30 Years of Restoration After Pollution

via a Natural Resource Damage Assessment

A webinar brought to you by NOAA and partners:

buzzards BAY COALITION

LOCAL RESTORATION EARTH CORPS GLOBAL LEADERSHIP

Today's Agenda

Introduction:
Scott Lundgren, Director of NOAA's Office of Response and Restoration

Restoration: Helping Habitats and Communities Recover from Pollution
Chris Doley, Chief of NOAA's Habitat Restoration Division

Restoration Results for Urban Populations & Coastal Habitats on Buzzards Bay
Mark Rasmussen, Buzzards Bay Coalition

Commencement Bay: Stewardship and Collaboration
Steve Dubiel, EarthCorps

Summary:
Scott Lundgren, NOAA

Q&A:
At the end of the session

Introduction

Scott Lundgren

- Director, Office of Response and Restoration, National Ocean Service, NOAA

NOAA is a Trustee for Public Natural Resources

- NOAA is a steward, or "trustee," for the nation's coastal and marine resources, such as fisheries, protected and migratory species, marine mammals, wetlands and other critical habitats, and resources of National Marine Sanctuaries and National Estuarine Research Reserves

- We act on behalf of the public to protect and restore natural resources harmed by oil spills, releases of hazardous waste, and certain vessel groundings.

NOAA's Damage Assessment, Remediation and Restoration Program (DARRP)

DARRP works to protect and restore NOAA trust resources impacted by releases of oil and/or hazardous substances and vessel groundings

Office of Response & Restoration

Assessment & Restoration Division: scientific and economic studies to quantify impacts to natural resources, including recreation

Office of Habitat Conservation

Restoration Center: restoration planning, methods, implementation, monitoring, stewardship and research

Office of General Counsel

Natural Resources Section: case strategy, legal aspects of settlement and litigation, coordinates with DOJ

OUR WORLD OCEAN

provides

THE AIR WE BREATHE

>50% The ocean produces over half of the world's oxygen and stores 50 times more carbon dioxide than our atmosphere.

CLIMATE REGULATION

70% Covering 70% of the Earth's surface, the ocean transports heat from the equator to the poles, regulating our climate and weather patterns.

TRANSPORTATION

76% Percent of all U.S. trade involving some form of marine transportation.

RECREATION

From fishing to boating to kayaking and whale watching, the ocean provides us with so many unique activities.

ECONOMY

$282 billion Amount the U.S. ocean economy produces in goods and services. Ocean-dependent businesses employ almost 3 million people.

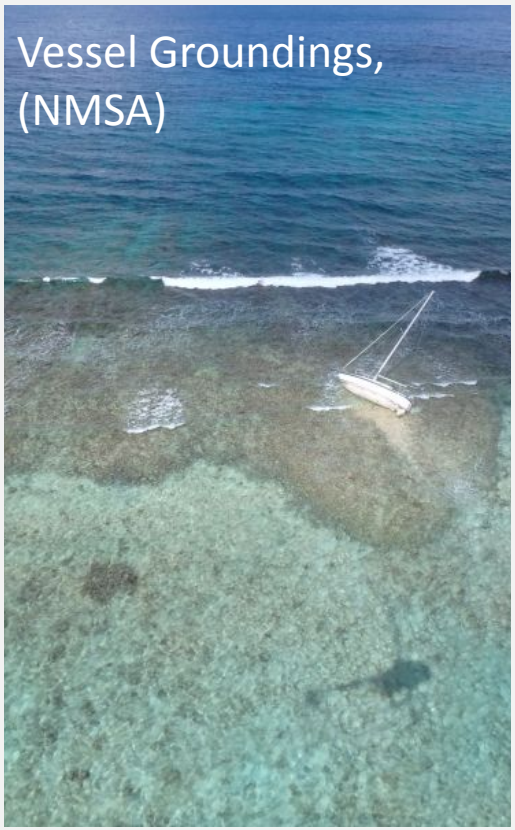
FOOD

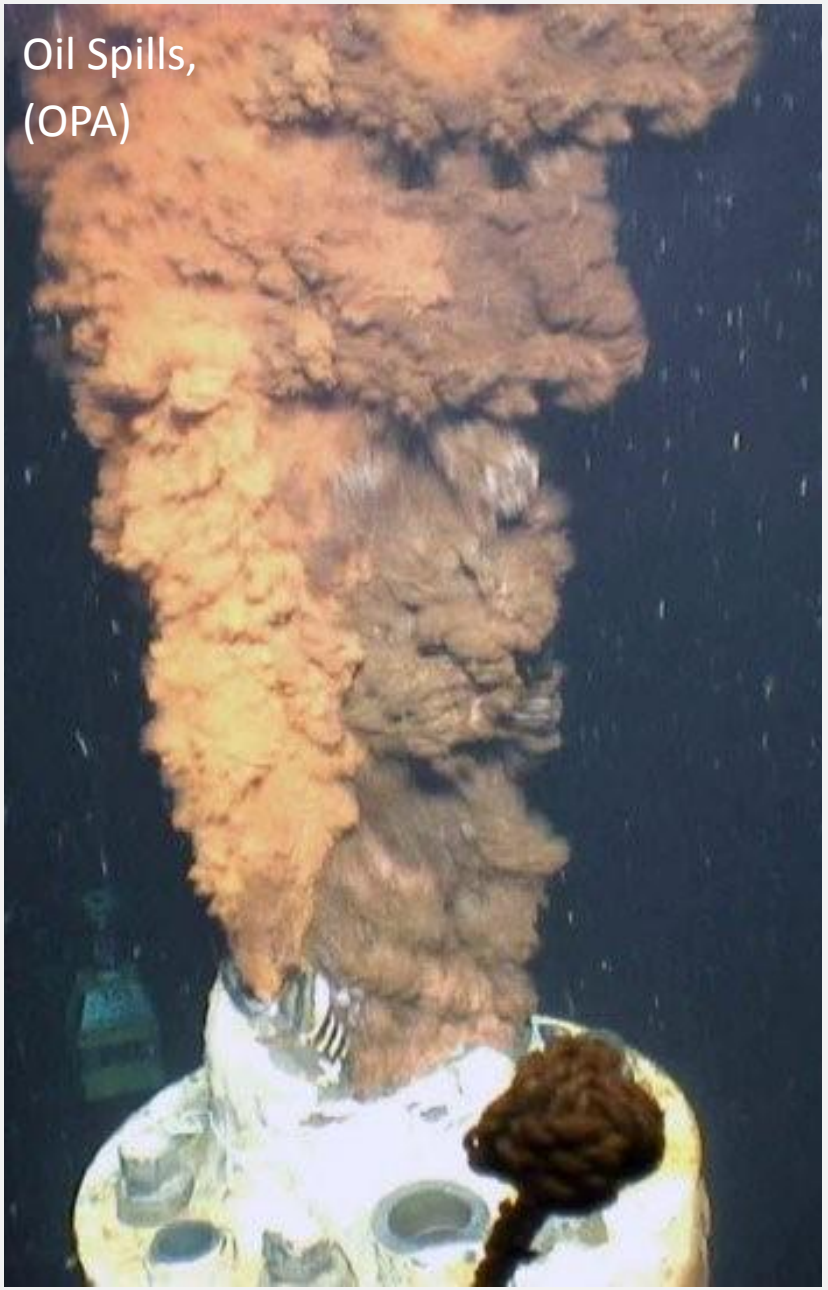
The ocean provides much more than just seafood. Ingredients from the sea are found in surprising foods such as peanut butter and soymilk.

