



PATRICK LEAHY

Lake Champlain
Basin Program

Lake Champlain

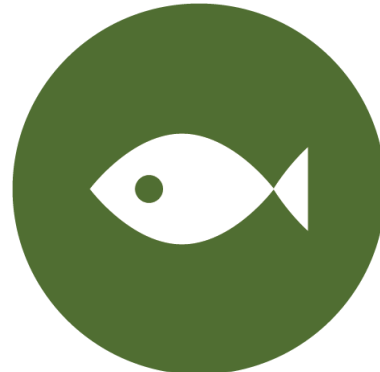
2024 STATE of the LAKE and Ecosystem Indicators Report



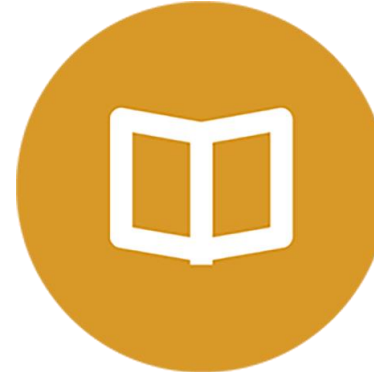
OPPORTUNITIES FOR ACTION



**Clean
Water**



**Healthy
Ecosystems**



**Informed and
Involved Public**



**Thriving
Communities**



Introduction

Clean Water



Community Sailing Center

DRINKABLE, FISHABLE AND SWIMMABLE WATER



Rachel Hamm Vaughan



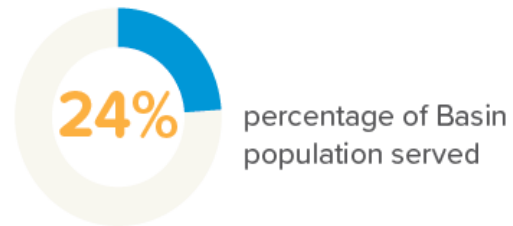
Clean Water

FIGURE 1 | Drinking water intakes (page 7)



19 
public drinking water
suppliers on Lake Champlain

164,000 
people served



 **80+**
contaminants tested
in drinking water



FIGURE 2 |
Mercury concentration
in Lake Champlain
fish tissue
 (page 7)

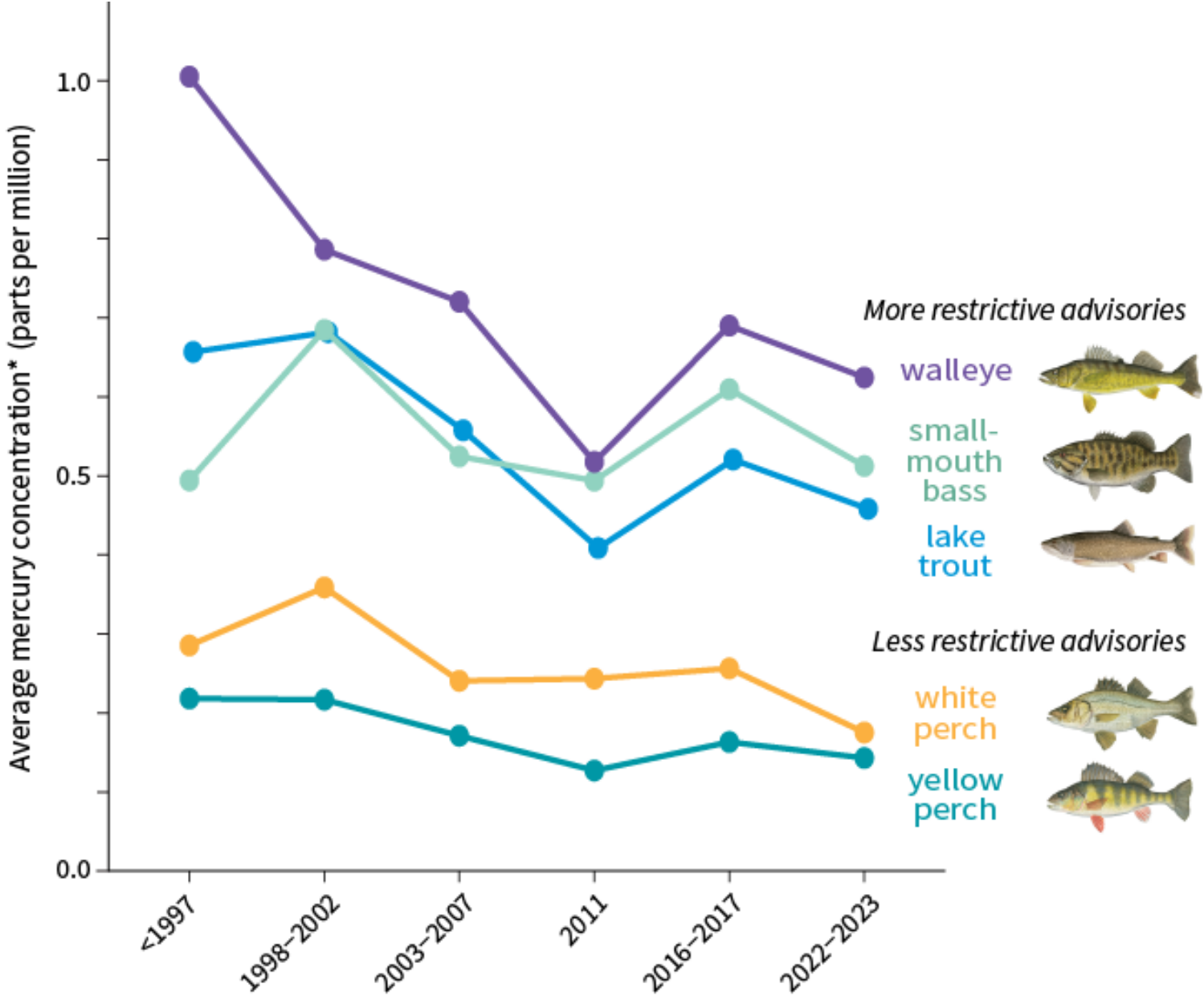
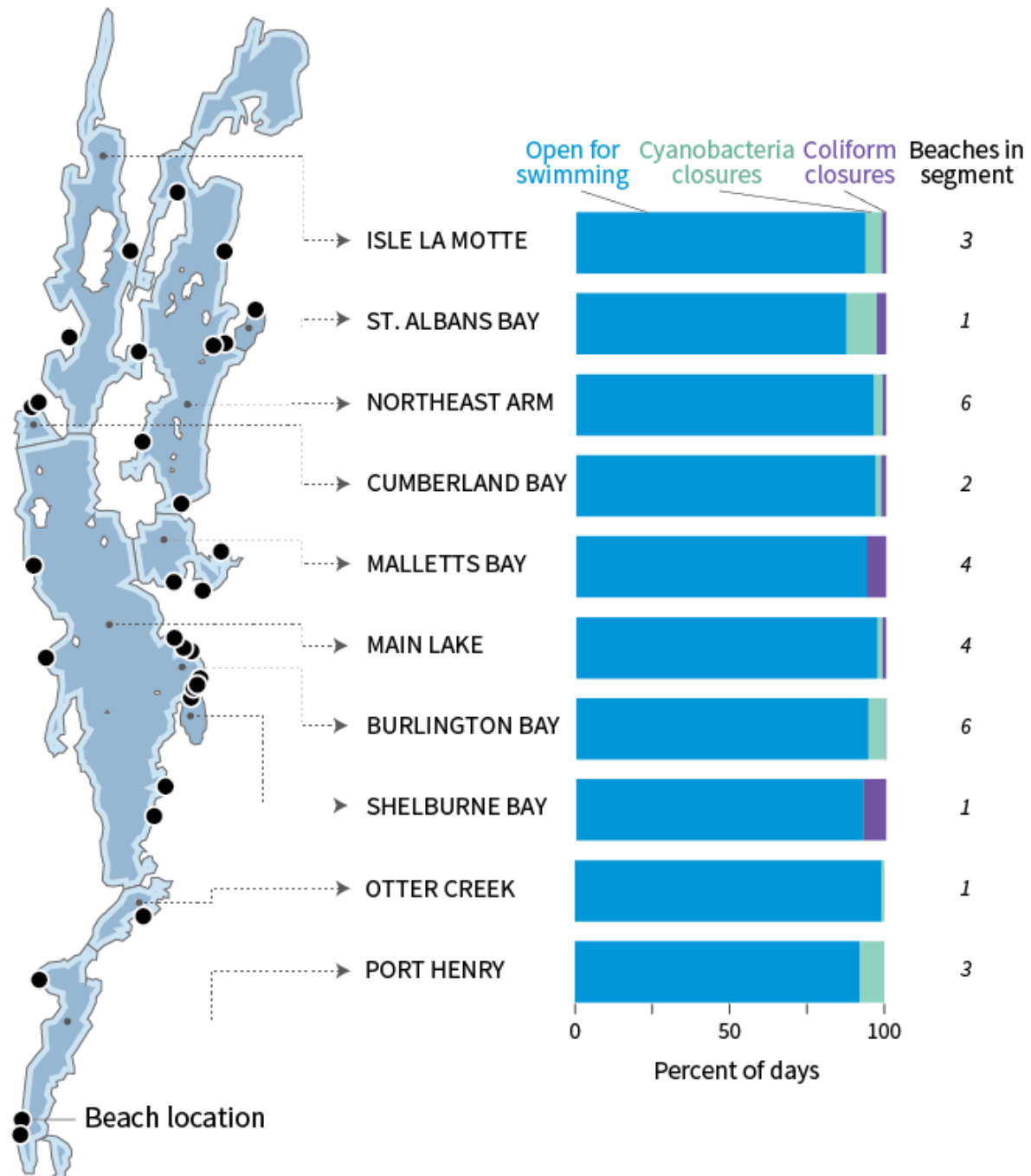


FIGURE 3 |
Public Beach Statuses
by lake segment,
Memorial Day to
Labor Day, 2021-2023
(page 8)



