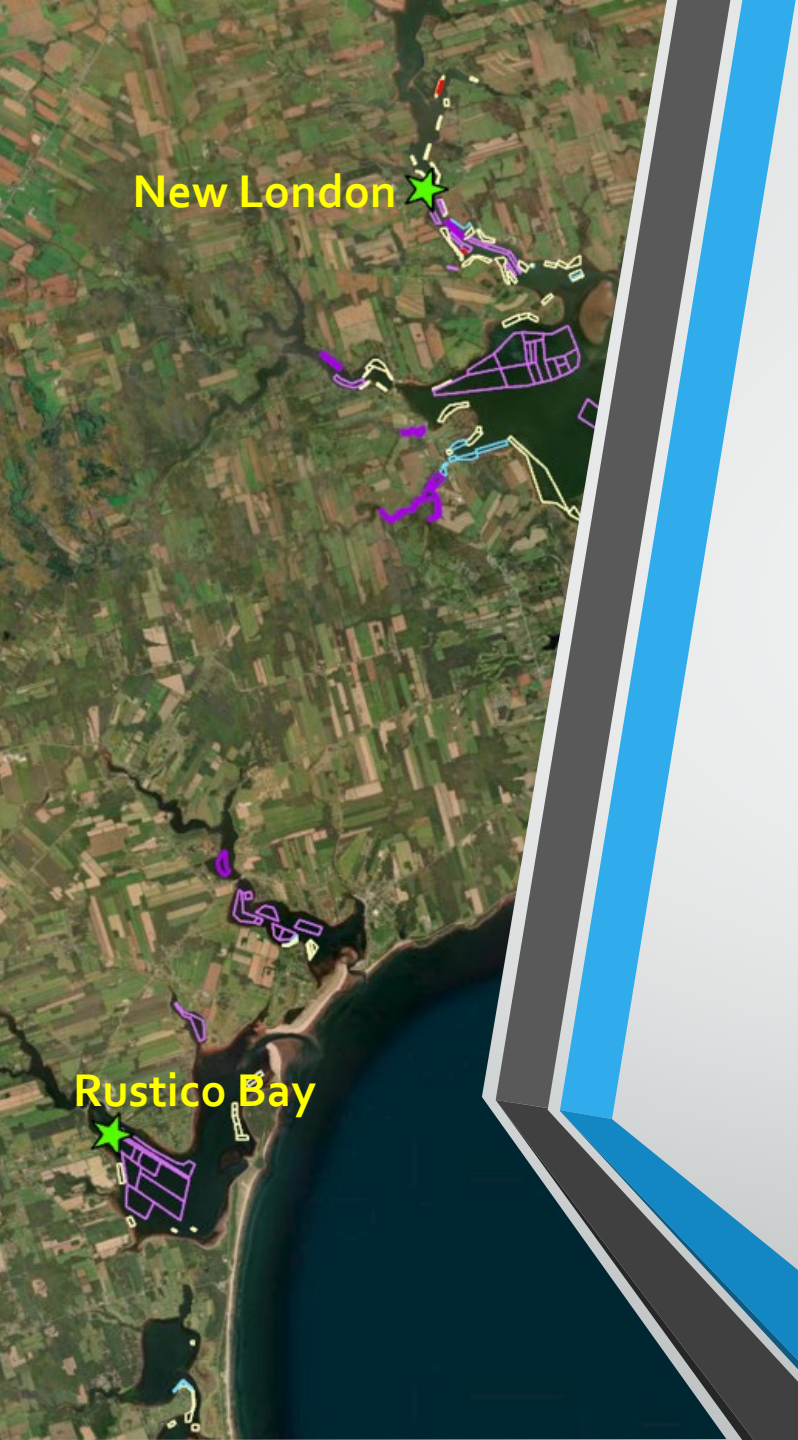
Oyster Larvae >250 μ m *East River*



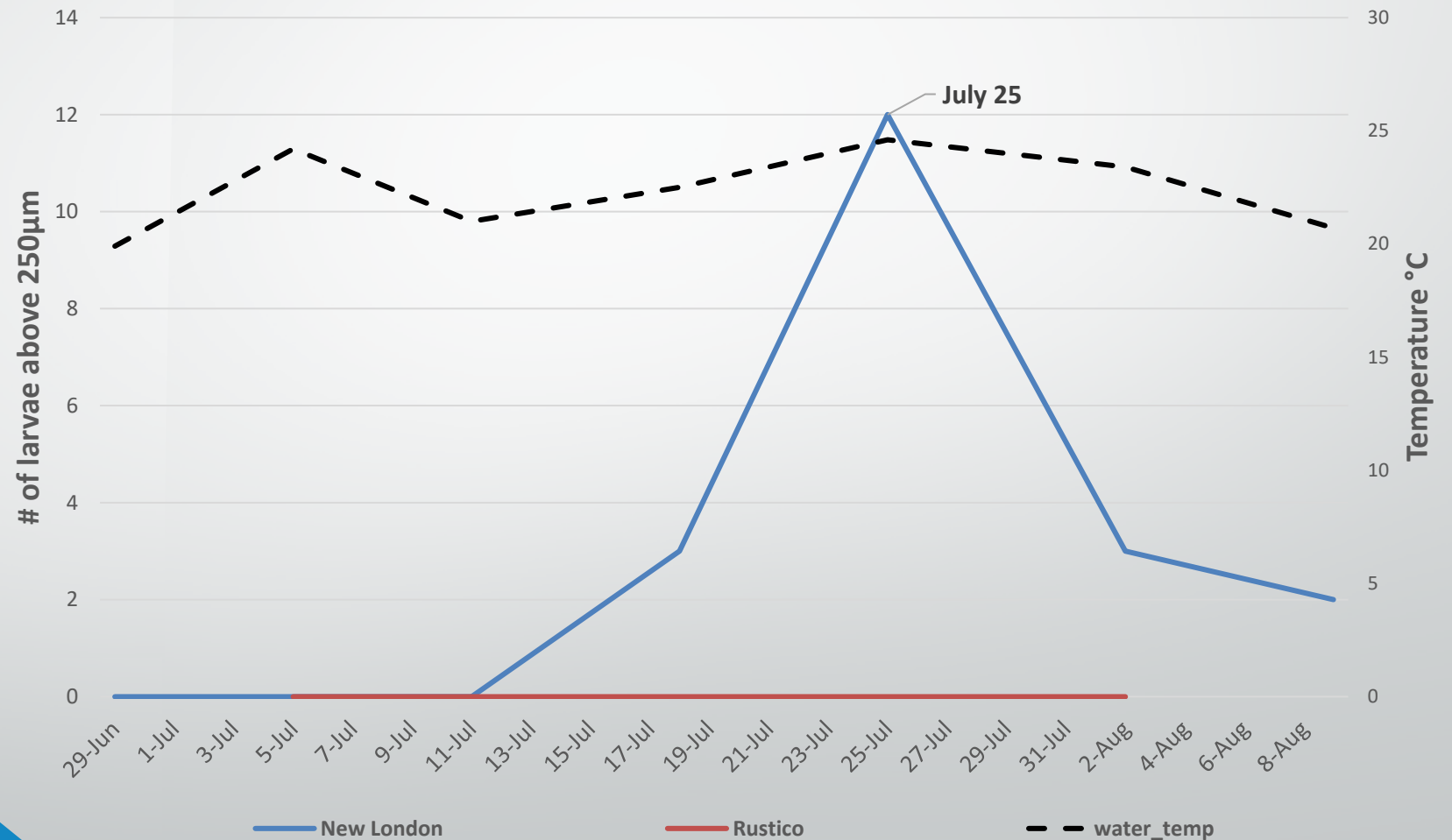


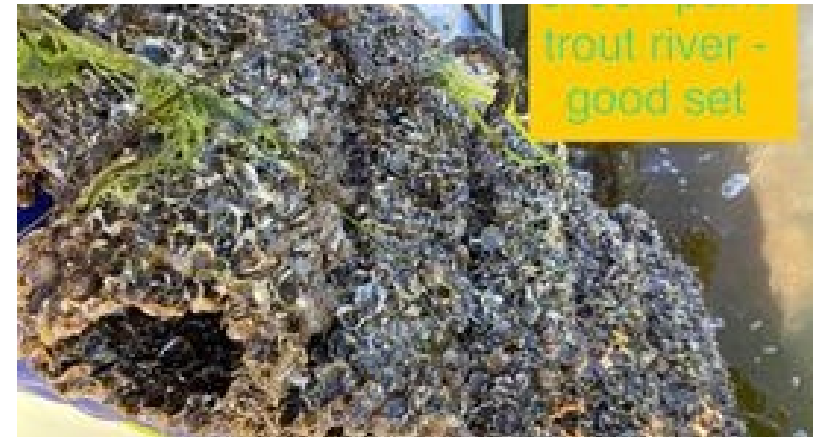
Oyster Larvae $>250\mu\text{m}$ *South Shore*





Oyster Larvae $>250\mu\text{m}$ *New London/Rustico Bay*







Oyster Growth Program

Purpose & Methodology

- Monitor oyster productivity between growing areas and annual variability between years
- 6-bag cage at 7 sites
 - Deployed in early May and retrieved in mid October
 - 24-48 hr air-dry every 2-3 weeks
 - Spring and fall shell length measurements
 - ~100 oysters per size class/site were measured







