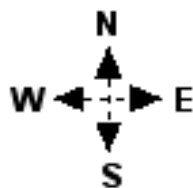


From Retired Volunteers to High School Students and a Billion Oysters: How Shellfish Farming is Finding New Converts to Shellfish Action Programs

Sandra Macfarlane, Coastal Resource Specialists

Peter Malinowski, Director, Billion Oyster Project

The Northeast



**CAPE COD AND
THE ISLANDS OF
MARTHA'S VINEYARD
AND NANTUCKET**



QUAHAUGS (HARD-SHELL CLAMS), SCALLOPS, OYSTERS, SEA CLAMS, SOFT-SHELLED CLAMS, MUSSELS - WILD AND CULTURED ON CAPE COD



What are some of the state regulations?

- Towns manage shellfish under state guidelines
- What does town management mean?
 - Areas open or closed for harvest
 - Commercial or recreational or both
 - Harvest gear
 - Limits
 - Sets and enforces regulations
- Towns do propagation work



HATCHERY SEED QUAHAUGS



QUAHAUGS OR HARD CLAMS:
WORKHORSE OF SHELLFISH PROPAGATION EFFORTS

EFFICIENT SPACE- SAVING UPWELLERS



**Commercial Scallop
Fishing: the darling of
shellfishing**





LICENSING COMMERCIAL AQUACULTURE

An aerial photograph of a coastal aquaculture site. The water is a shallow, greenish-brown color, indicating a high concentration of phytoplankton or algae. Numerous rectangular pens are visible, arranged in a grid-like pattern. The pens are dark, suggesting they are filled with water and possibly contain fish or other aquatic organisms. The surrounding area is a mix of water and land, with some green vegetation visible on the left side.

COASTAL RESOURCE
SPECIALISTS ICSR'08

Combined Quahaug And Oyster Gear



**Small leases
using floating
oyster gear**



CAPE COD BAY OYSTER CULTURE



WINTER ICE = SHIFTING SANDS AND LOST GEAR



Why a Special Program?

- Decrease in shellfish productivity
- Decrease in permits
- Decrease in people engaged in shellfishing
- Decrease in town shellfish budgets
- Decrease in state reimbursement for shellfish propagation
- Decrease in water quality



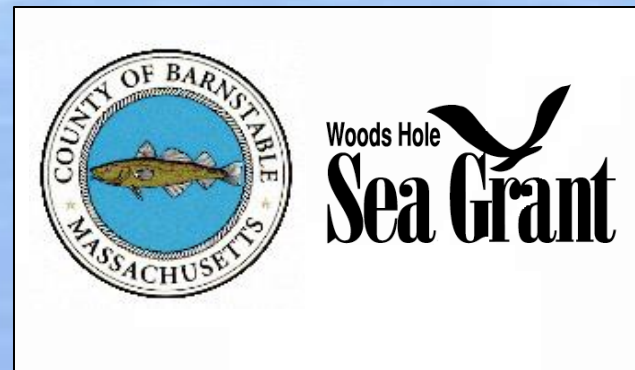
Why Now?

- State Programs:
 - NY – SPAT program
 - NJ – ReClam the Bay
 - VA – Shellfish Gardening
 - SC – SCORE program
 - WA – Water Quality incorporating shellfish
- All use volunteers
- MA – change in seed handling policy
- Emphasis on water quality issues



Commonalities of Shellfish Gardening Programs

- Waterfront property owners and interested citizens recruited
- Training programs
- Sea Grant and County Marine Extension support
 - Technical
 - Financial
 - Education



What is a Shellfish Community Action Program?

- Brings shellfish into sharp public focus
- Harnesses existing energy
- Increases awareness
- Enlists volunteers to help towns with shellfish propagation
- Provides educational program for all things shellfish
- Produces environmental stewards



Shellfish Program

- Use town's propagation permit
- Raise oysters
 - Private funding
 - Volunteer nursery operation
 - Upweller with 8 silos at private marina
 - Raised 15,000 oysters first year
 - Amount of seed increased
 - 30,000
 - 40,000





UPWELLER AND FIELD NURSERY



WET, DIRTY AND LOVING IT



NURSERY AND FIELD WORK FOR VOLUNTEERS



SHARING RESOURCES AND TECHNIQUES



Teamwork





TWO SIDES OF THE COIN

- Restoration Benefits
 - Provides ecosystem services
 - Provides opportunities for community action programs
 - Water quality improvements
 - Provides educational programs
 - Expands potential for food production and jobs

TWO SIDES OF THE COIN

- Regulatory Issues
 - Some restoration activities occur in unclassified and unapproved areas
 - Any shellfish-caused illness traced to non-approved waters, will affect entire industry
 - Without oversight, too many individuals may be growing shellfish without proper background
 - Potential for harvest of illegal stock/bootlegging
 - Requires increased resources for enforcement
 - Requires surveillance of all planted shellfish
 - To ensure that only commercially approved shellfish reaches market
 - To ensure that shellfish grown in unapproved areas is not directly consumed

What is needed to gain state acceptance?