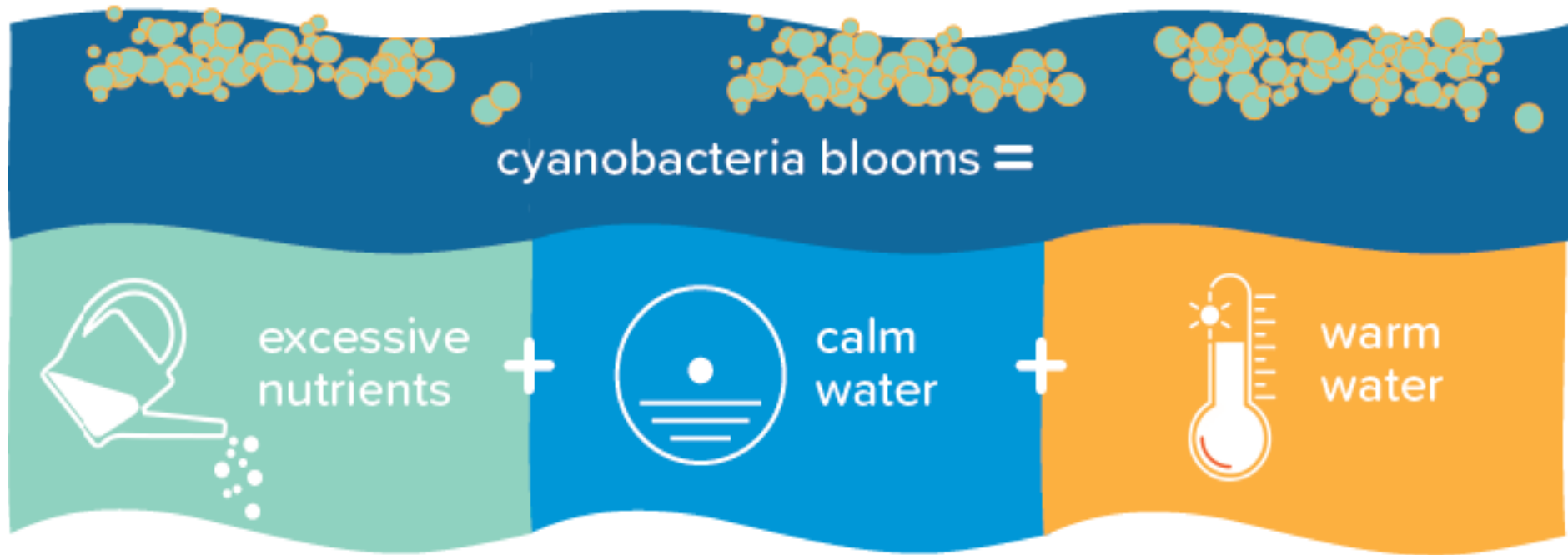
CYANOBACTERIA



LCBP

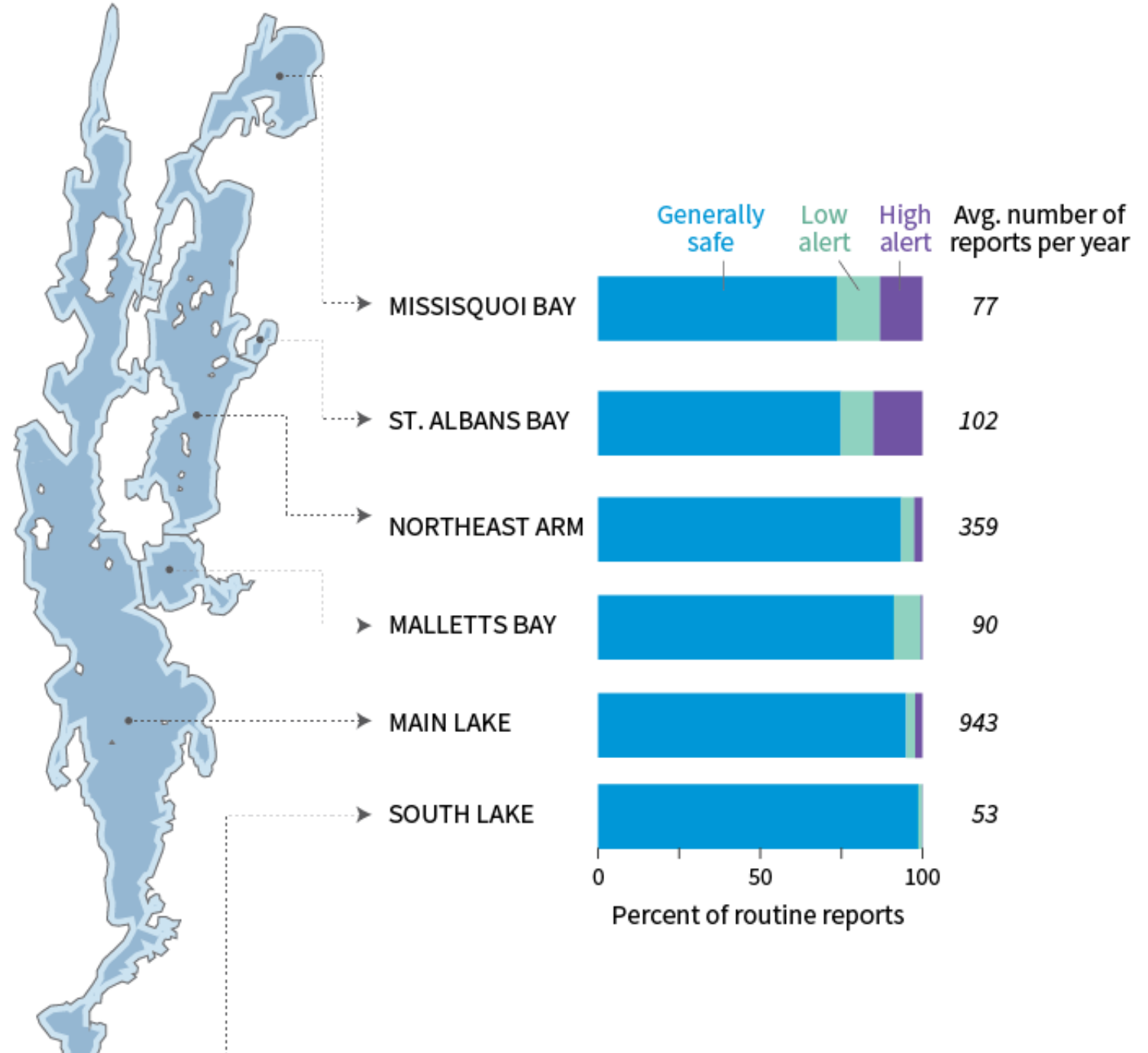


Clean Water



Clean Water

FIGURE 5 |
Routine cyanobacteria
monitoring by Lake
region, 2021 -2023
(page 10)



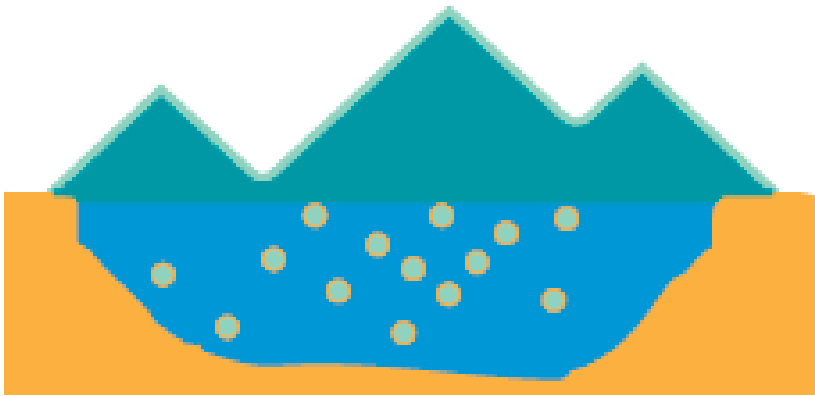
NUTRIENTS



LCBP



Clean Water



CONCENTRATION

The amount measured in a unit volume of water, typically reported as micrograms per liter ($\mu\text{g}/\text{L}$).



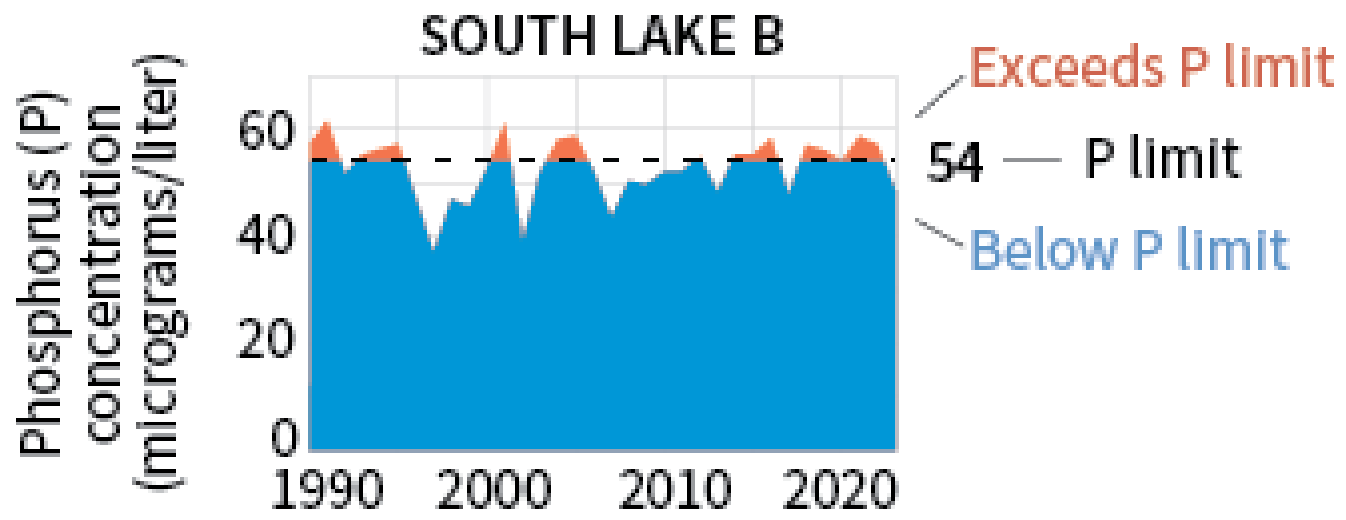
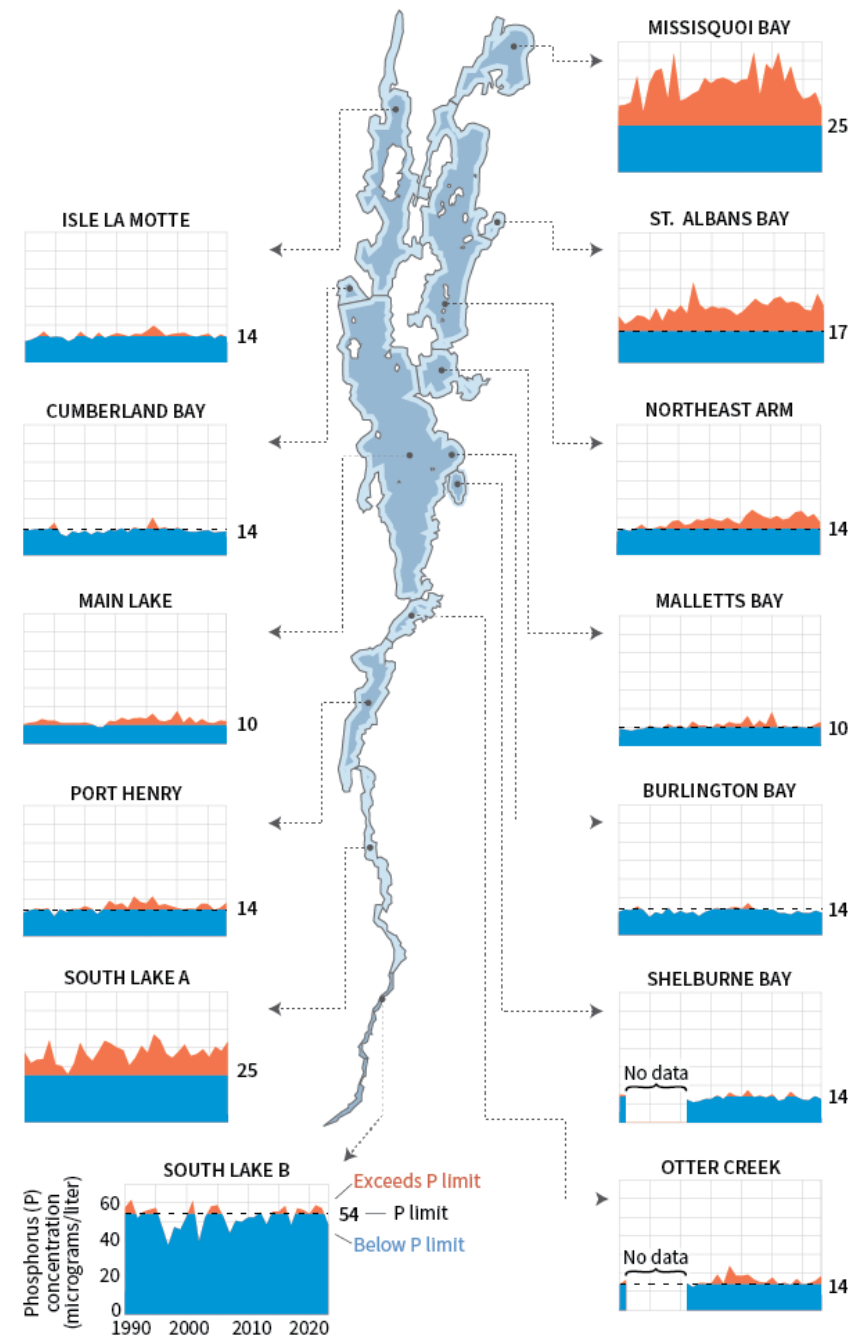
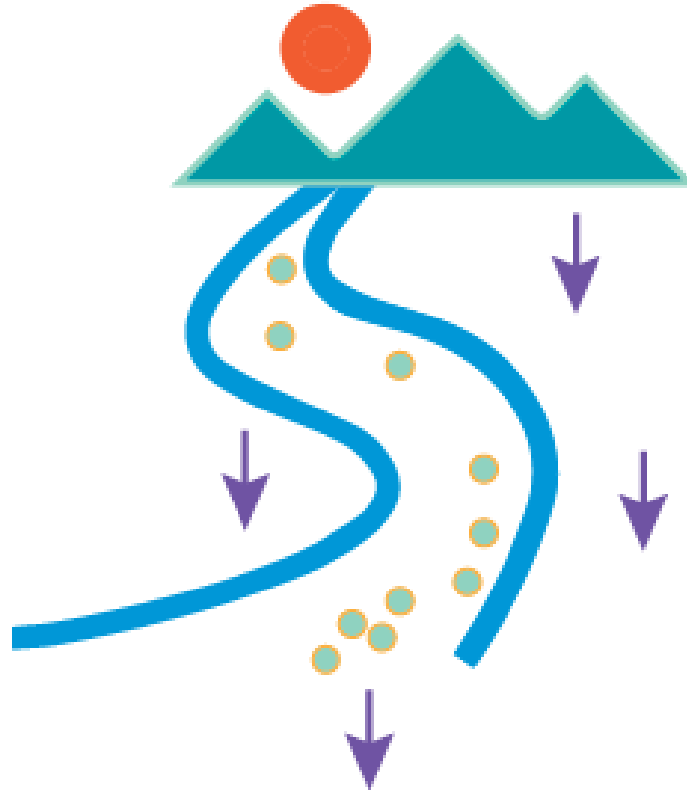


FIGURE 7 |
Annual average
phosphorus
concentration
by Lake segment
(page 13)





LOAD

Total amount delivered to the Lake in a period of time, typically reported as metric tons* per year (mt/yr).