Foxley River

Percival River

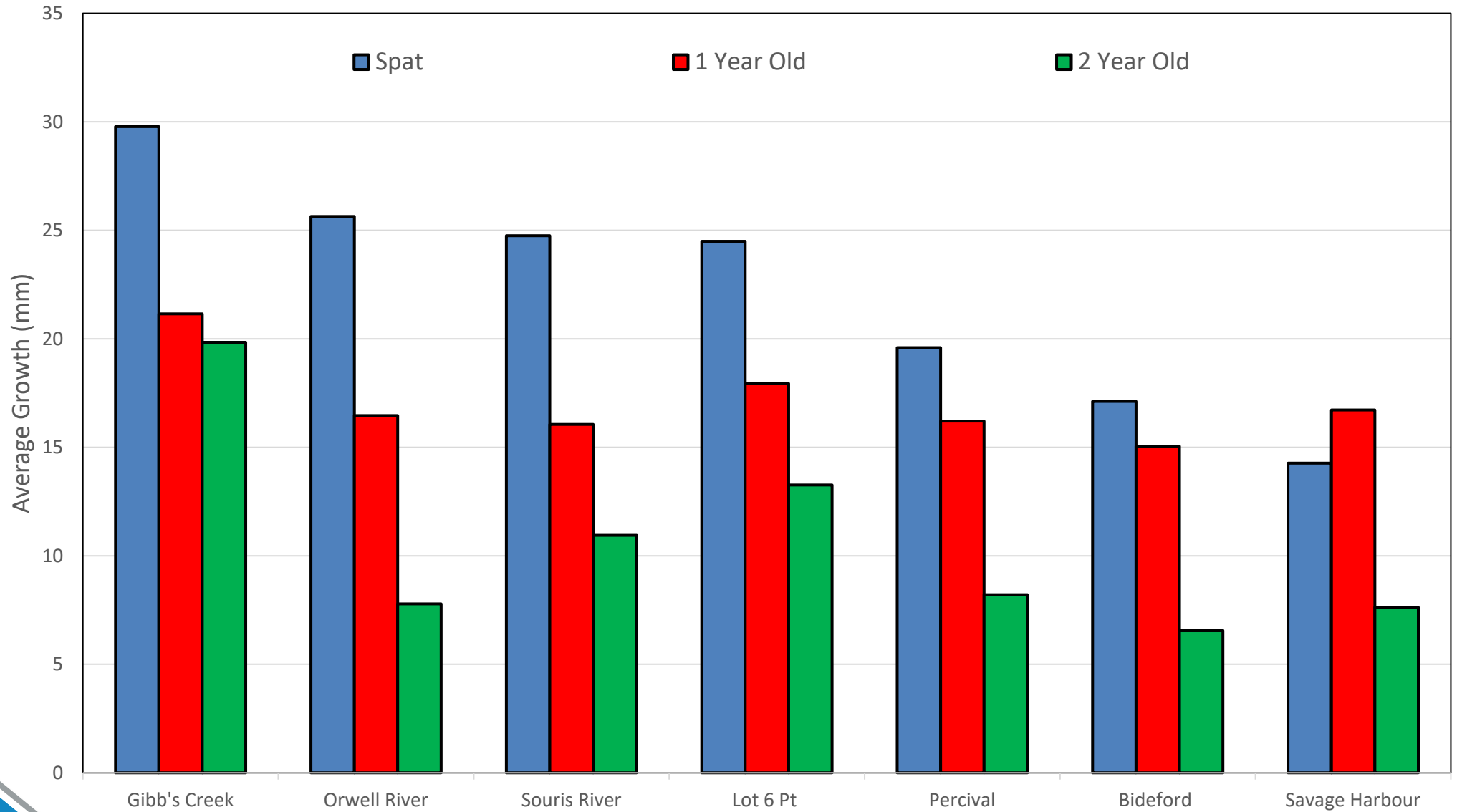
Bideford River

Savage Harbour

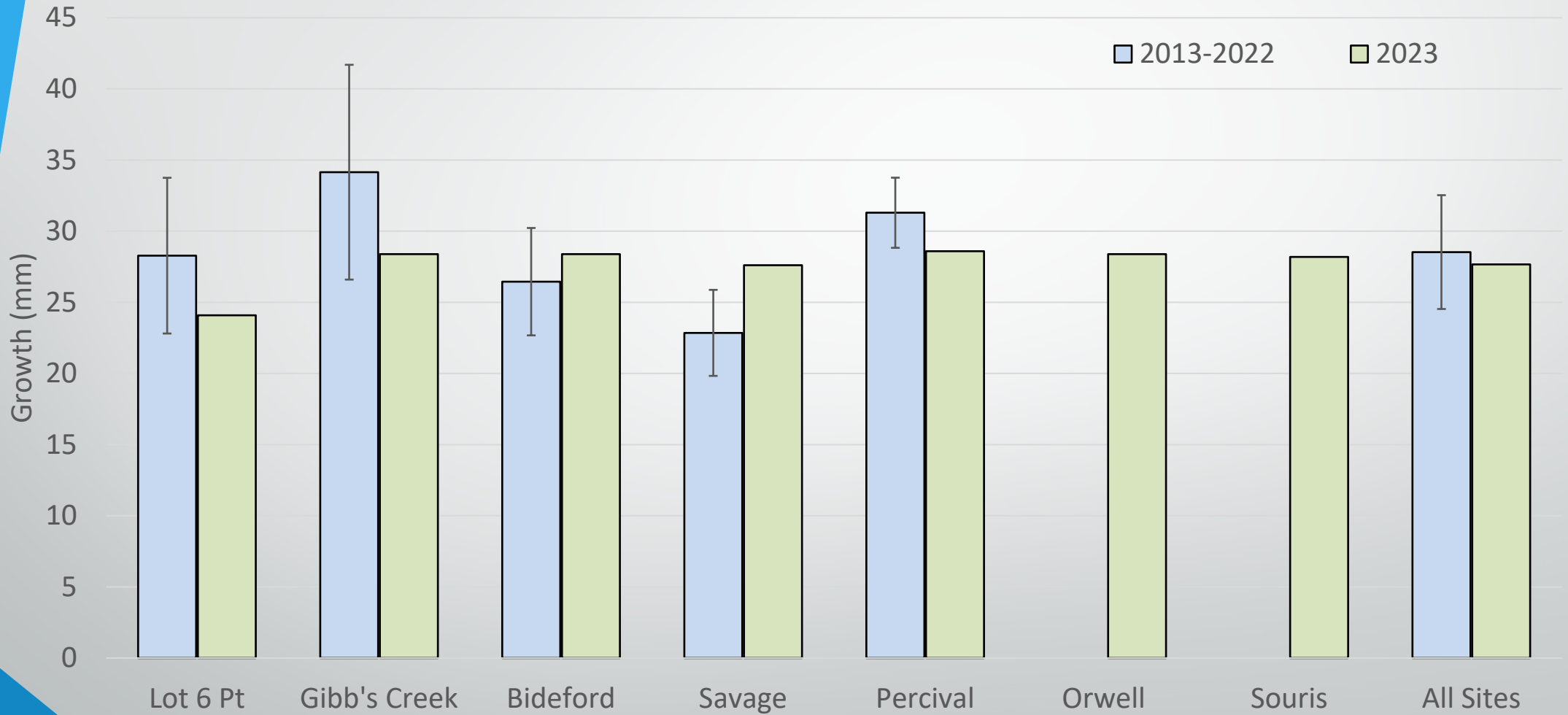
Orwell River

Souris River

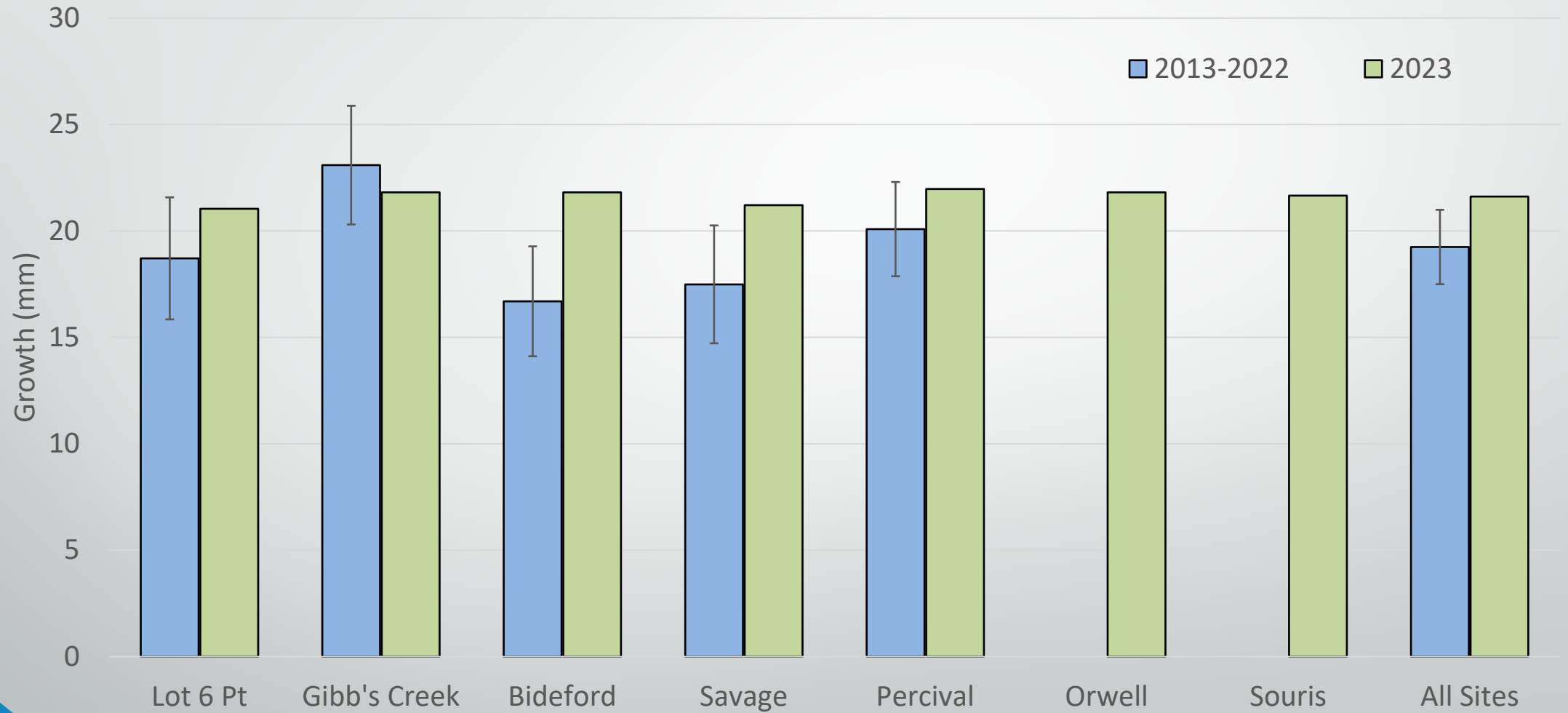
Oyster Shell Length Growth May-Oct 2023



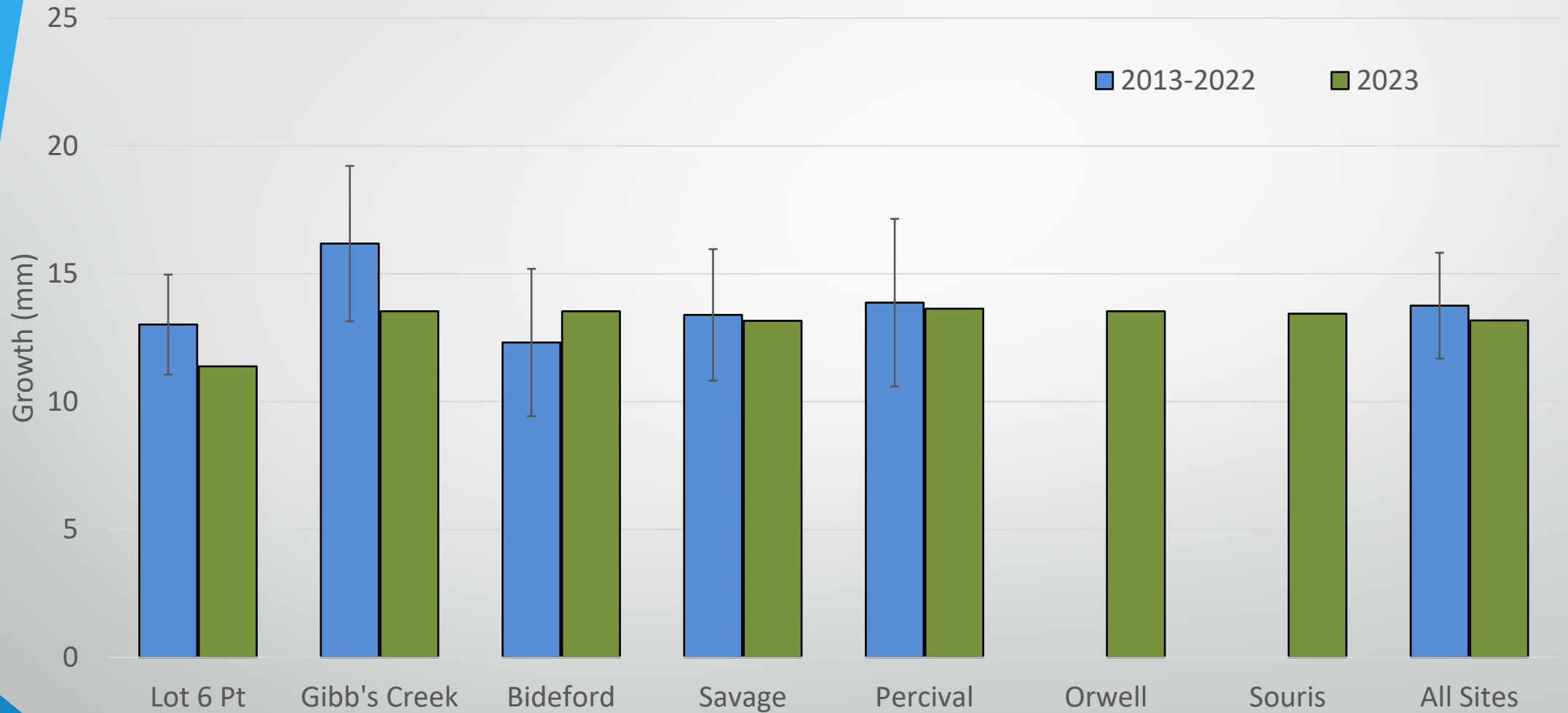
Historical vs 2023 Growth - Seed



Historical vs 2023 Growth – 1st Year



Historical vs 2023 Growth – 2nd Year



Oyster Growth Monitoring - 2023 Summary

- Seed oysters have had the most growth each year, followed by the first years and then second years.
- 2023 results were similar to growth measured in previous years