MEDICINE

Many medicinal products come from the ocean, including ingredients that help fight cancer, arthritis, Alzheimer's disease, and heart disease.

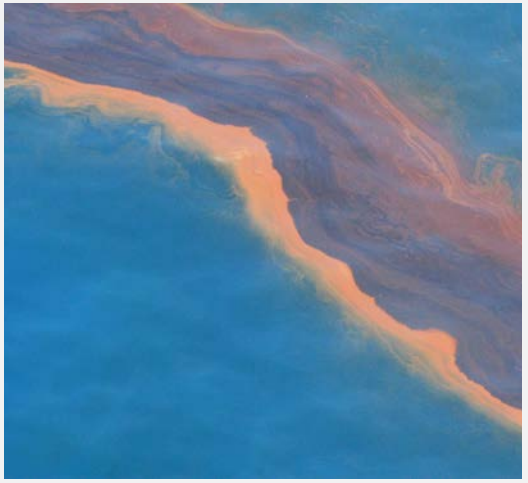
Things Happen to Trust Resources





Process and Roles

- **Spills:** Responsible Party(s) discharges of oil or hazardous substances.
- **Cleanup:** Response/Remedial Agencies decisions and actions directly or by Responsible Party oversight (e.g., contain/collect, dredge, cap, no action, etc.).
- **Assessment & Restoration:** by Trustees, conduct a Natural Resource Damage Assessment (NRDA) focused on injured resources/services and lost uses.



NRDA Involves Multiple Stakeholders

Trustees

- Federal agencies (NOAA, DOI, DOD, DOE, USDA)
- States
- Federally recognized tribes

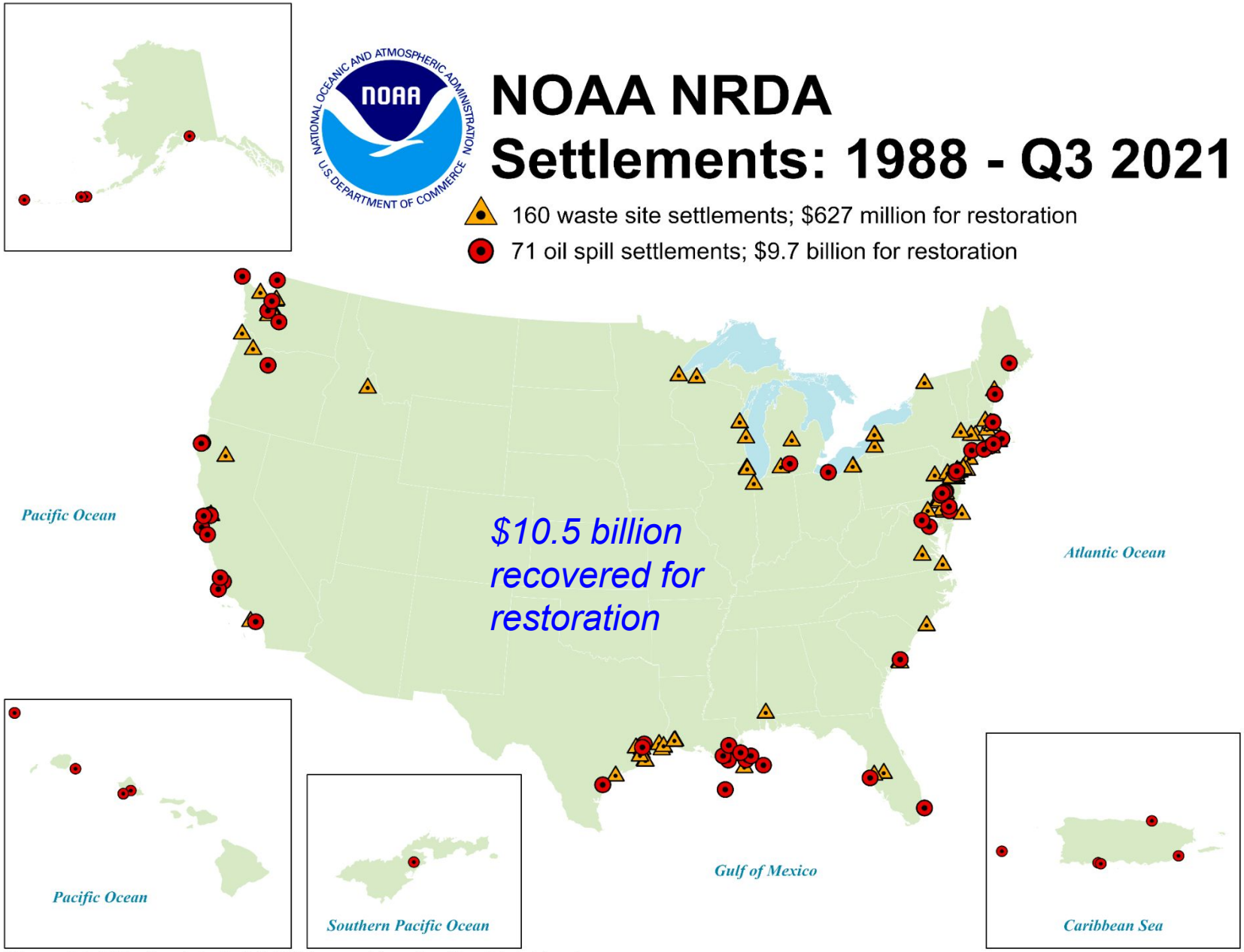
Responsible Party

The Public

NOAA NRDA Settlements: 1988 - Q3 2021

160 waste site settlements; $627 million for restoration

71 oil spill settlements; $9.7 billion for restoration



This map reflects NRDA settlements for oil spills that NOAA was a party to, working with our federal, state and tribal co-trustee partners and the U.S. Department of Justice. For more information, see www.darrp.noaa.gov.