FIGURE 8 | River phosphorus loading to Lake segments compared to targeted limits (page 14)

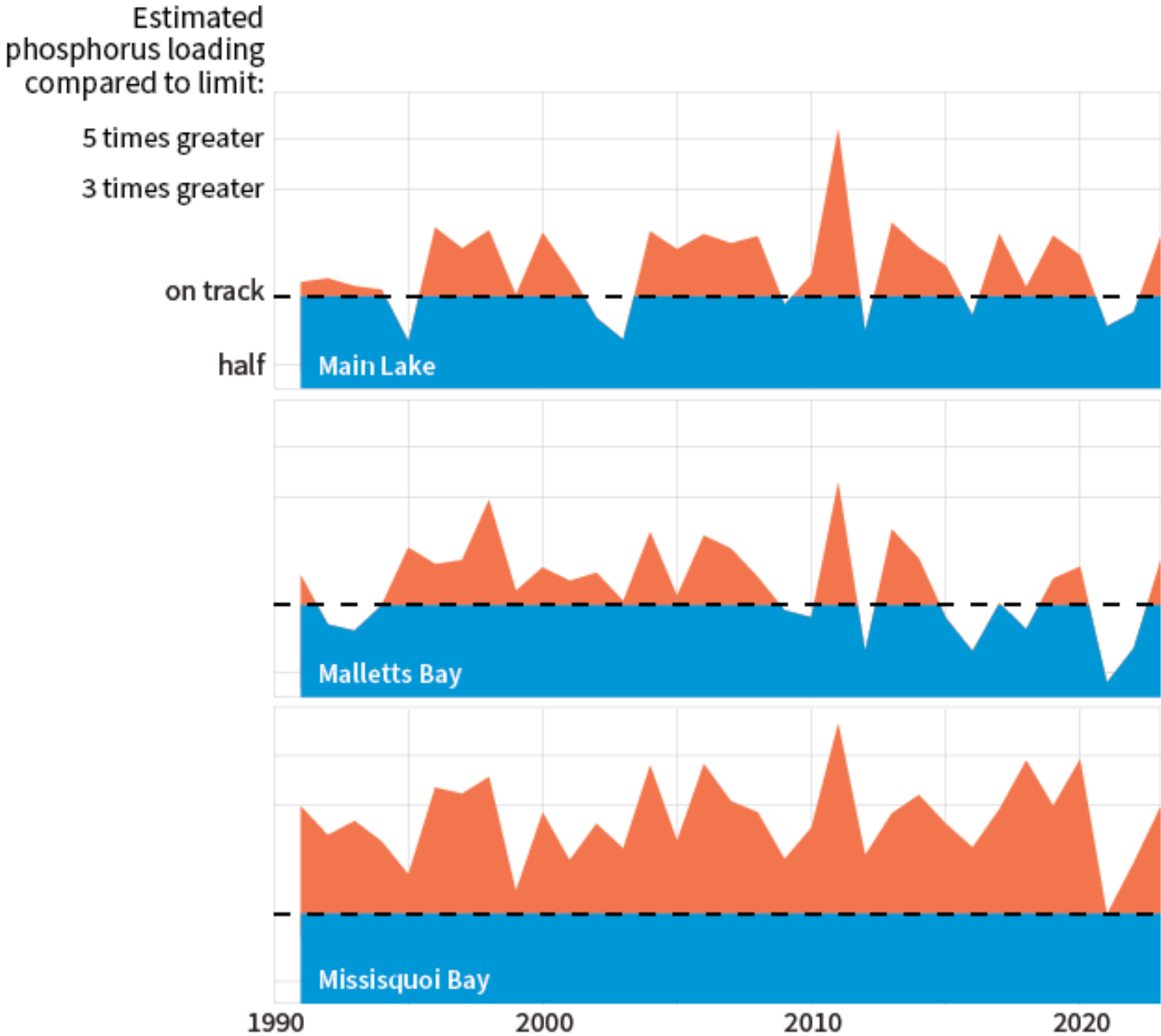
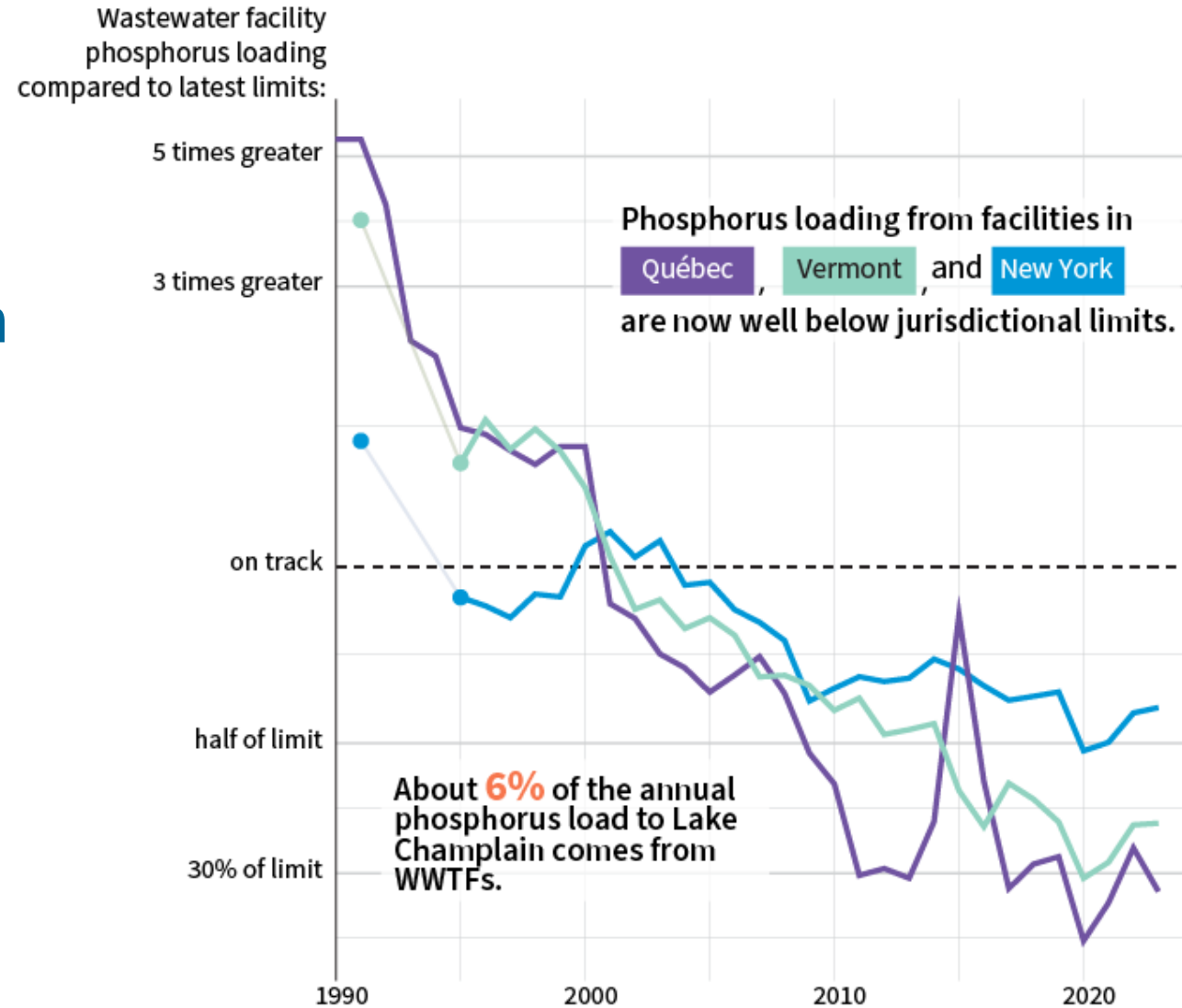


FIGURE 9 | Annual phosphorus load from wastewater treatment facilities (WWTFs) by jurisdiction (page 15)



CONTAMINANTS

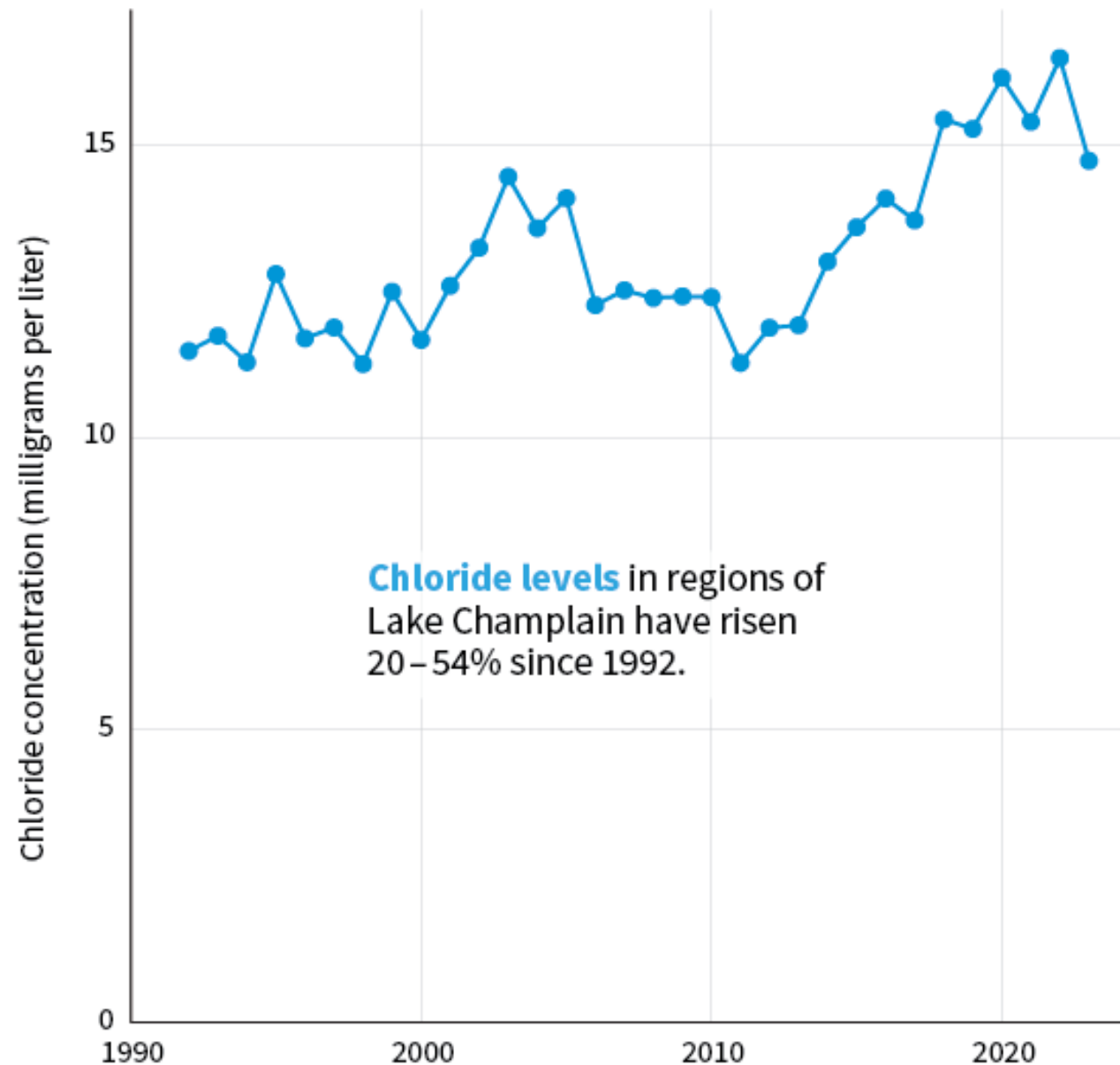


essexonlakechamplain.com



Clean Water

FIGURE 10 |
Annual average
chloride concentration
in Lake Champlain
(page 17)