- Gibb's Creek continues to have the highest growth in all three size classes, although other areas also had consistent growth.
- Souris River and Orwell River (new sites) had growth consistent with other sites monitored
- It's important to note that we do not expect oysters to have increased growth year over year. In each location, growth should be relatively consistent.



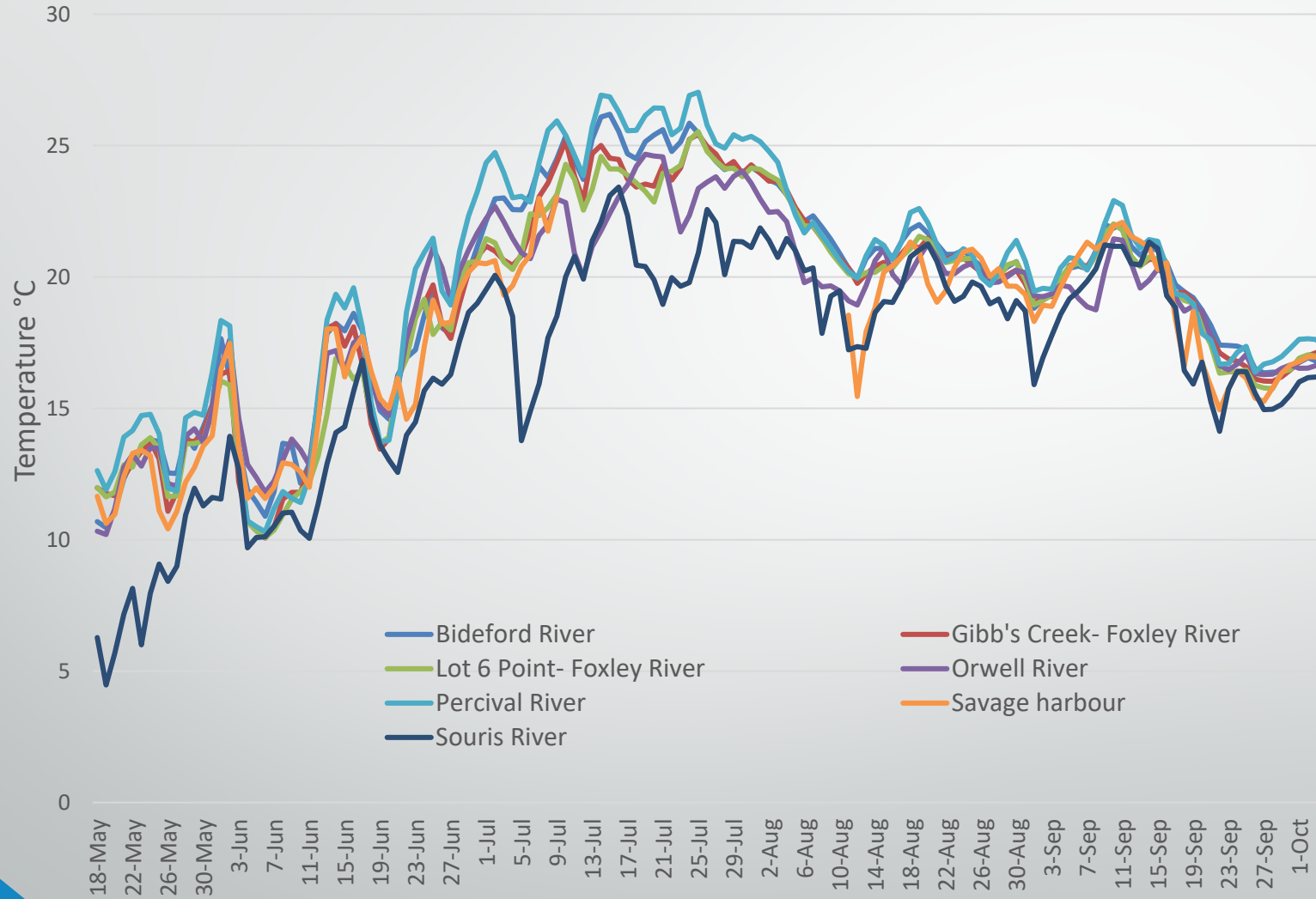
Thanks to...

- **M. O'Brien, D. Cormier, Atlantic Aqua Farms, J. A'Hearn, P. Enserink, B. Fortune, PEI Shellfish Association and DFTSC staff**



Water Quality

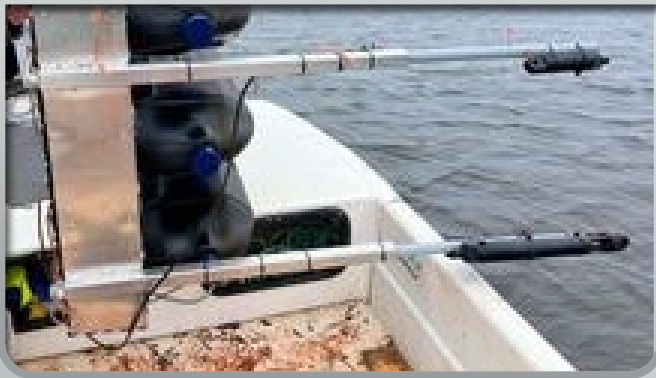
Water Temperature



- HOBO Tidbit MX2203
- Data collected hourly
- Data uploaded to webpage on a weekly basis



Innovasea Platforms



- Collaboration with DFOs Marine Spatial Planning & Marine Environmental Quality group
- Live Data Unit
- Parameters Measured
 - Chlorophyll Red
 - Salinity
 - Temperature
 - Dissolved Oxygen



A satellite-style map of a coastal region, possibly a bay or estuary, with four rivers highlighted. The rivers are marked with green stars and labeled in yellow text. The map shows a mix of green vegetation and brownish terrain, with dark blue water bodies. The rivers are: Foxley River (top left), Bideford River (middle left), Orwell River (bottom center), and Souris River (right side). The map is framed by a blue and grey border on the left side.