Terrance W - June 202

In Summary

NOAA is a Trustee for Public Natural Resources

NOAA's DARRP restores injured natural resources

- 30 years of benefitting coastal ecosystems, economies, and communities
- Leverages the strengths of three offices
- Addresses injury from oil spills, waste sites, and ship groundings.

The NRDA path to restoration is

- A Cooperative Process
- A Legal Process
- Restoration Focused

With co-trustees, DARRP has held polluters accountable and yielded $10.5B for restoration

Additional NOAA NRDA Resources

Overview of various NRDA cases:

- www.darrp.noaa.gov

Laws and Regulations

- https://www.darrp.noaa.gov/legal-context

Environmental Economics

- https://www.darrp.noaa.gov/science-and-economics/economics

NRDA Data and Visualization

- https://www.diver.orr.noaa.gov/
- https://www.diver.orr.noaa.gov/#erma-section
- Learn About Our Work in Your State

Chris Doley

Chief, Habitat Restoration Division

Office of Habitat Conservation
NOAA Fisheries
National Oceanic and Atmospheric Administration
Silver Spring, Maryland

Restoration:
Helping Habitats and Communities Recover from Pollution

How We Restore Environments After Pollution and Ship Groundings

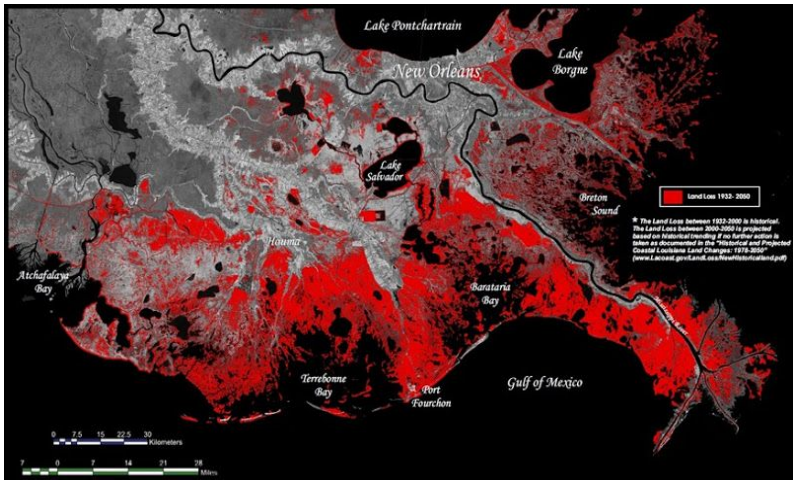
An Overview

Oil on the beach at Refugio State Park in Santa Barbara, California, on May 19, 2015. (U.S. Coast Guard)

M/V Casitas aground on atoll, Northwest Hawaiian Island 2005

Restoration in Southeast Louisiana

Gulf Coast, Southeast U.S.



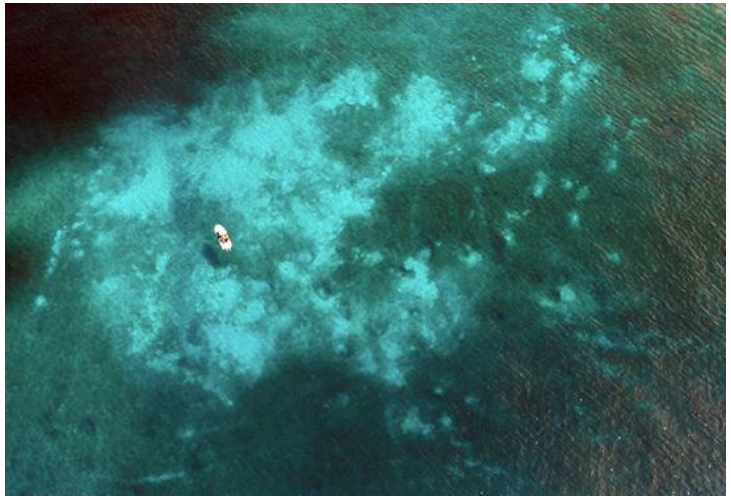
Projected land loss in Louisiana by 2050

Large Scale Barataria Marsh Creation (2022 Construction)

Cheniere Ronquille Barrier Island Restoration 2018

Coral Restoration

Southeast U.S., Hawaii, Guam and Puerto Rico



Aerial view of scoured coral reef after a ship grounding in Hawaii

Coral nursery

Reattaching nursery-grown corals to a damaged reef

A colony of reattached corals after two years of growth

Restoration in Commencement Bay, Washington

Pacific Northwest U.S.

Squally Beach, post construction (2001) and later in 2017.

Sha Dadx Wetland Estuary Restoration, Puyallup River, WA

Restoration in Buzzards Bay and New Bedford Harbor

Northeast U.S.

Horseshoe Dam removal in January 2020

River and floodplain plant community restoring, summer 2020

Partners

Mark Rasmussen, President and Buzzards Baykeeper®

Steve Dubiel, Executive Director EarthCorps

Restoration Results for Urban Populations & Coastal Habitats on Buzzards Bay

Mark Rasmussen, President

- Regional nonprofit founded in 1987, supported by 11,000 members.
- Work to protect and restore clean water and a healthy Buzzards Bay and Vineyard Sound for all through science, advocacy, land conservation, watershed restoration and community engagement.
- Working in 21 communities, headquarters in New Bedford, MA