FLOODING



NASA



Clean Water

July 2023 Flooding by the Numbers

3-9"
of rainfall in a 48-hour
period from July 10 to July 11



10x increase
in river flow to Lake
Champlain from
July 9 to July 11

more than **100**
metric tons of phosphorus
entered Lake Champlain
from rivers on July 11

roughly **90 billion**
gallons of water
delivered to
Lake Champlain
by rivers on July 11



roughly **1/2**
of the recommended
annual phosphorus
load delivered to Lake
Champlain from rivers
from July 10 to July 16



300 billion
gallons of water
delivered to
Lake Champlain
by rivers from
July 10 to July 16

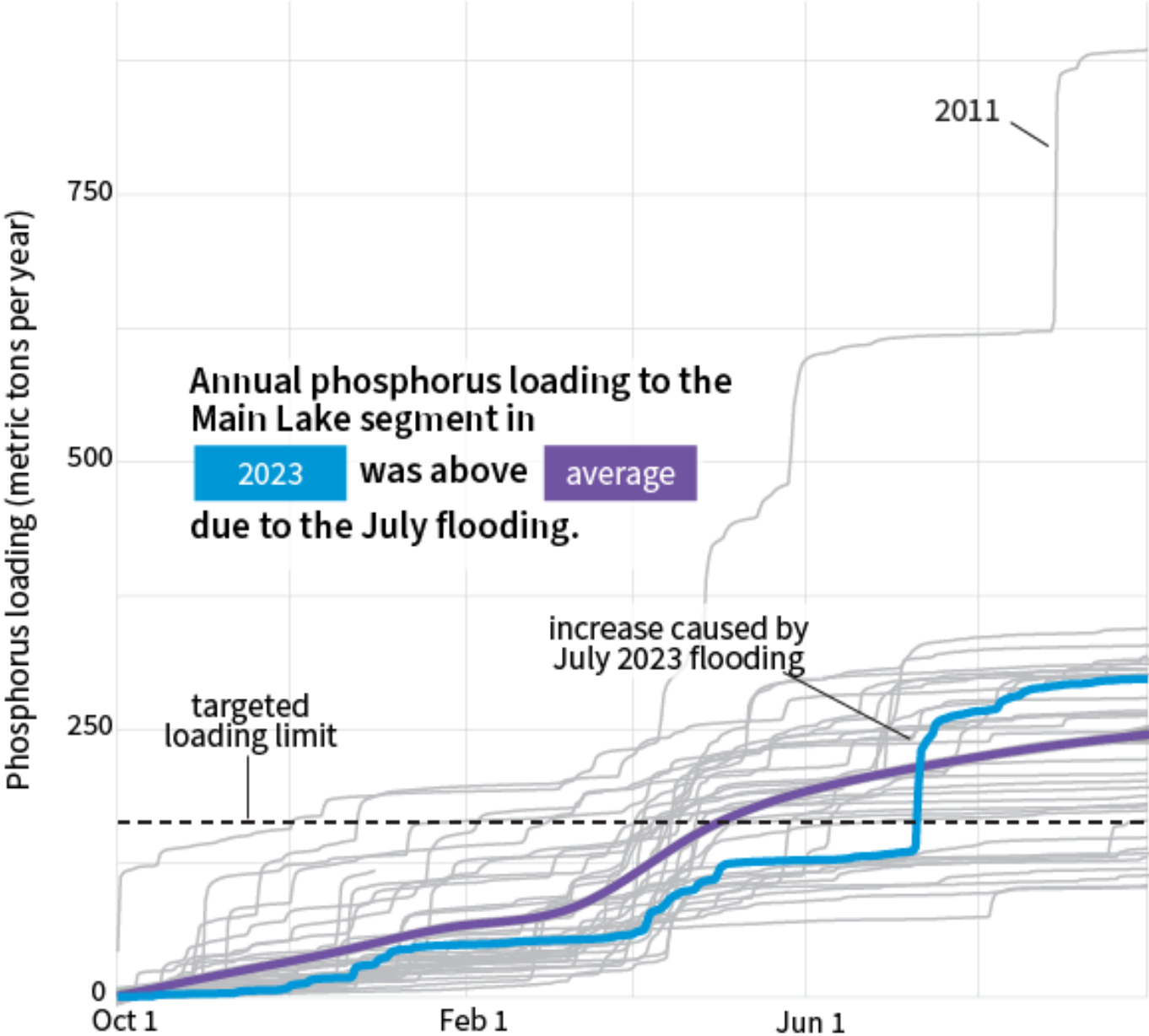


more than **300**
metric tons of phosphorus
delivered to Lake Champlain
from rivers July 10 to July 16

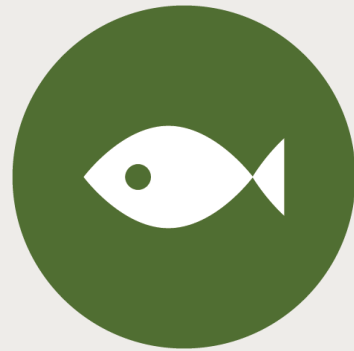
3 foot
increase in water
level over roughly 1-2
weeks in Lake Champlain



FIGURE 12 |
Cumulative river
phosphorus loading
to Main Lake segment,
each year since 1991
(page 19)



Healthy Ecosystems



Kerry Crowningshield

BIODIVERSITY AND HABITAT CONNECTIVITY

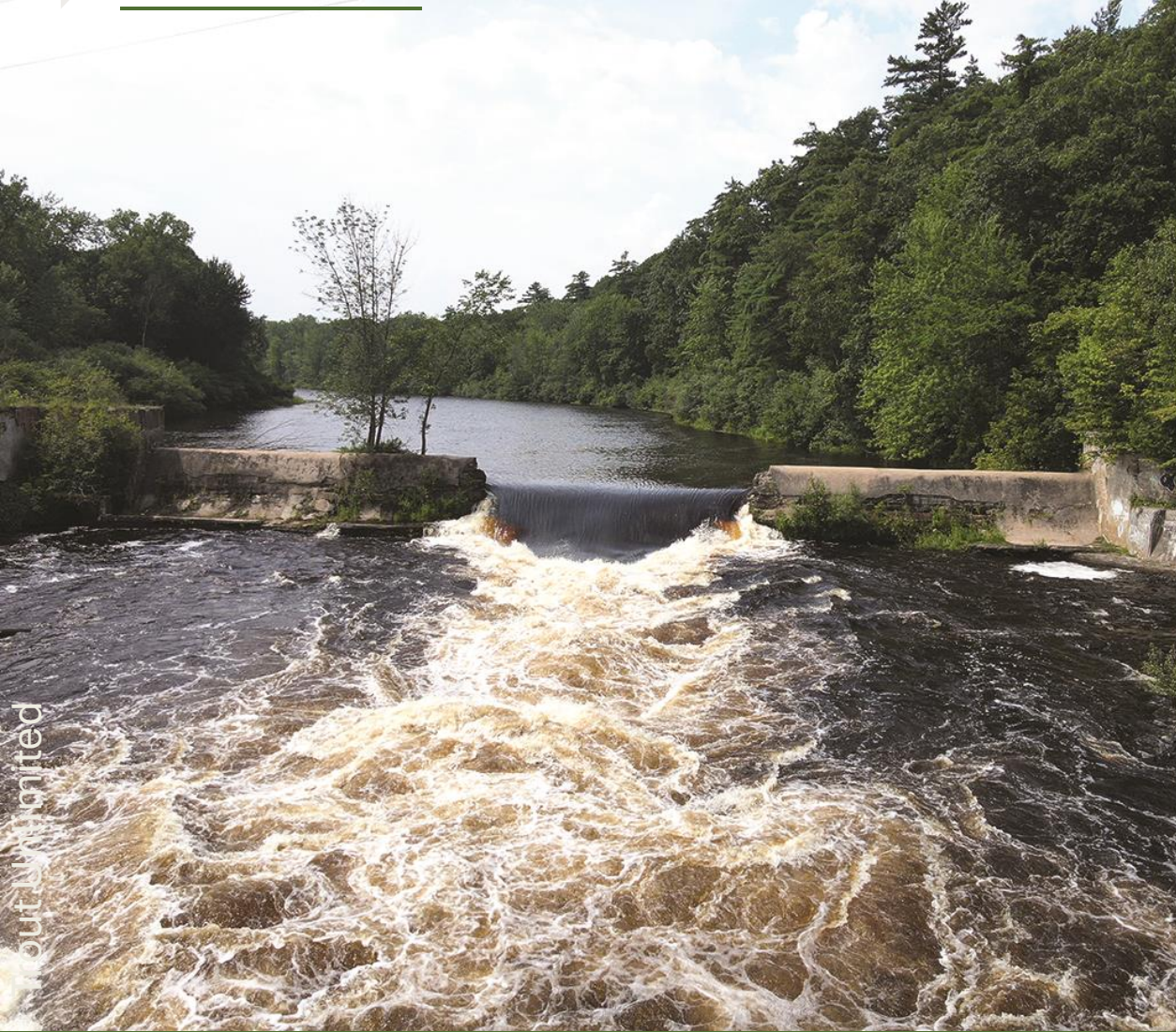


Megan Humphrey



Healthy Ecosystems

AQUATIC ORGANISM PASSAGE



Trout Unlimited



Trout Unlimited



Healthy Ecosystems

FIGURE 13 |
(page 22)