Foxley River

Bideford River

Souris River

Orwell River



Shellfish Health Monitoring

MSX Surveillance

- **Purpose:** early detection of MSX and other disease agents in oysters growing in PEI estuaries
- 17 oyster samples collected in 2023
- Samples sent to AVC Pathology for histology





Kildare
Mill River

Foxley

Percival

Bideford

Darnely

Grand River

Wilmot

Bedeque

Rustico

Covehead

St Peter's
Bay

Colville Bay

North River

Orwell

Brudenell

Murray River

Mortality Investigation

Process

- When an unexplained or abnormal mortality event occurs, please contact the Aquaculture Division
- A site visit will be arranged
- A Mortality Investigation questionnaire will be conducted
- Samples may be collected and/or water quality measurements taken

Information Collected

- Lease Information (name, contact info, lease #, etc.)
- Weather/ Environmental Factors in previous weeks
- Shellfish Health and Percent Mortality observed
- Movement of animals in past 12 months
- Equipment changed or delivery of equipment in the past 2 weeks
- Husbandry Practices and Activities on site (grading, tumbling, etc.)
- Photos/Videos, Water Quality Parameters

Contact Information

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902-314-1457

- **Oyster Monitoring Program**

<https://qatauth.gpei.ca/en/feature/view-oyster-monitoring-results#/service/OysterMonitoring/OysterMonitoringSearch>

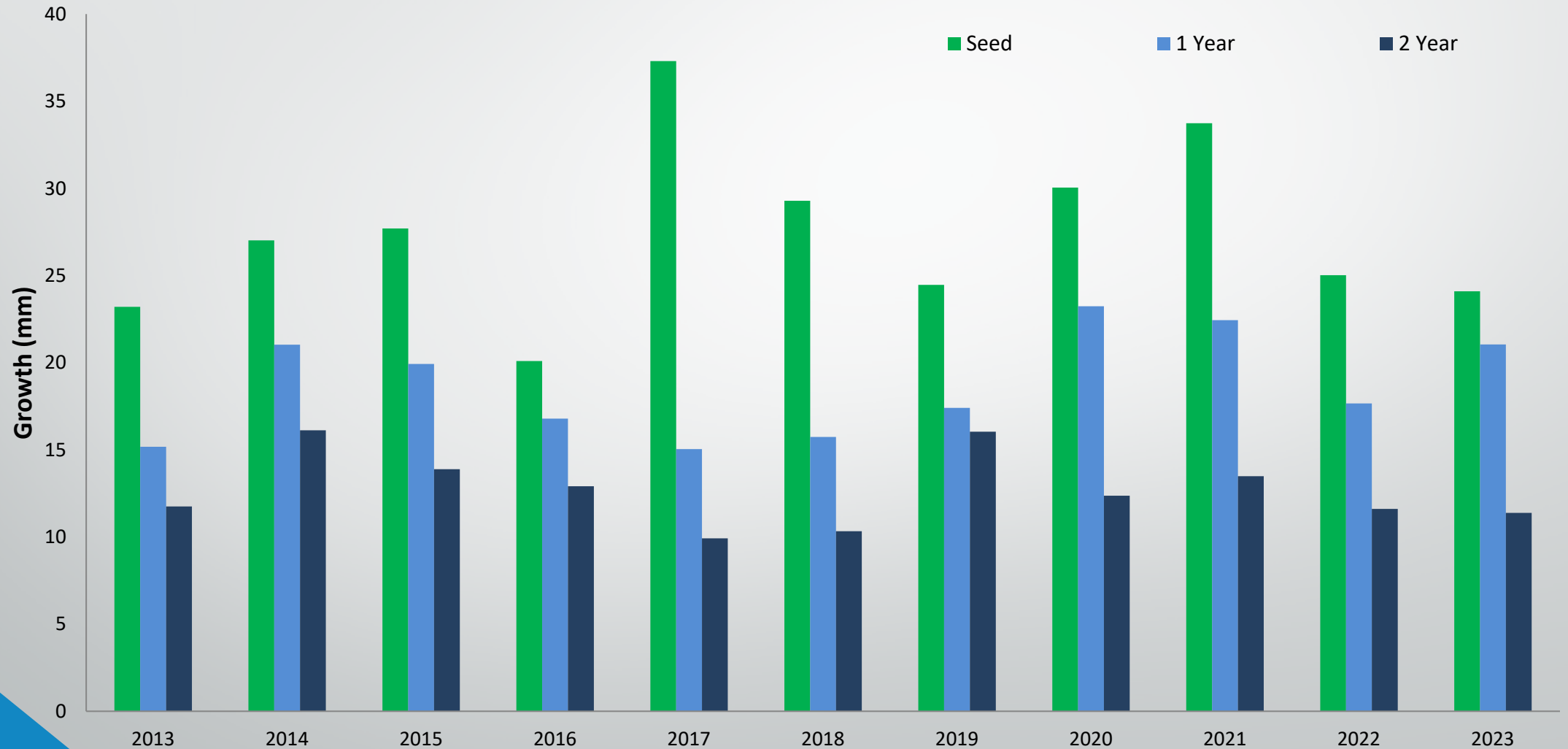
- **Oyster Growth Program Temperature Data - HoboLink**

<https://dashboard.hobolink.com/public/12930/Oyster%20Growth-05-27-2021%2016:35:26>