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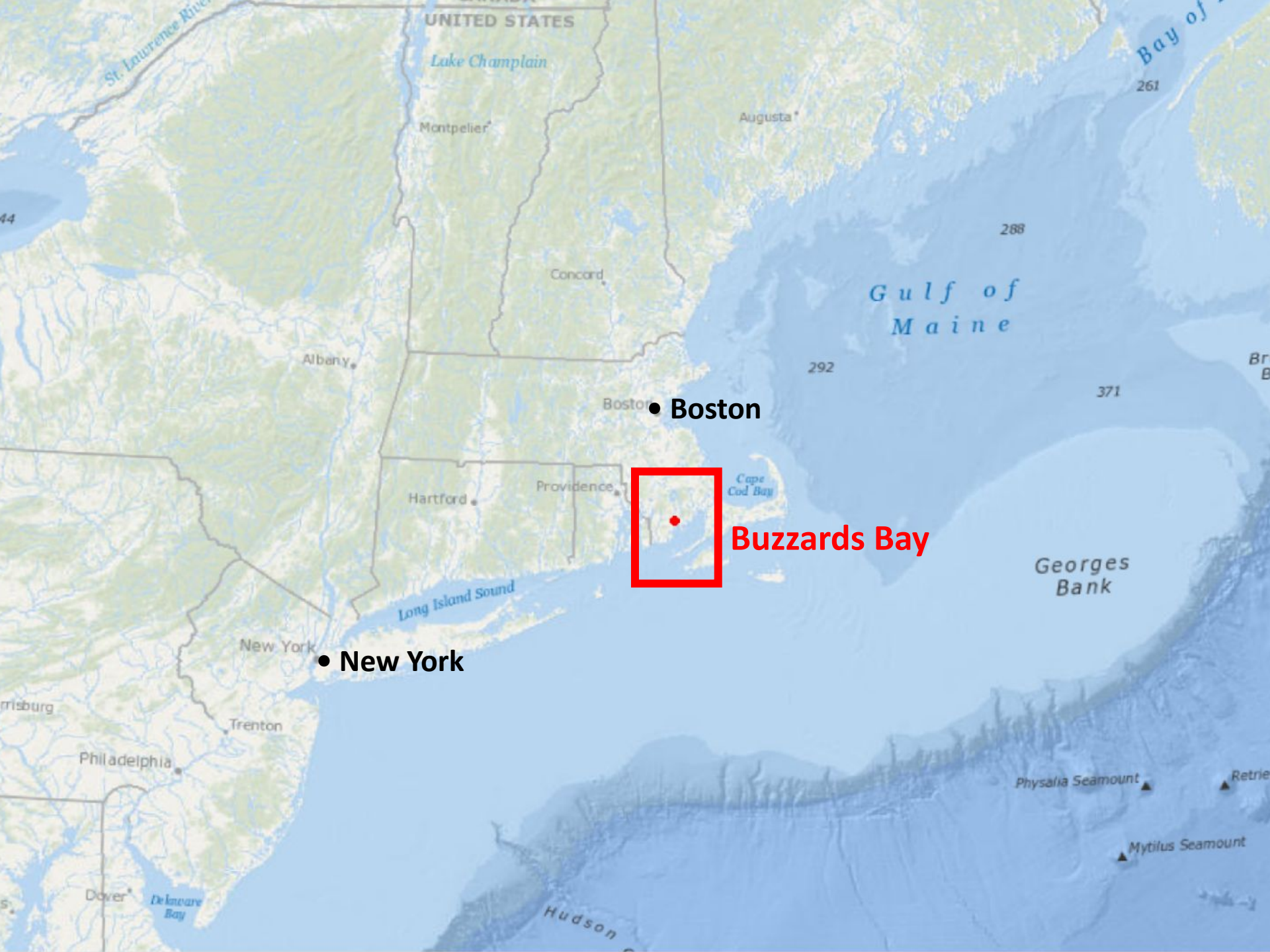
UNITED STATES
Lake Champlain
Montpelier
Augusta
Concord
Albany
Boston
Boston
Hartford
Providence
Cape Cod Bay
Buzzards Bay
Gulf of Maine
Georges Bank
Long Island Sound
New York
New York
Trenton
Philadelphia
Dover
Delaware Bay
Physalia Seamount
Mytilus Seamount
261
288
292
371

Two Pollution Settlements on Buzzards Bay
Close partnership with NOAA DARRP Program

New Bedford Harbor PCB Contamination
2003 Bouchard 120 Oil Spill

Project Examples

New Bedford Harbor Urban Restoration: Acushnet Sawmill & Marsh Island

Weweantic Dam Removal for Climate Resiliency and Species Recovery

Buzzards Bay-wide Land Conservation impact

New Bedford Harbor PCB Sediment Contamination

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DARRP Restoration Action:
Acushnet Sawmill
New Bedford Harbor, MA
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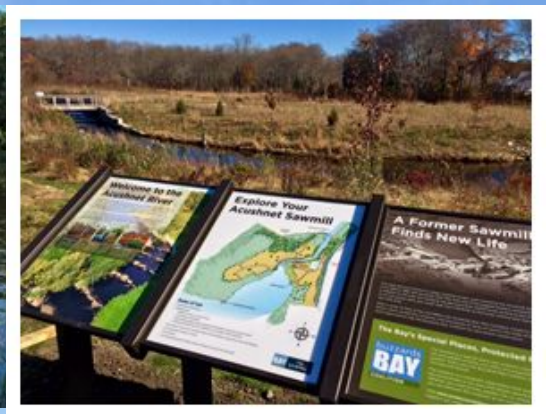
1930s


38
MILL RD


2006


2014



Today

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DARRP Restoration Action:
Marsh Island
New Bedford Harbor, MA
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Marsh Island Restoration Project and Beneficial Reuse Areas

Source: MassGIS; Buzzards Bay Coalition
Printed: January 11, 2019

0 0.25 0.5 1 Mile


MARSH ISLAND RESTORATION PROJECT
MAINTENANCE ACCESS ROAD
OBSERVATION PLATFORM
FOOTPATH
SALT PANNE
BRIDGE
HIGH MARSH
HIGH MARSH
LOW MARSH
TIDAL CREEK
HIGH MARSH
TIMBER GUARDRAIL
CHAIN LINK FENCE
TEMPORARY CULVERTS
CONSTRUCTION ACCESS ROAD
CEMETERY
Taber St
River Ave
MOBY DICK MARINA
Acushnet River
I-195
NORTH

2003 Bouchard 120 Oil Spill

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2019
DARRP Restoration Action: Wareham, MA
Weweantic River blocked by Horseshoe Dam
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2019
Head of Tide Dam blocks fish passage and prevents climate adaptatation


2019
Buzzards Bay’s largest river disconnected


2020

Looking downstream at the central impoundment, before and after removal.