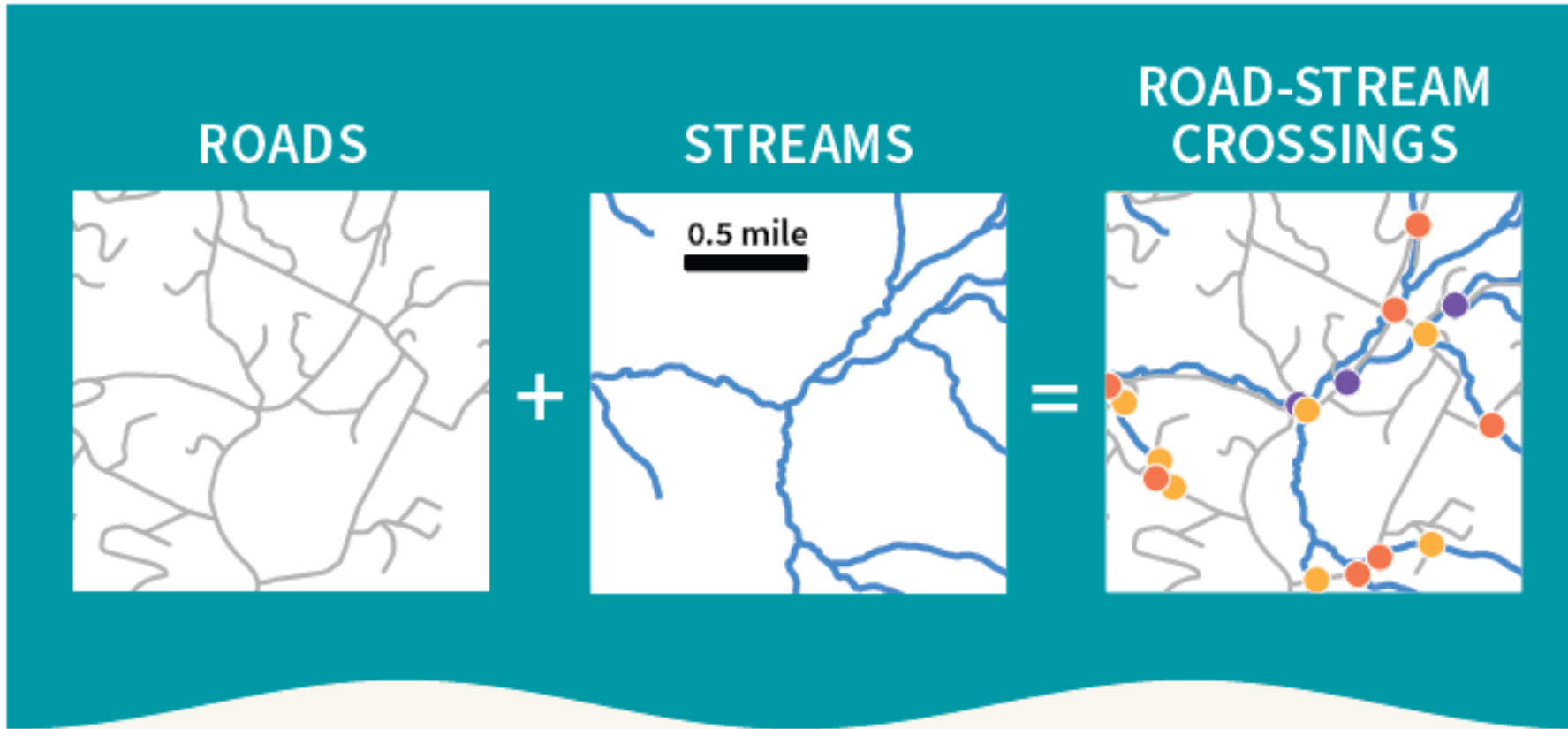


FIGURE 13 |
(page 22)



FIGURE 13 |
(page 22)

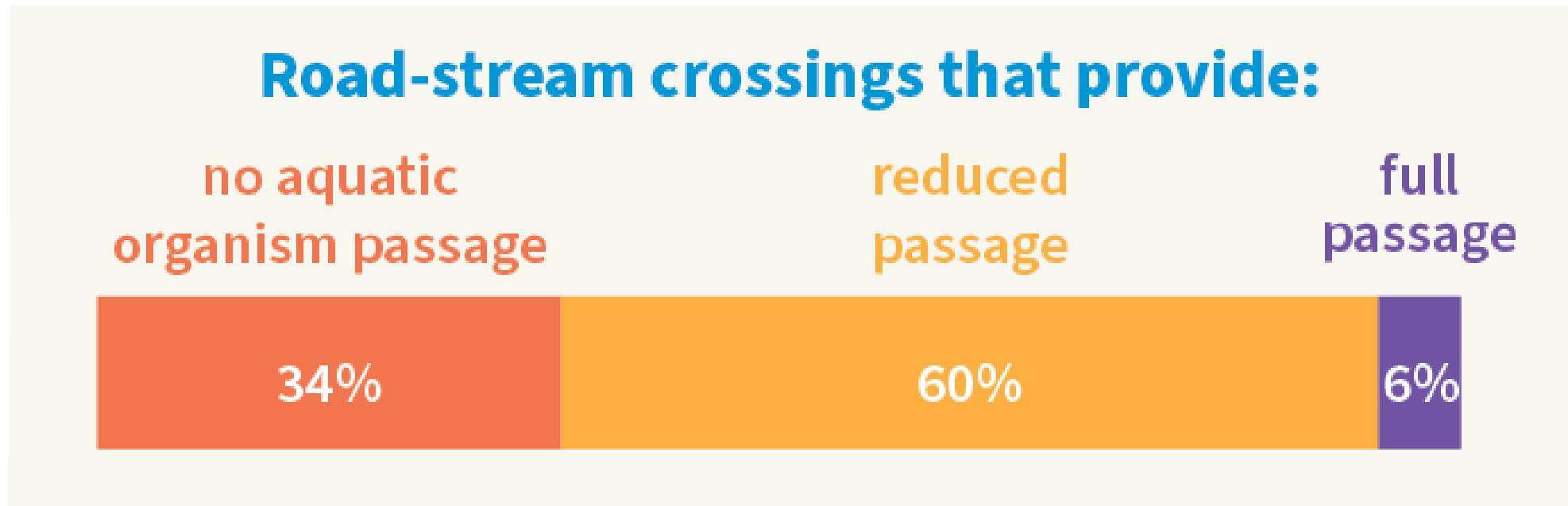
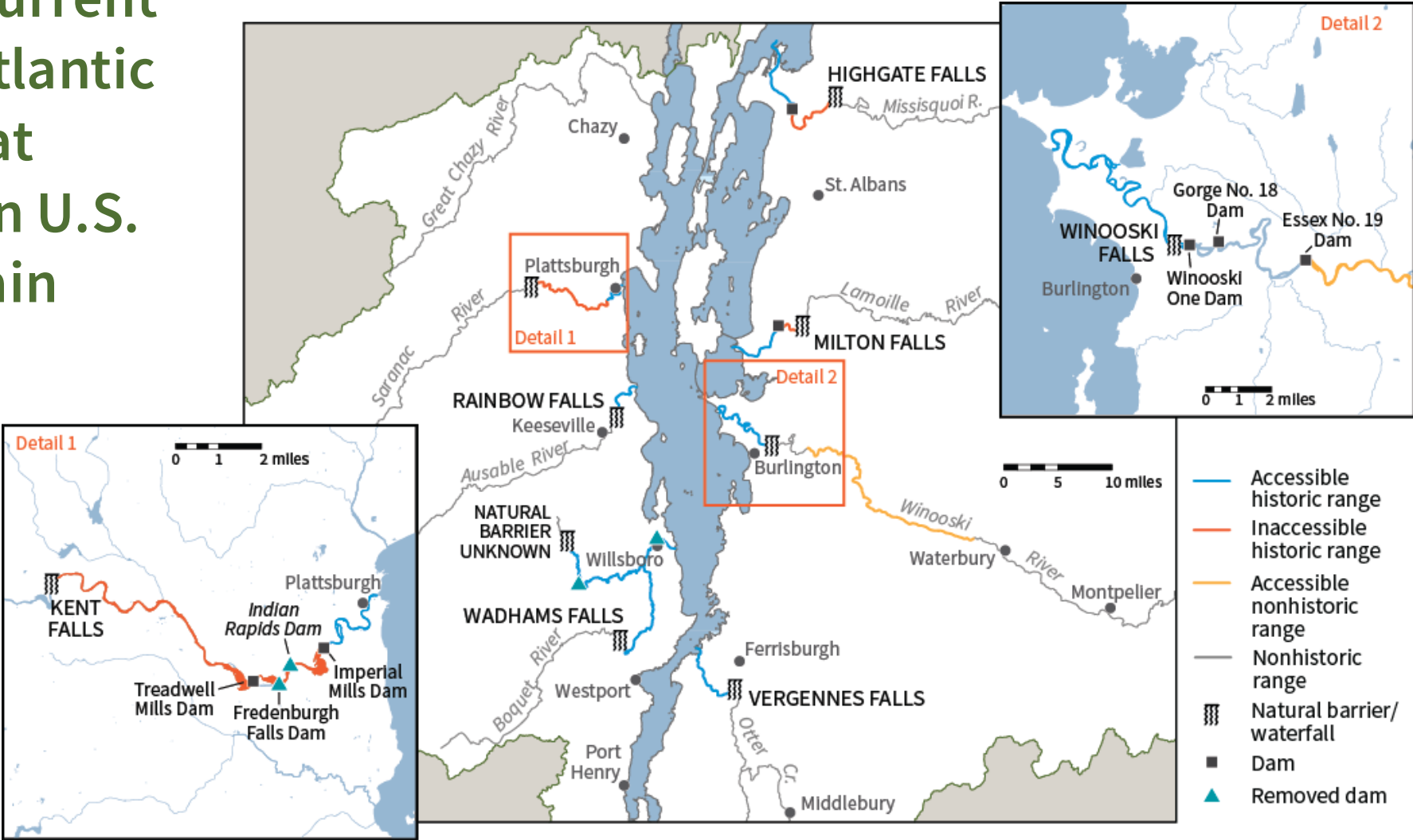


FIGURE 14 |
Historic and current
Landlocked Atlantic
salmon habitat
connectivity in U.S.
Lake Champlain
tributaries
(page 23)



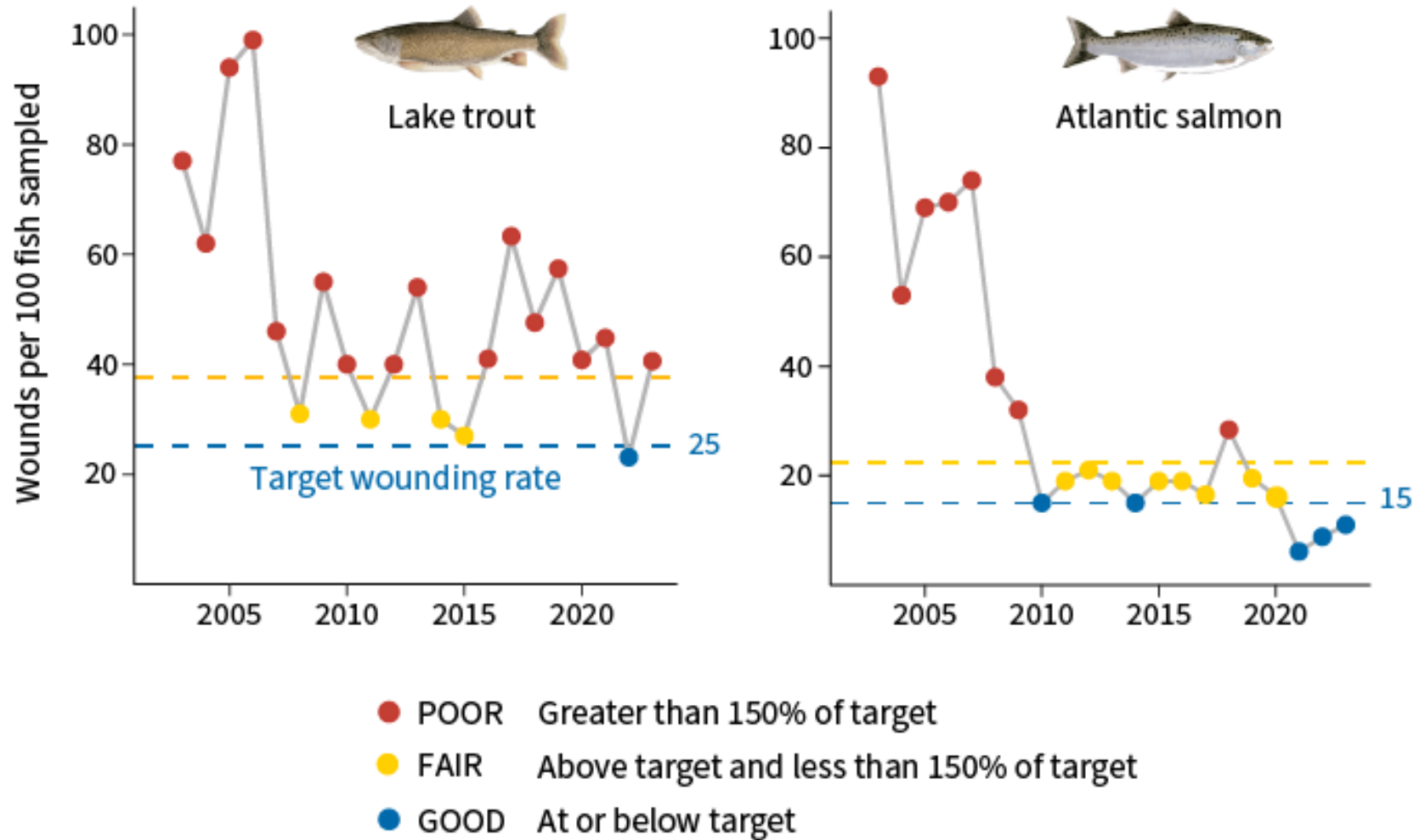


USFWS, VTFWD



Healthy Ecosystems

FIGURE 17 | Sea lamprey wounding rates in Lake Champlain (page 26)