- **Oyster Growth Program Temperature Data - Visualization Tool**

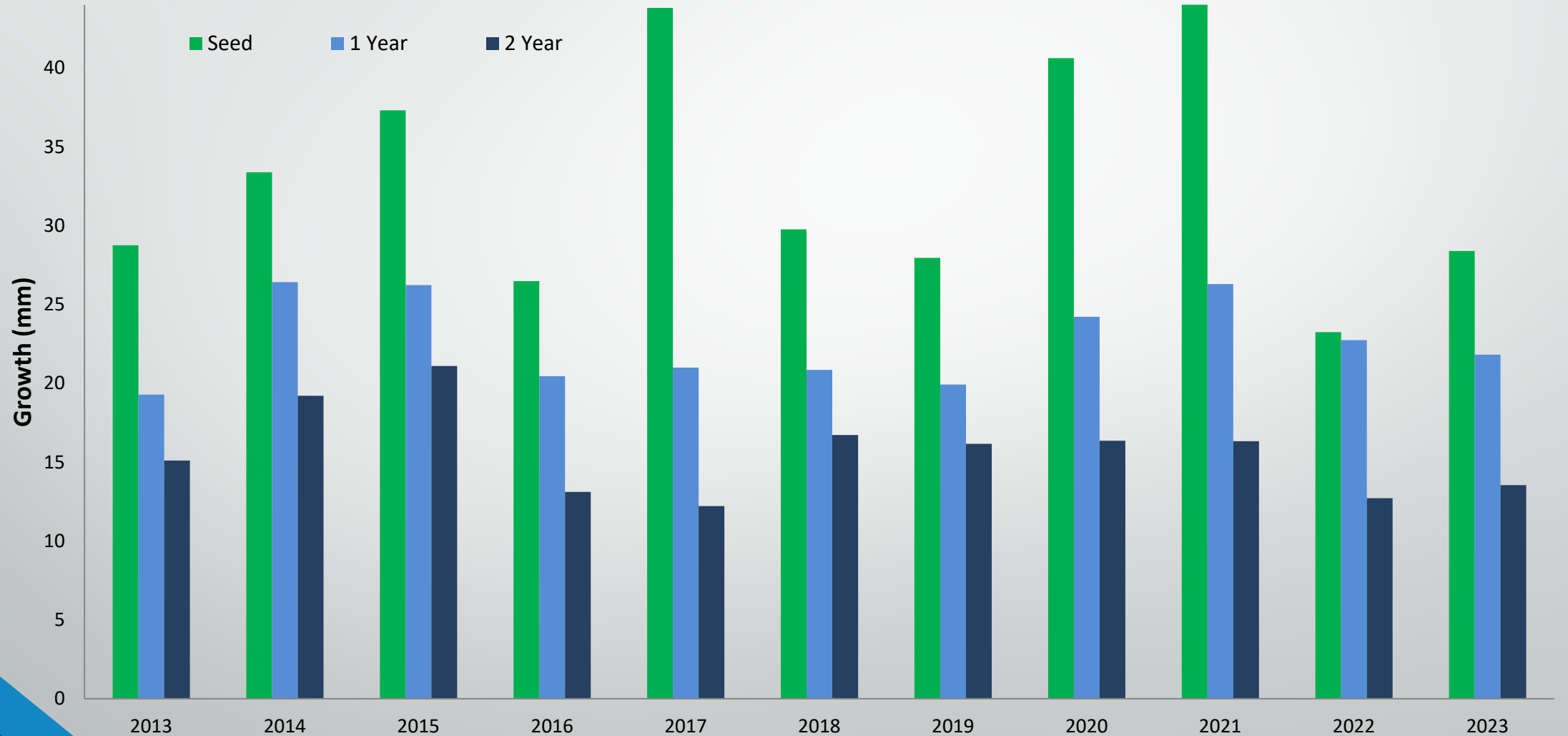
<https://dfc.modailmara.ca/://dfc.modailmara.ca/>

Results Foxley River - Lot 6 Pt 2013-2023



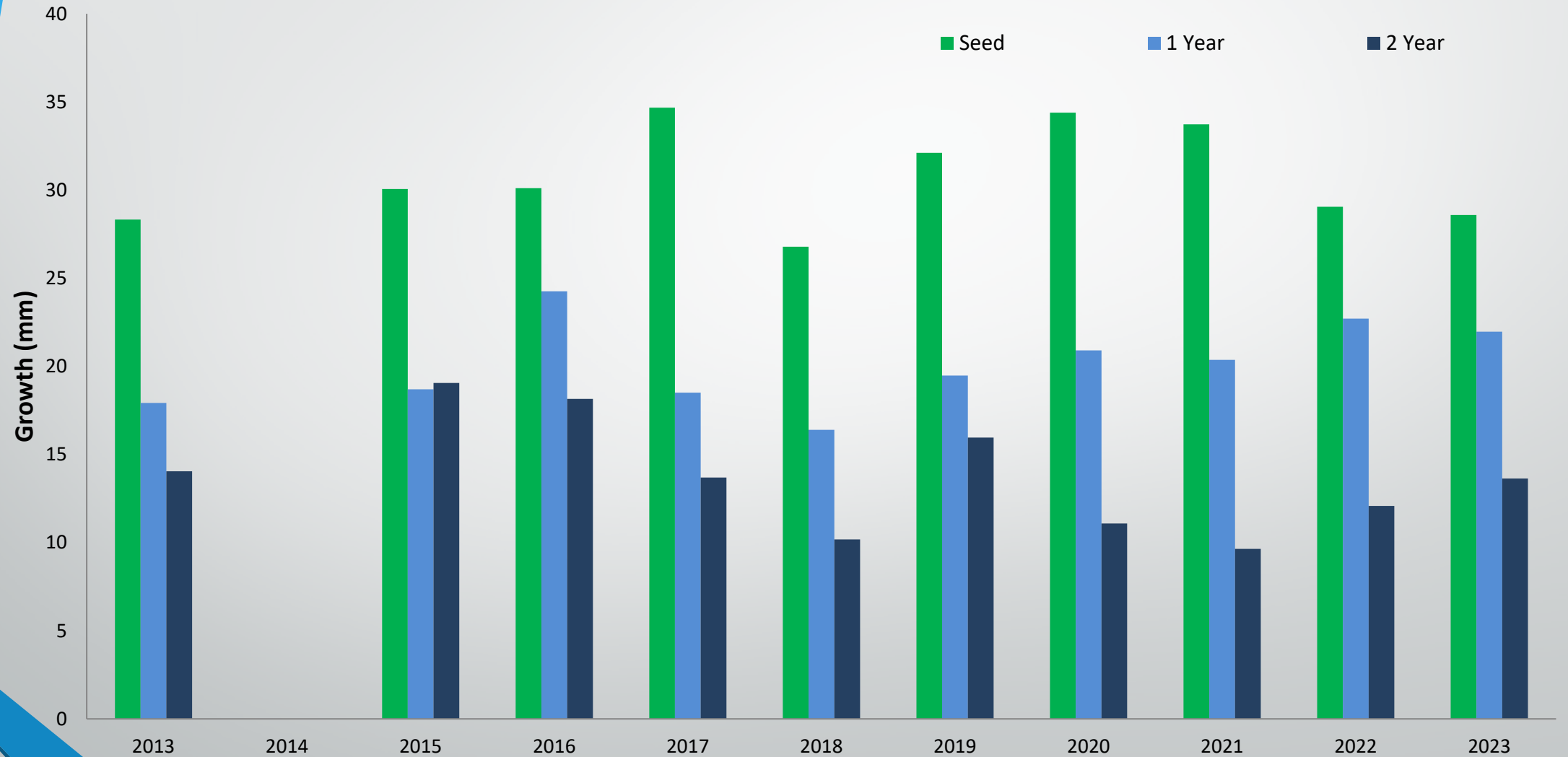
**based on daily growth rate x 180 days*