Photo by David Pichette, October 2019

Photo by Bonnie Turek, March 2020


2020
River recovering its natural course
DARRP Investment
$665,000


7 8 9 10 3 4 5 6


Sippican Spirit
2018
SIPPICAN SCHOOL
Here We Glow!

Explore Horseshoe Mill

Rules of Use

- Open dawn until dusk.
- Allowed uses:
  - Walking, hiking, and picnicking.
  - Biking.
  - Canoeing and kayaking.
  - Dog walking (dogs must be under your control at all times and owners must pick up pet waste).
  - Fishing and hunting permitted in accordance with state and local regulations.
- No motorized boats or vehicles.
- No camping or fires.
- No digging or defacement.
- No cutting or removal of wood or vegetation.
- No littering/dumping.
- Please remove all trash you bring into the park.

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The hills of Cuttyhunk at the edge of Buzzards Bay, looking west into America

Example 1: Nasketucket Bay
2014 Acquisition with B120 Funds
$6.3M for 411 acres

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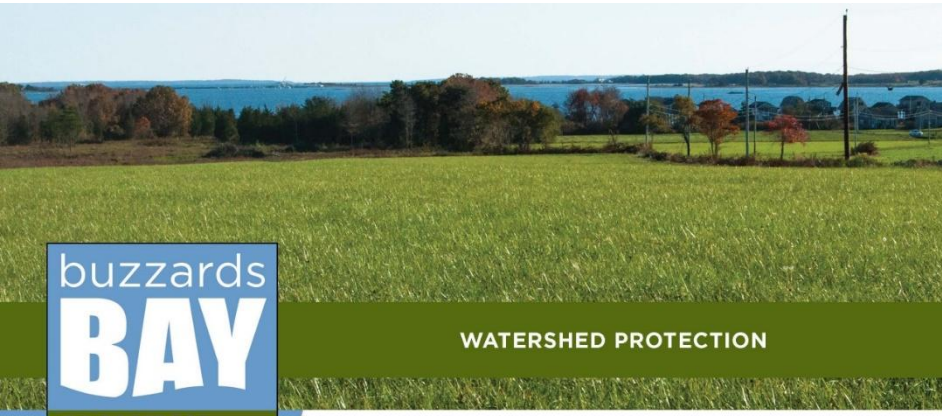

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WATERSHED PROTECTION

Protecting water quality in Nasketucket Bay

Nasketucket Bay contains some of the healthiest water quality and habitat in all of Buzzards Bay.

- Extensive eelgrass meadows provide important habitat for fish and shellfish.
- Productive shellfish beds support commercial and recreational fisheries.
- Abundant fish and wildlife populations live in Nasketucket Bay because of its clean water and healthy habitats.

These conditions are due in part to successful efforts to conserve land around Nasketucket Bay. Protecting undeveloped land such as forests, fields and wetlands protects water quality for all to enjoy.

Nasketucket Bay Land Conservation Project

Few coastal bays in Massachusetts have as much protected shoreline as Nasketucket Bay. Spanning the towns of Fairhaven and Mattapoisett, the Nasketucket Bay watershed is rich in natural resources, but is vulnerable to major development. To protect the Bay's health, the Buzzards Bay Coalition is working to conserve more than 400 acres of land that have important benefits to people, wildlife and water quality.

What will be protected through this project?

The Nasketucket Bay Land Conservation Project will forever protect 416 acres of land in Fairhaven and Mattapoisett. This land will connect and expand upon the more than 1,000 acres already protected as part of the Nasketucket Bay State Reservation and other conservaton areas around the bay. This is a tremendous opportunity to conserve the remaining gaps in these protected lands.

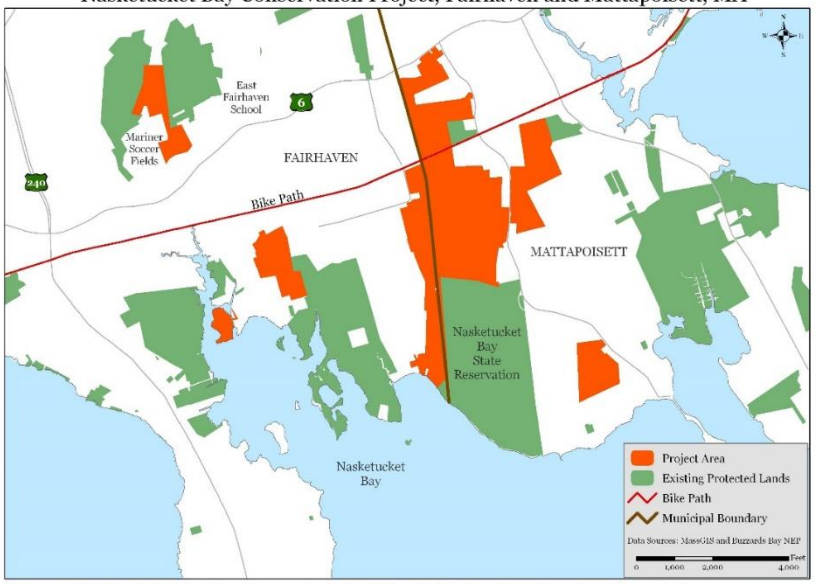
Several regional plans, including the local Open Space and Recreation Plan and the South Coast Rail Smart Growth Corridor Plan, specifically call for protecting this land because of its vulnerability to development and the wide array of benefits that come with its protection.

Why protect this land?

- Protect water quality in Nasketucket Bay.
- Expand Nasketucket Bay State Reservation, creating links to the Phoenix/Mattapoisett Bike Path and increasing public access.
- Enhance recreation opportunities by linking the Mariner Soccer Complex with trails to Nasketucket Woods, Austin Pond and the East Fairhaven School.
- Conserve important habitat for fish, shellfish, birds and wildlife.
- Preserve agricultural viability in an area vulnerable to development.
- Preserve the community's rural character, vistas, and scenic beauty.

To learn more and watch a video about the Nasketucket Bay Land Conservation Project, visit ***www.savebuzzardsbay.org/NasketucketBay***

Nasketucket Bay Conservation Project, Fairhaven and Mattapoisett, MA



Map prepared by: Buzzards Bay National Estuary Program, 2870 Cranberry Highway, East Wareham, MA 02538. www.buzzardsbay.org. April 23, 2013.