AQUATIC INVASIVE SPECIES



USFWS



Healthy Ecosystems

FIGURE 15 |
Number of introduced aquatic non-native and invasive species in Lake Champlain (page 25)

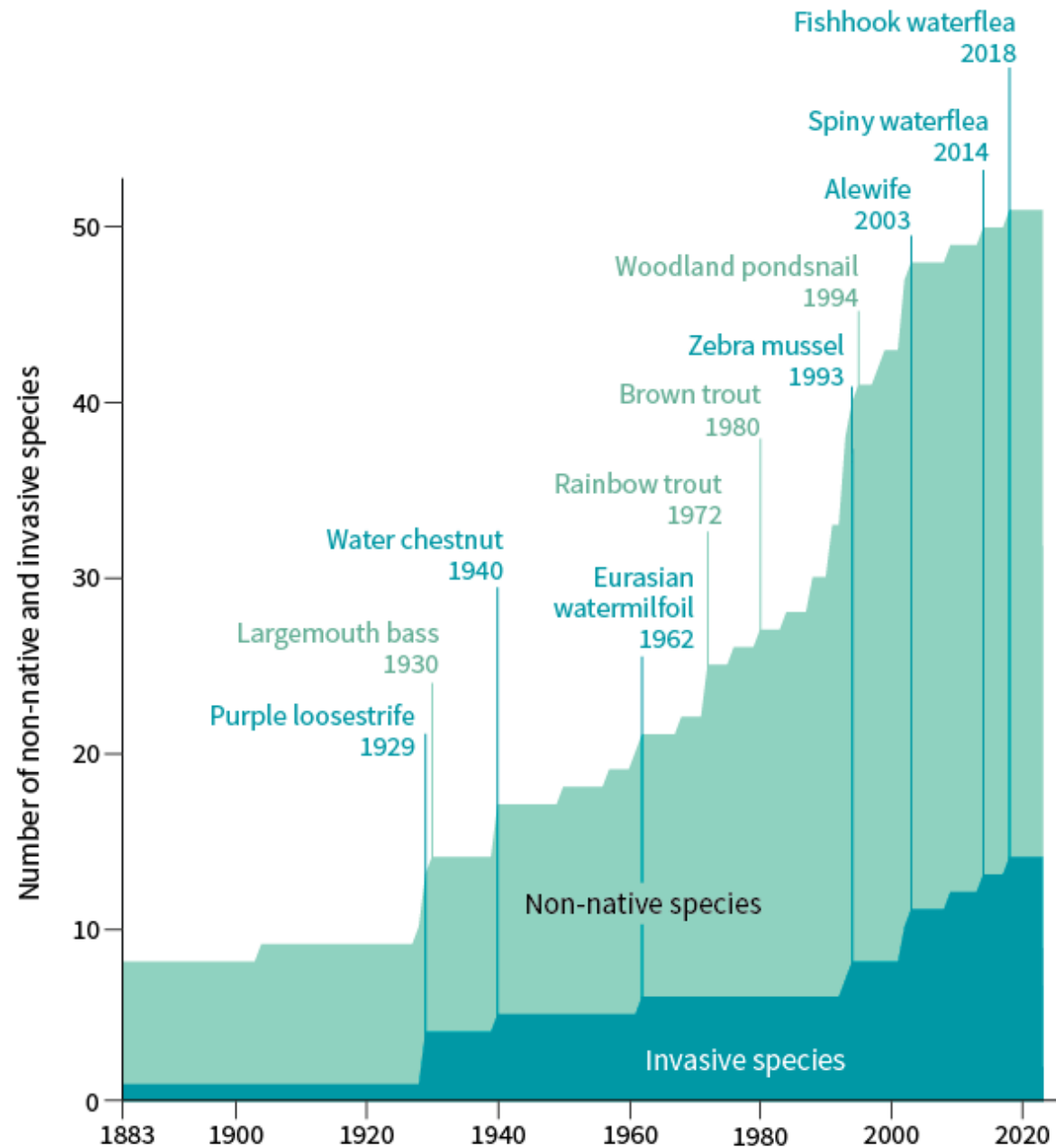
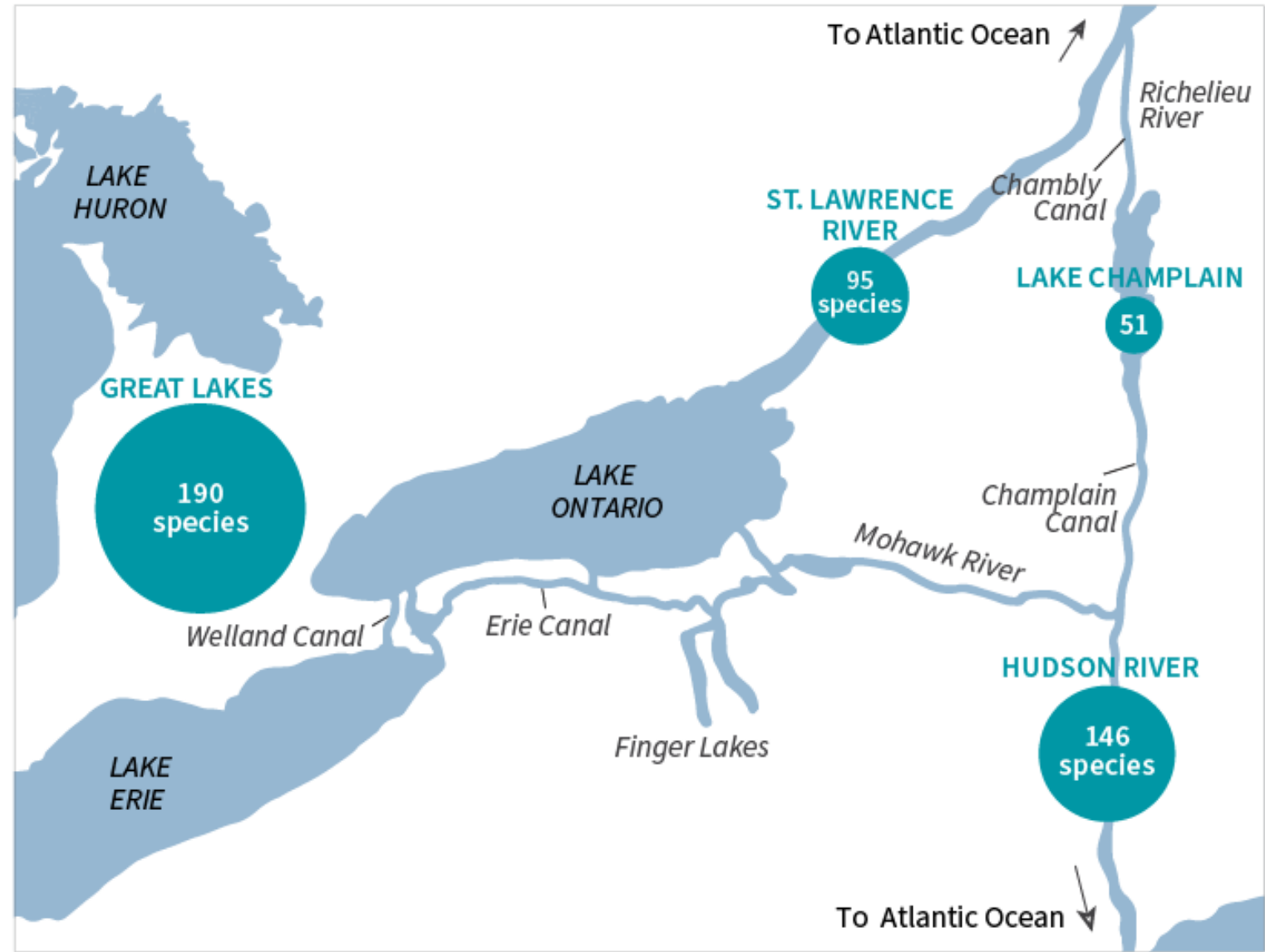


FIGURE 16 |
Non-native species in
Lake Champlain and
connected waterways
(page 25)





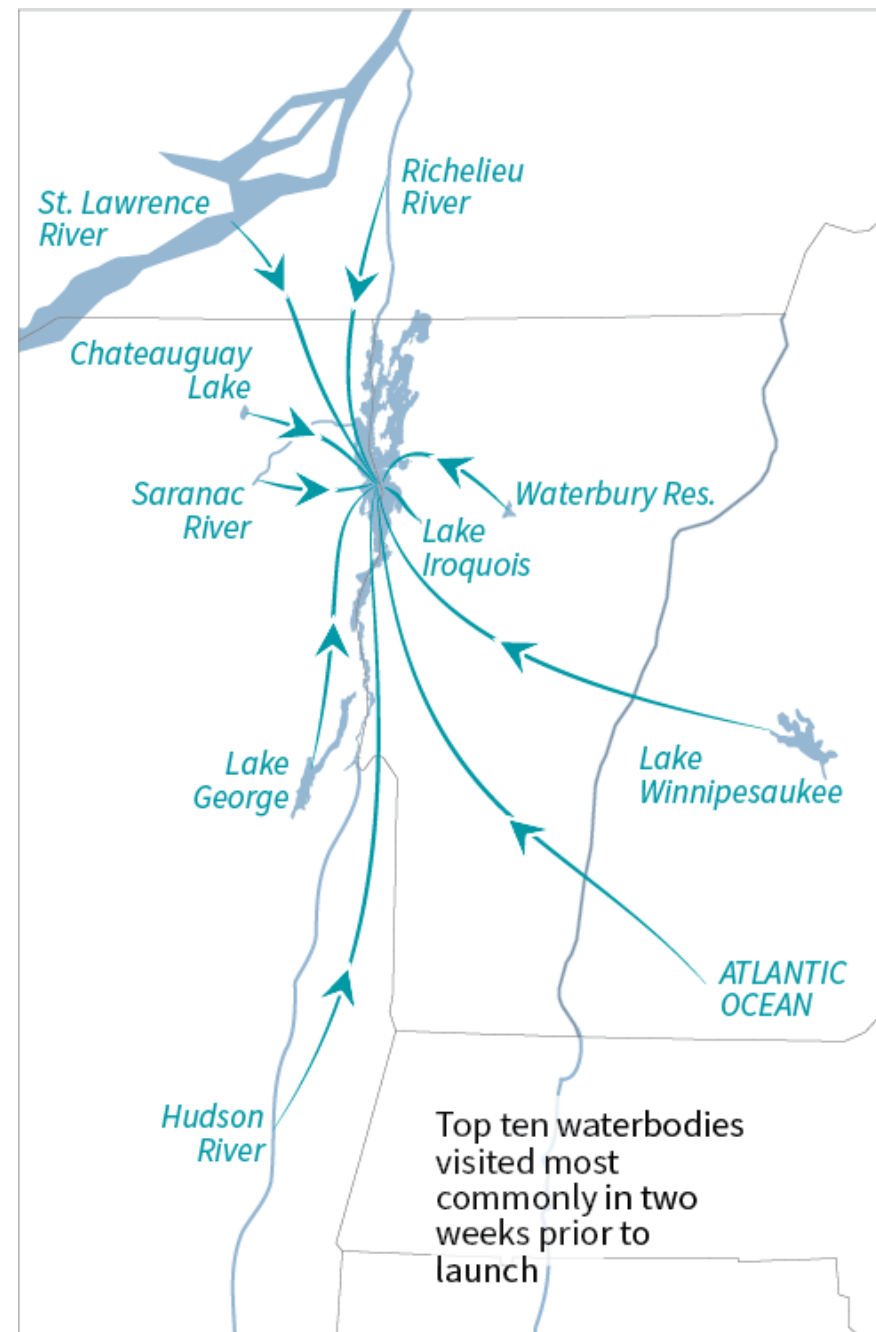
University of Florida



Ellen Marsden



FIGURE 18 |
Waterbodies with aquatic
invasive species commonly
visited prior to launch into
Lake Champlain, 2021-2023
(page 27)