Results Foxley River - Gibb's Creek 2013-2023



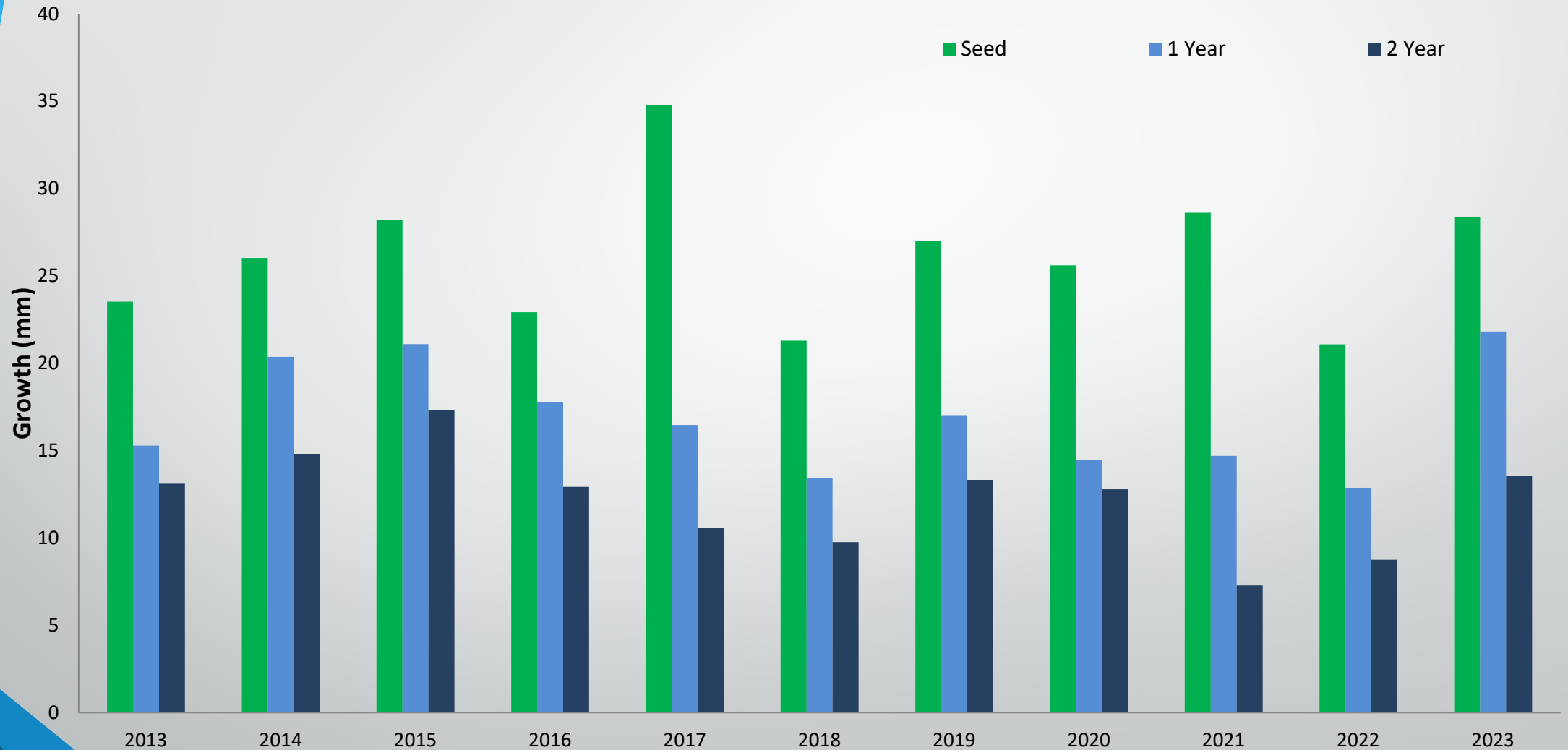
**based on daily growth rate x 180 days*

Results Percival River 2013-2023



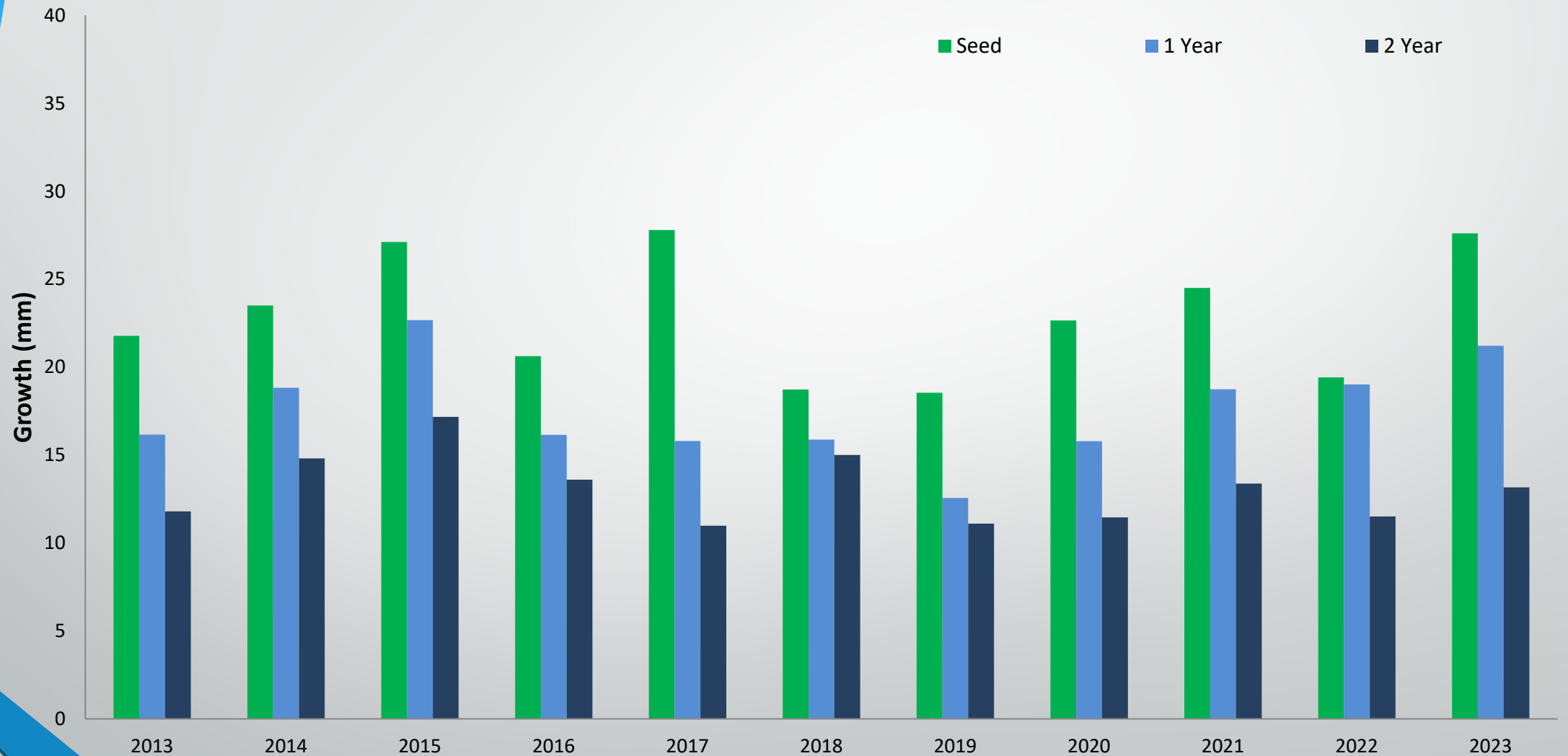
**based on daily growth rate x 180 days*