Facts and Figures

Location:
- 135 acres in Fairhaven
- 281 acres in Mattapoisett

The project includes the acquisition of:
- 215 acres of forestland and coastal wetlands.
- 201 acres of conservation restrictions on active farmland.
- Two important trail easements connecting the Phoenix/Mattapoisett bike paths with the state reservation and recreation/conservation land around the Mariner Soccer Complex.

Timeframe: June and December 2014 closings

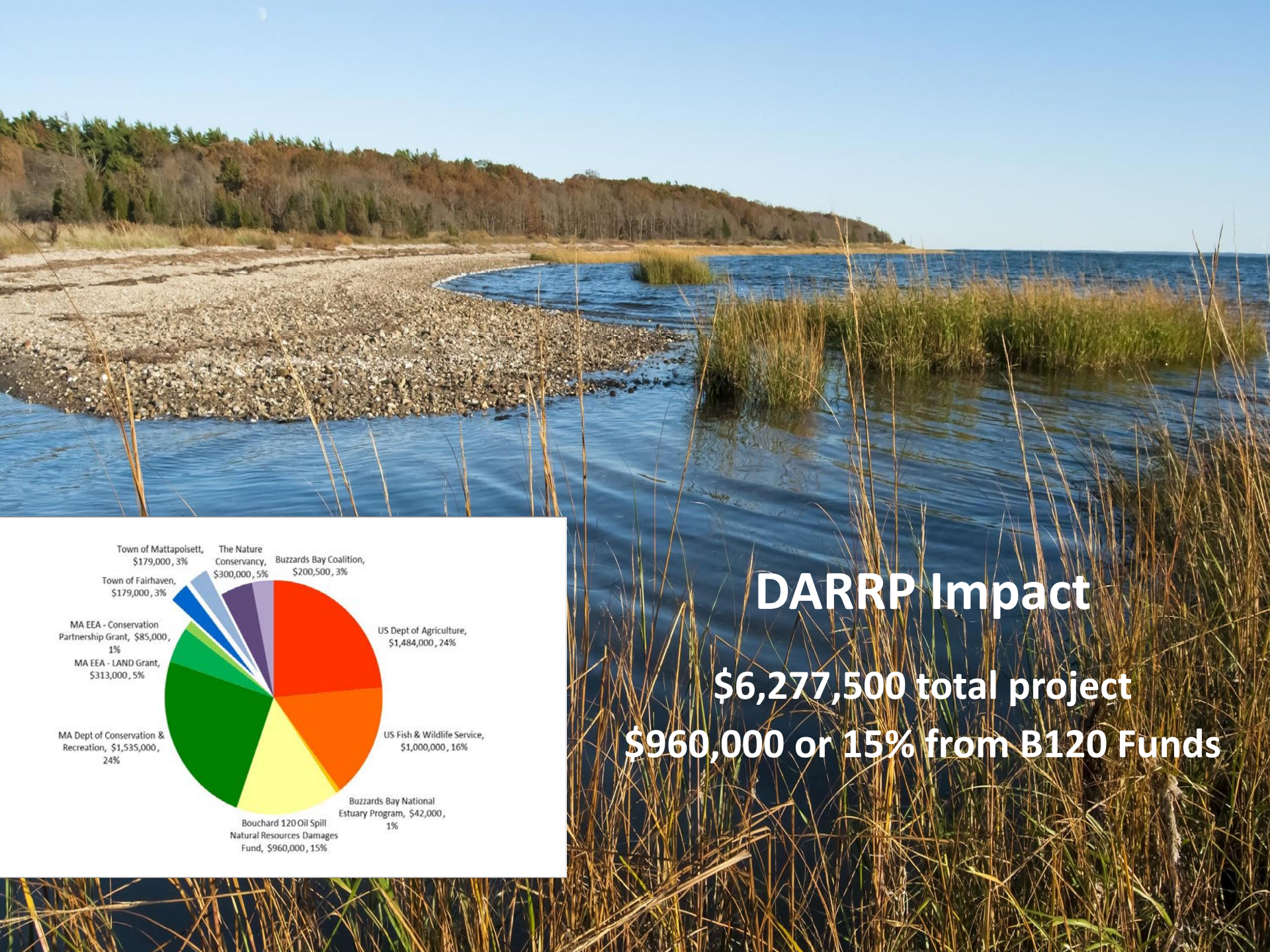
Costs: $6.192 million (property acquisition costs)
$408,000 (project costs and stewardship)

Anticipated funding:
- $2.519 million: Federal grants
- $1.933 million: Department of Conservation and Recreation and state grants
- $960,000: Bouchard Oil Spill Trustee Council
- $325,000: Towns of Mattapoisett and Fairhaven
- $300,000: The Nature Conservancy
- $563,000: Private fundraising
  - Private raised as of Feb. 2015: $377,000
  - **Outstanding need: $186,000**

94% of project costs were raised from local, state, and federal government grants.