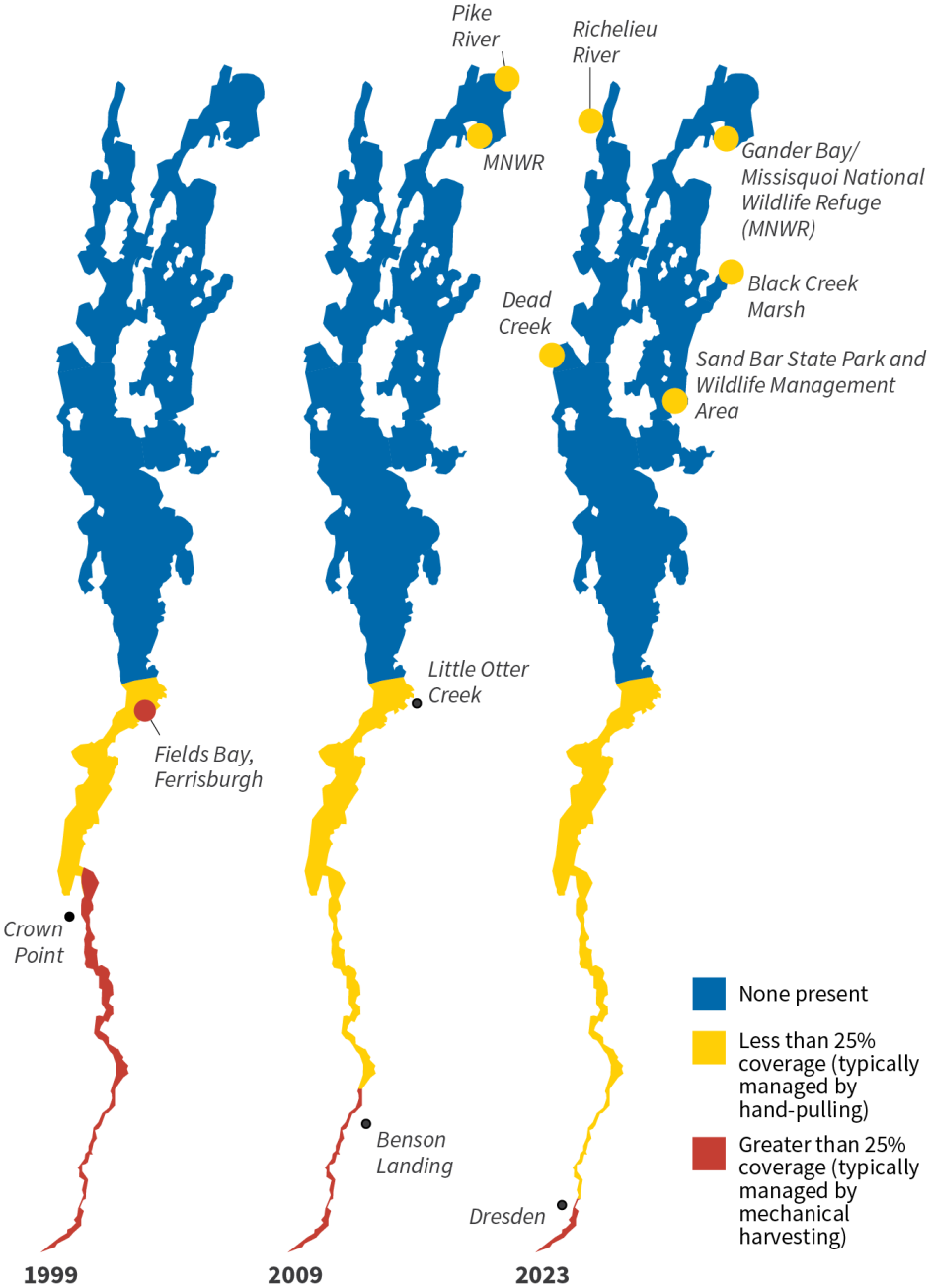


LCBP



Healthy Ecosystems

FIGURE 19 |
Invasive water
chestnut coverage
in Lake Champlain
(page 28)





LCBP



Healthy Ecosystems

A CHANGING CLIMATE

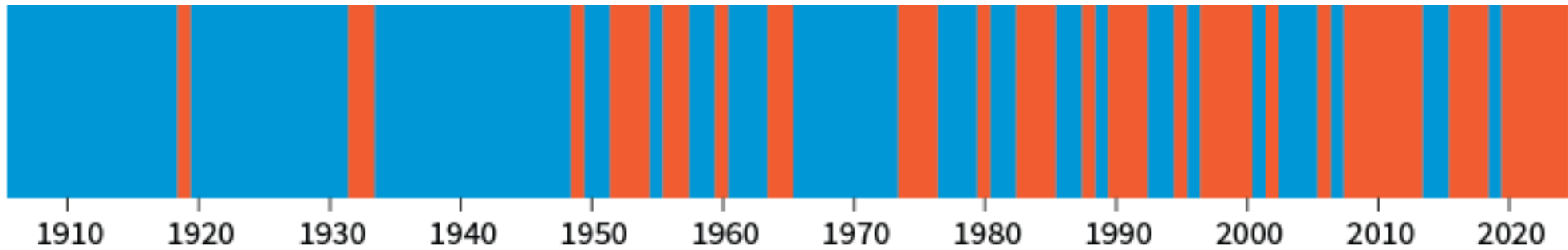


William Stevenson



Healthy Ecosystems

FIGURE 20 | Surface freeze-over of Lake Champlain (page 29)



Winters when the surface of Lake Champlain:



Completely froze over



Did not completely freeze over



Informed & Involved Public



UNDERSTANDING AND ENGAGEMENT



Informed & Involved Public

Public awareness survey data, 2021



1,675 survey respondents

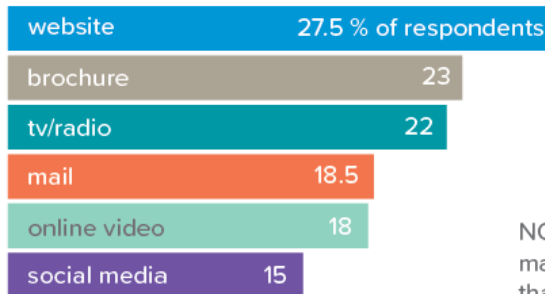
from QC, NY, & VT

97% believe that healthy waterways are a critical part of thriving communities

92% believe their actions affect water quality

66% know how to find information about protecting water quality

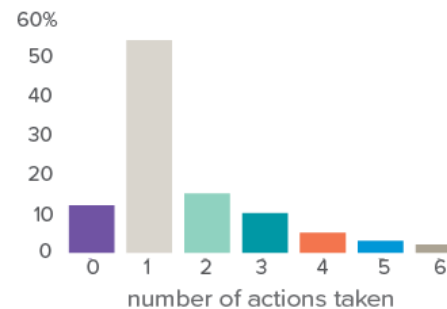
Most preferred methods of receiving information:



NOTE: Some respondents may have chosen more than one method

49% know about efforts in their community to protect or improve water quality

10% engaged in four or more stewardship actions



Informed & Involved Public

Public awareness survey data, 2021



1,675 survey respondents

from QC, NY, & VT

97% believe that healthy waterways
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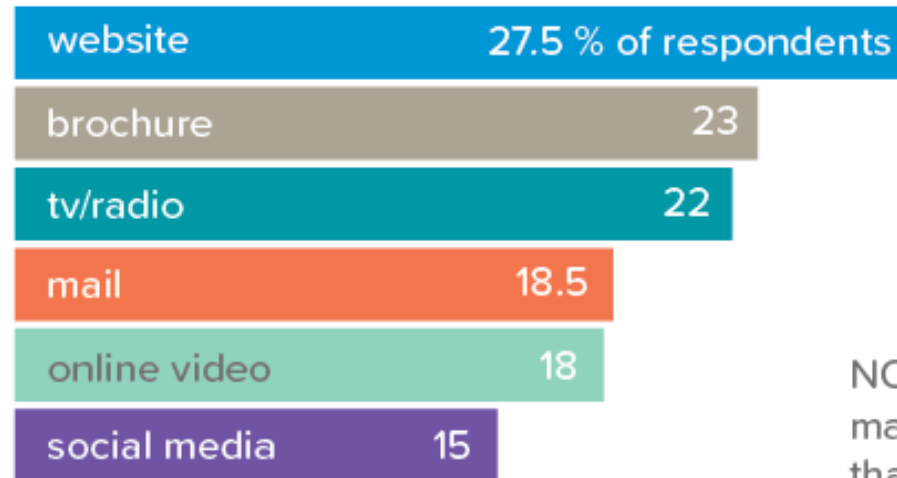
Informed & Involved Public

Public awareness survey data, 2021



66% know how to find information about protecting water quality

Most preferred methods of receiving information:



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Public awareness survey data, 2021



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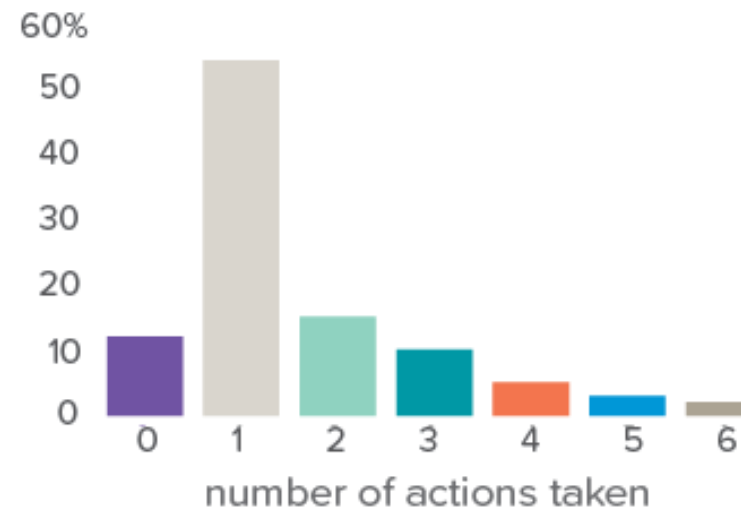
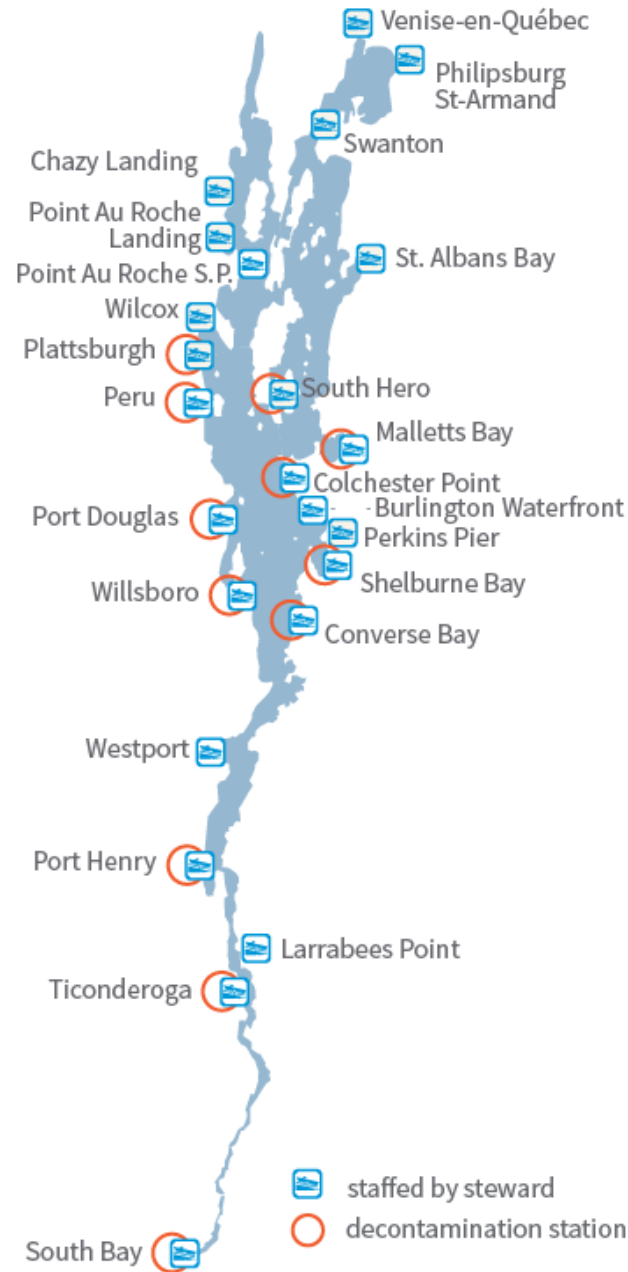