Results Bideford River 2013-2023



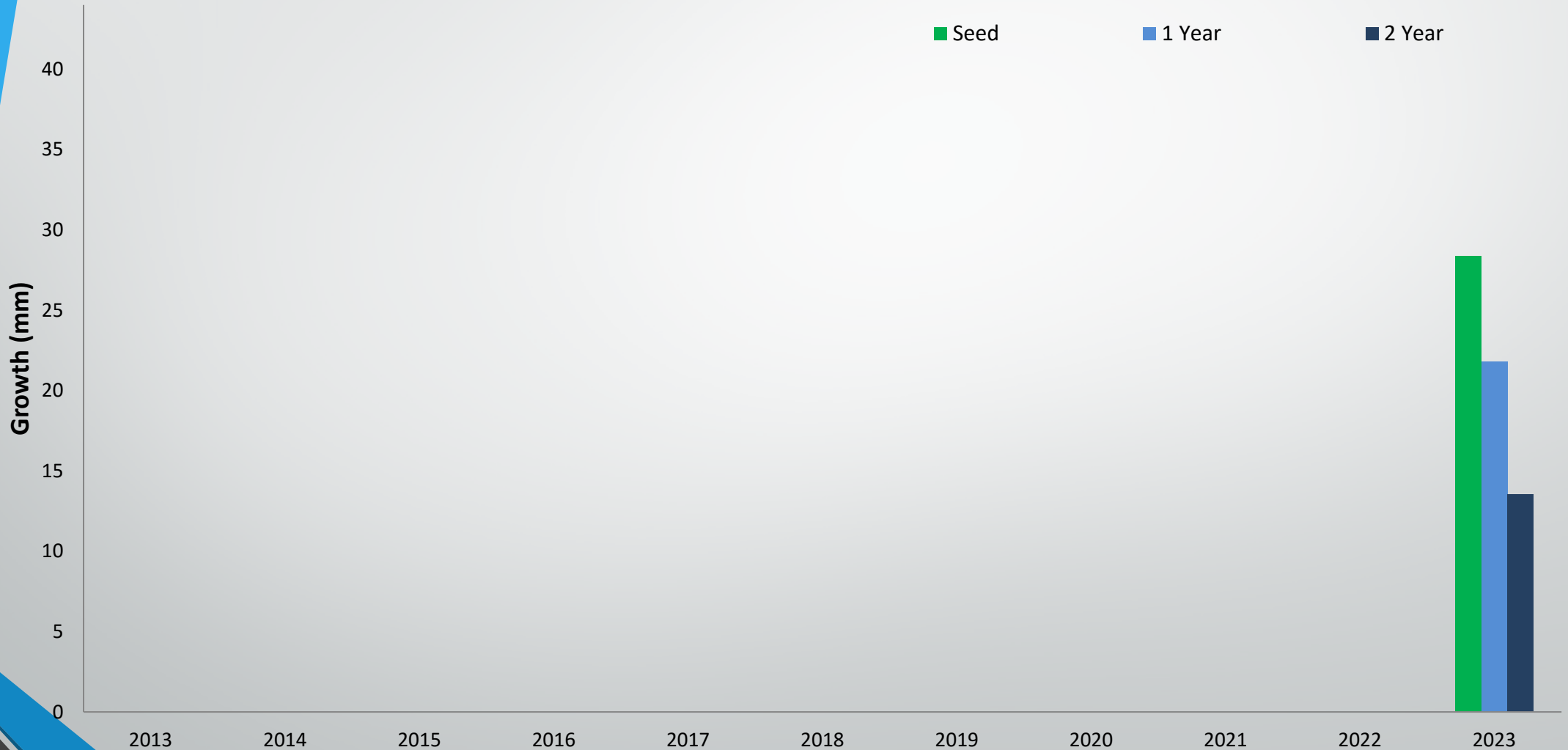
**based on daily growth rate x 180 days*

Results Savage Harbour 2013-2023



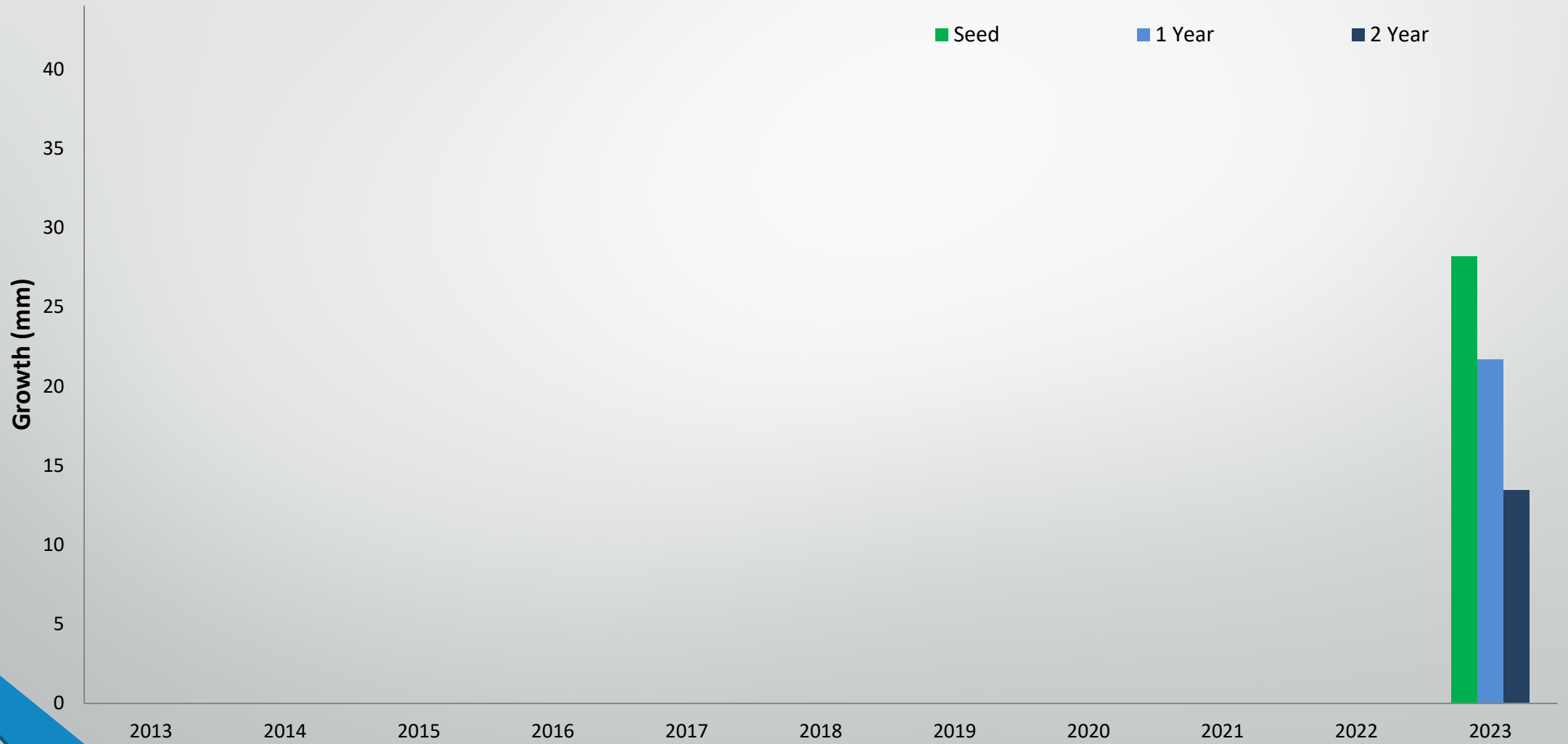
**based on daily growth rate x 180 days*

Results Orwell River 2013-2023



**based on daily growth rate x 180 days*

Results **Souris River** 2013-2023



**based on daily growth rate x 180 days*