www.savebuzzardsbay.org

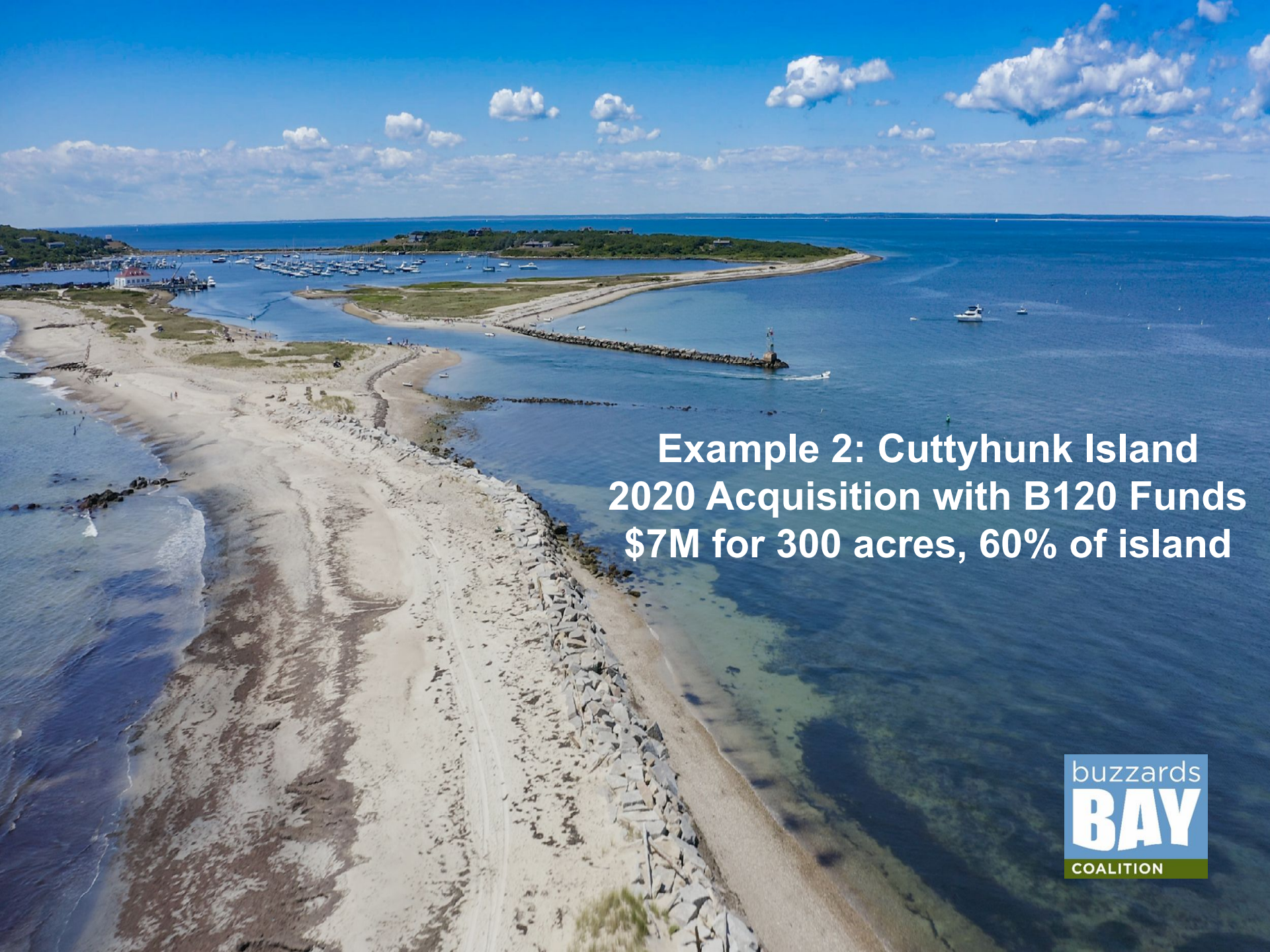
114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913
21 Luscombe Avenue, Woods Hole, Massachusetts 02543 | Tel: 508-540-6222 Fax: 508-540-5222



DARRP Impact

$6,277,500 total project

$960,000 or 15% from B120 Funds


Example 2: Cuttyhunk Island
2020 Acquisition with B120 Funds
$7M for 300 acres, 60% of island
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DARRP Impact

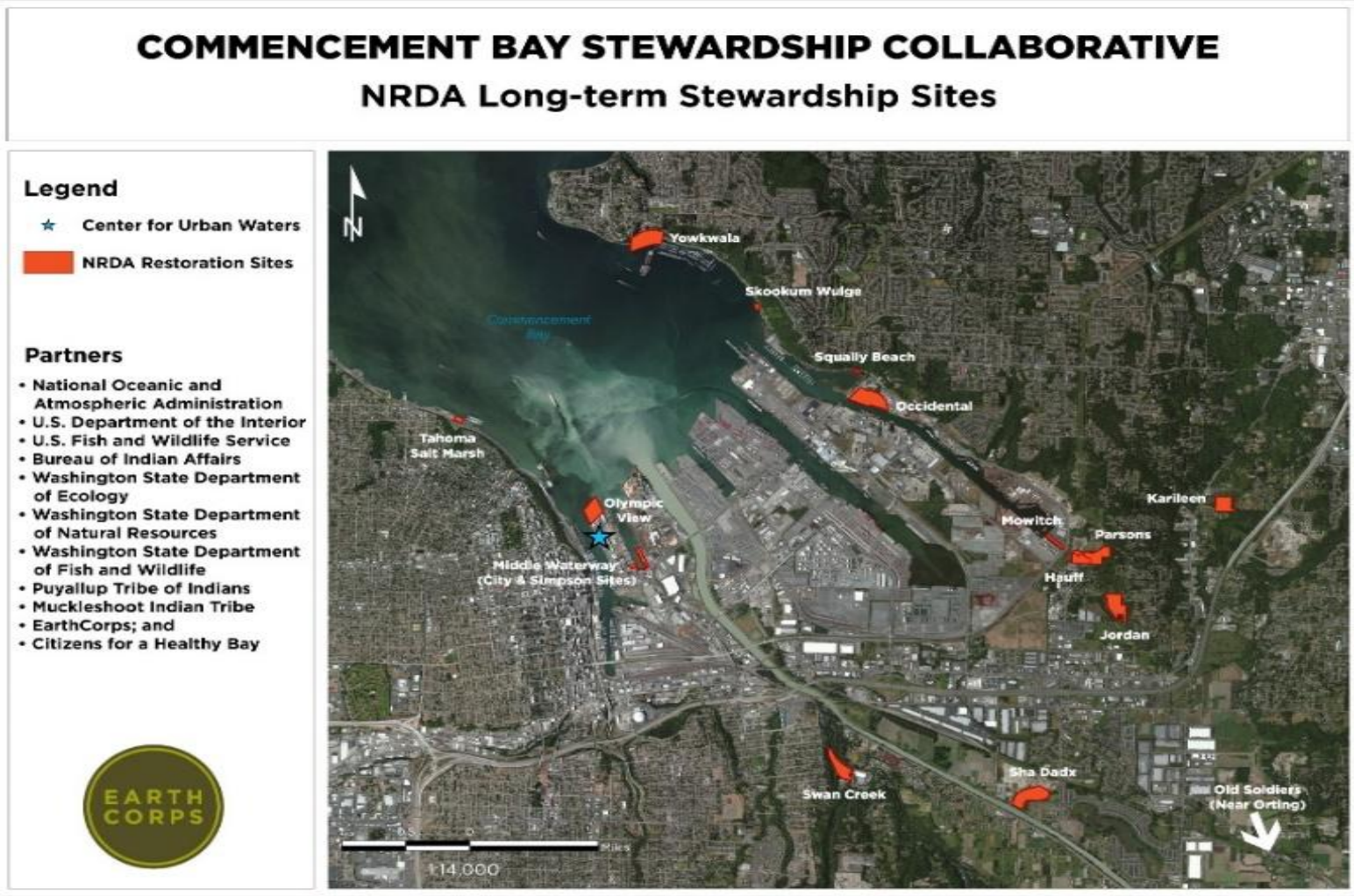
$7 Million Total Project Cost
$2.4M private donations
$4.6M government grants