FIGURE 21 | Lake Champlain boat launch steward program summary, 2021-2023 (page 29)




 **Boat Launch Steward Survey Results 2021 - 2023**


152,703
individuals reached

 **69,952**
watercraft surveyed

 **13%** of surveyed watercraft carried aquatic hitchhikers

4,669 AIS interceptions on takeout
 **793** AIS interceptions on launch


 **73%** of boaters took spread prevention measures

FIGURE 21 | Lake Champlain boat launch steward program summary, 2021-2023 (page 29)

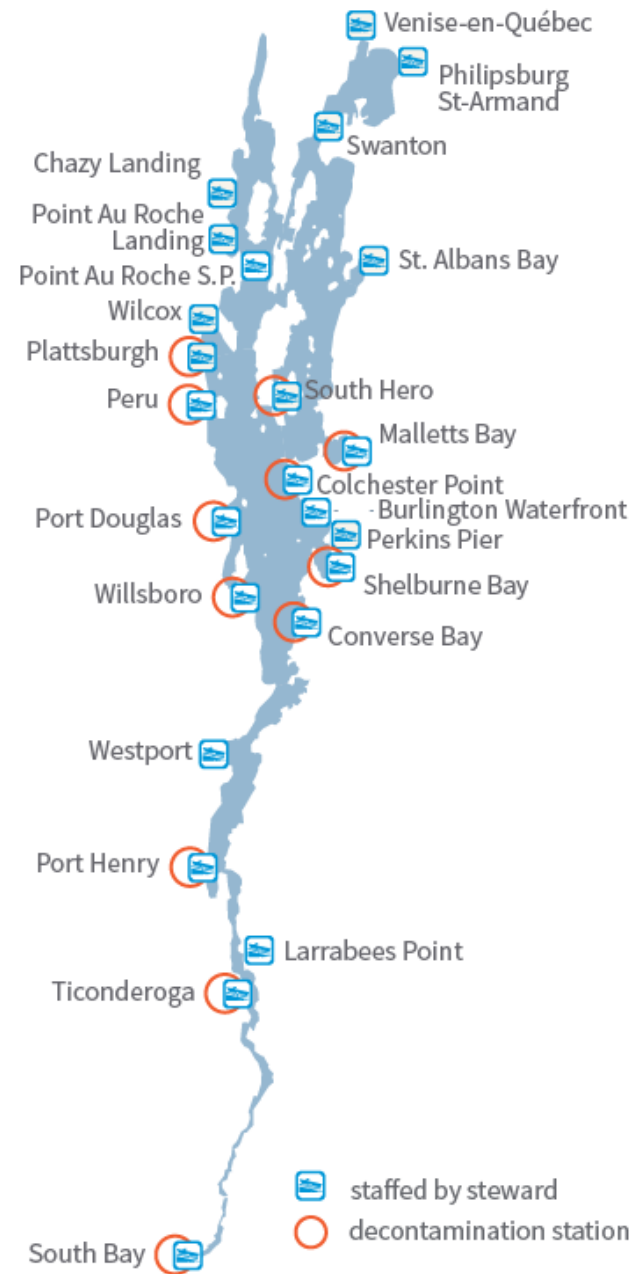
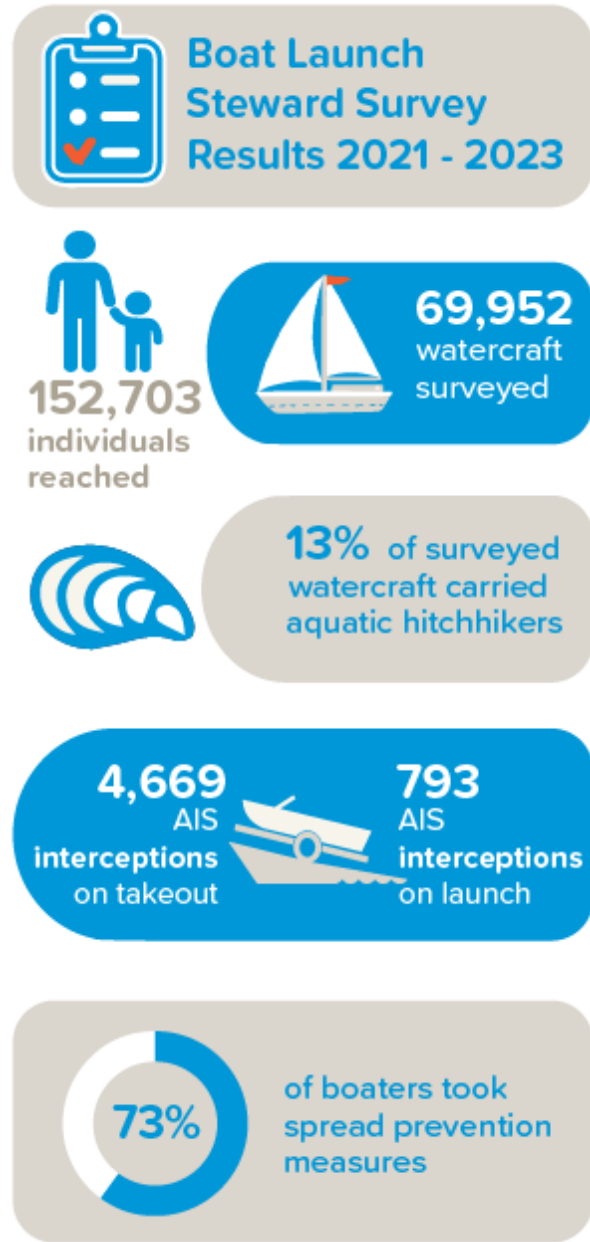


FIGURE 21 | Lake Champlain boat launch steward program summary, 2021-2023 (page 29)



INDIVIDUAL ACTION



Informed & Involved Public



WHAT YOU CAN DO



Informed & Involved Public

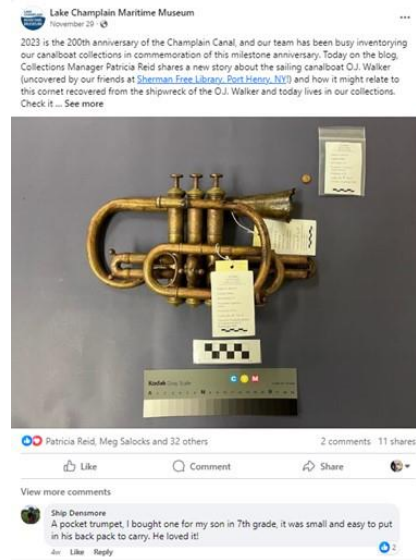
Thriving Communities



HERITAGE and RECREATION



Internships

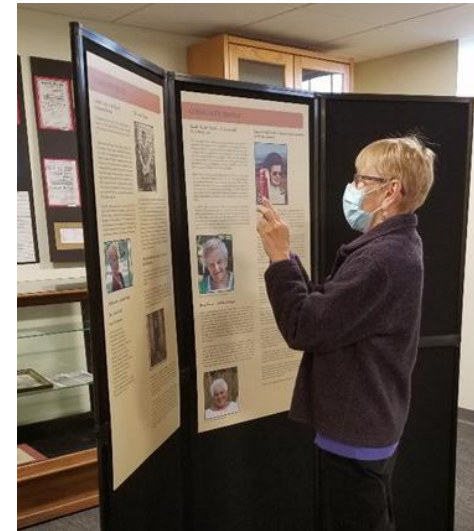


Collections

Local Heritage

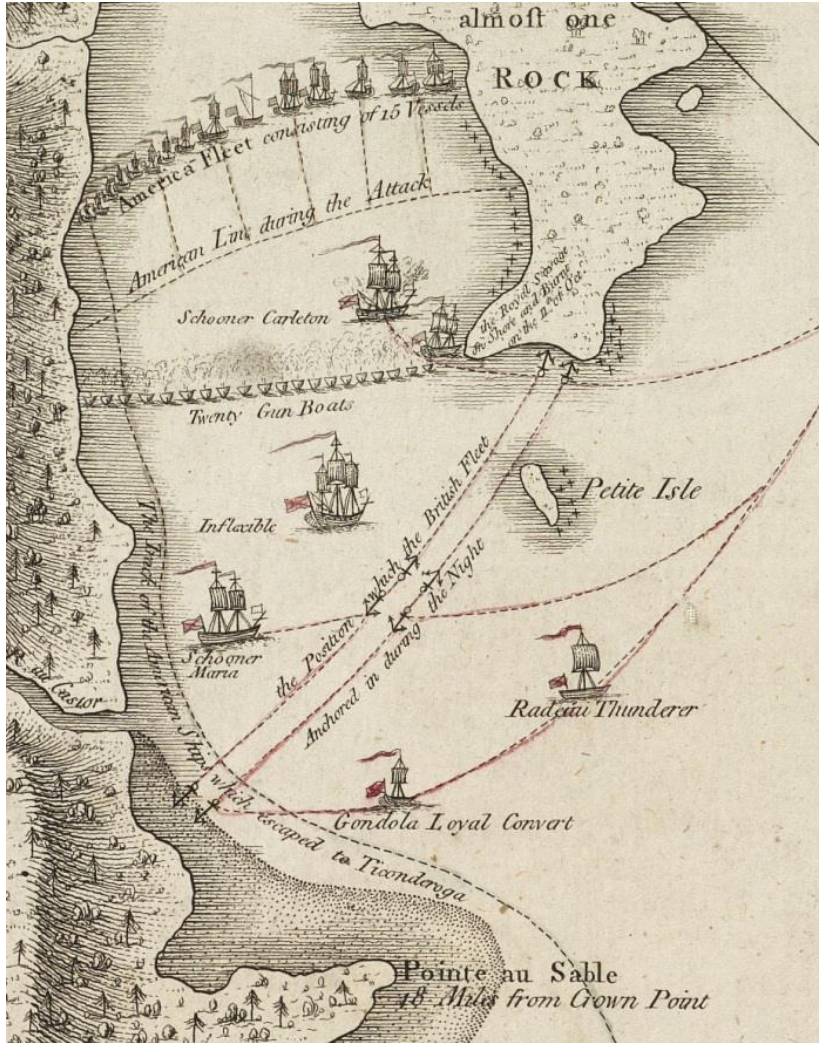


Interpretive Theme



Thriving Communities

HERITAGE and RECREATION



Special Program Grants



HERITAGE and RECREATION



Lake Champlain Bikeways
Voies Cyclables Du Lac Champlain



Western New
England Greenway



COMMUNITY ENGAGEMENT

Since 2021:
50 CVNHP Projects
Total: \$590,197
Match: \$1,406,864

Events:	257
Attendance:	17,304
Students:	2,042
Teachers:	327
Classes/Trips:	62
Volunteers:	539
Vol. Hours:	10,191
Value of Vols:	\$1,151,777



Fishing Workshops for
New Americans and
Underserved
Communities



Thriving Communities

LCBP Artist-in-Residence Program



Clemmons Family Farm: UnderWATER,
UnderGROUND: Black/Indigenous Creatives
Historize Charlotte, Vermont's Sea Change



Thriving Communities



Thriving Communities