$1.2M from B120 DARRP funds
17% of total project cost,
leveraged $5.8M from other sources

LEADERSHIP | COMMUNITY | HABITAT

WWW.EARTHCORPS.ORG

Primary Goal: sustain the integrity of ecosystem function for species of concern into perpetuity

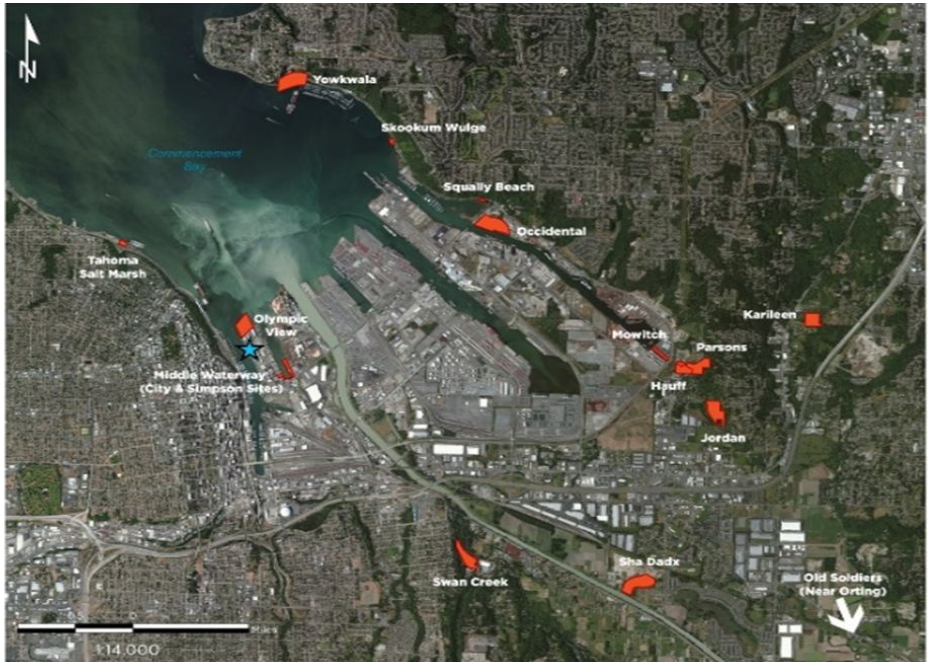


Commencement Bay Stewardship Collaborative

- Compensates for habitat loss
- Provides job training and creates jobs
- Addresses environmental injustice
- Ensures resilience and enables climate change adaptation
- Invests settlement funds for long-term stewardship and enables long-term thinking

Compensate Habitat Loss

- Identify key habitats lost due to human impact
- Take a watershed approach that ensures habitat connectivity
- Remediate and restore sites
- Steward sites over time



Provide Job Training and Create Jobs

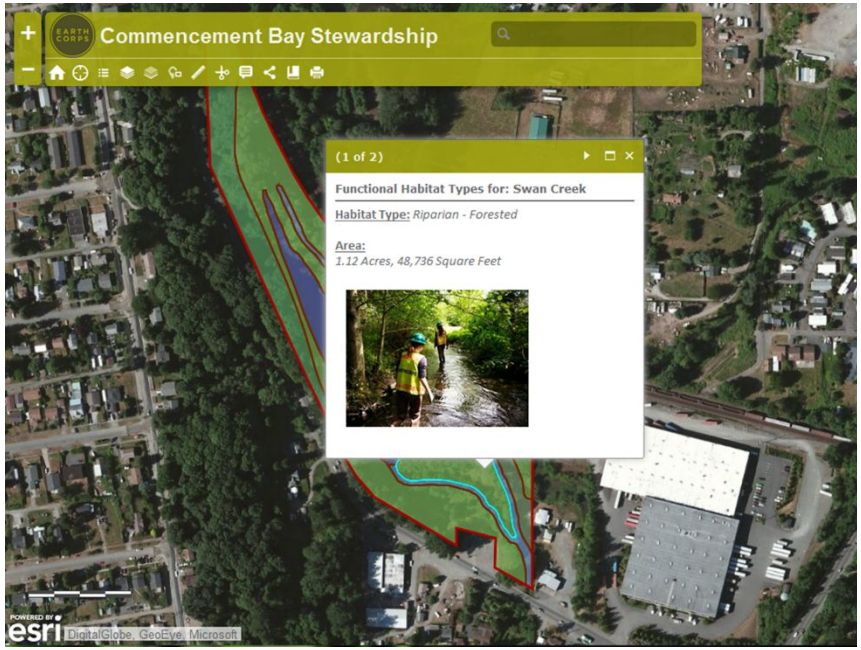
- Put people to work
- Create learning opportunities
- Launch environmental

Environmental Justice

- Restoration sites address negative historic impacts of industrialization
- Focus on communities most impacted
- Example- Yokwala
  - Littered with derelict vessels
  - Purchased in 1997
  - Transferred to Puyallup Tribe of Indians
  - Monitored and stewarded in perpetuity

Resilience and Climate Change Adaptation

- Remediate and restore sites
- Develop long-term management plan
- Steward and monitor sites
- Manage human impacts from dumping to encampments
- Adapt management to address changing climate and individual site conditions



Investment Model and Long-term Stewardship

- Stewardship fund created with a $4.9 investment
- Approximately $1.5 spent on stewardship and monitoring to date
- Stewardship fund is currently $6.2 million
- Take a long-term approach to stewardship financially and ecologically

Thank you

Summary

- NOAA's DARRP is a Federal Program that works with federal, state and tribal co-trustees to benefit local ecosystems, economies, and communities
- We work with local partners and involve the public in restoration planning
- We have recovered $10.5 B from polluters to fund restoration
- Our partners leverage these funds to even greater benefit for the public

Looking Towards the Future

- Coastal resilience, climate change, and restoring vulnerable resources
- Environmental justice and community resilience
- Developing scientific and technological solutions to emerging pollution threats

Thank You, Questions?