- Demonstrate willingness of volunteers to:
 - Attend training program for volunteers
 - Follow prescribed regulations regarding consuming shellfish
 - Handle shellfish safely
 - Gain knowledge of public health issues

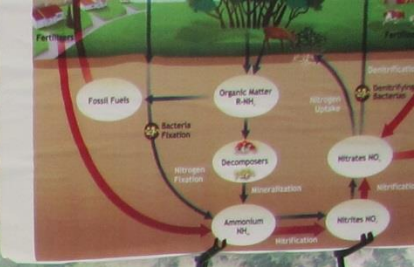




INNOVATIVE WASTEWATER TREATMENT SYSTEMS IN OUR COMMUNITY

MAKING A CHANGE FOR THE BETTER

ENTER TO WIN



“Celebrate Our Waters”

OPC

Learn about the Upweller:

Sandy Macfarlane

Sat. 1:15- 2:15

Sun. 9:00 – 10:00

A demonstration of an upweller system. It consists of a large clear plastic tub containing water. A black pump is connected to blue tubes that draw water from the bottom and push it up into a smaller clear container above. This setup is used to simulate the natural upwelling process in the ocean.





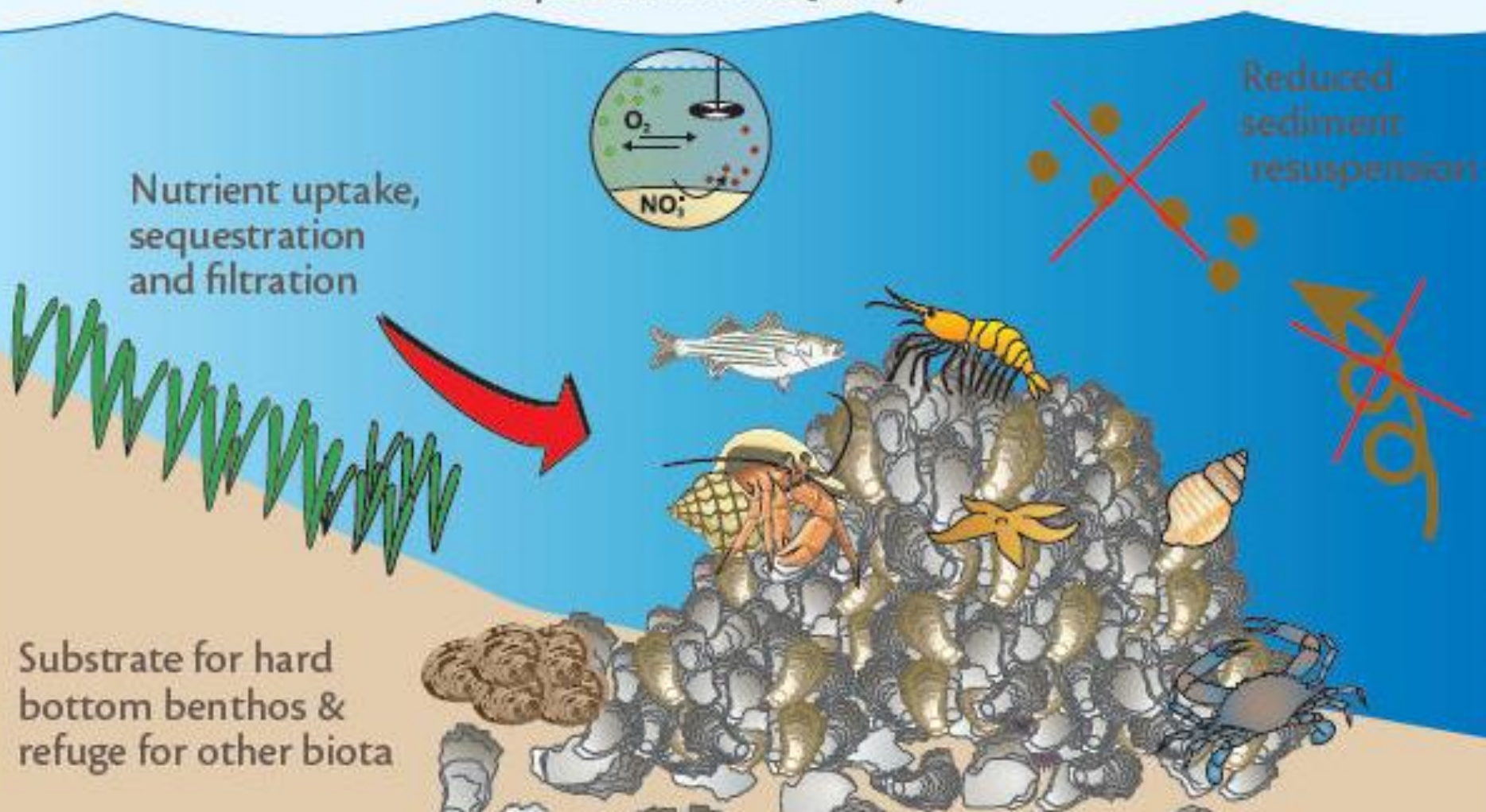
RECREATIONAL SHELLFISHING


What are shellfish ecosystem services?

- Turbidity reduction
 - Allows eelgrass to thrive
 - Increases light penetration
- Improved habitat quality
 - Structure
 - Complexity
 - Increased Productivity/Enhanced Habitat
 - Increased Diversity
- Nutrient recycling
 - Uptake and cycling of nutrients
- Erosion/sedimentation control by reefs

Ecosystem benefits provided by Oysters

Improved Water Quality





**BILLION
OYSTER
PROJECT**



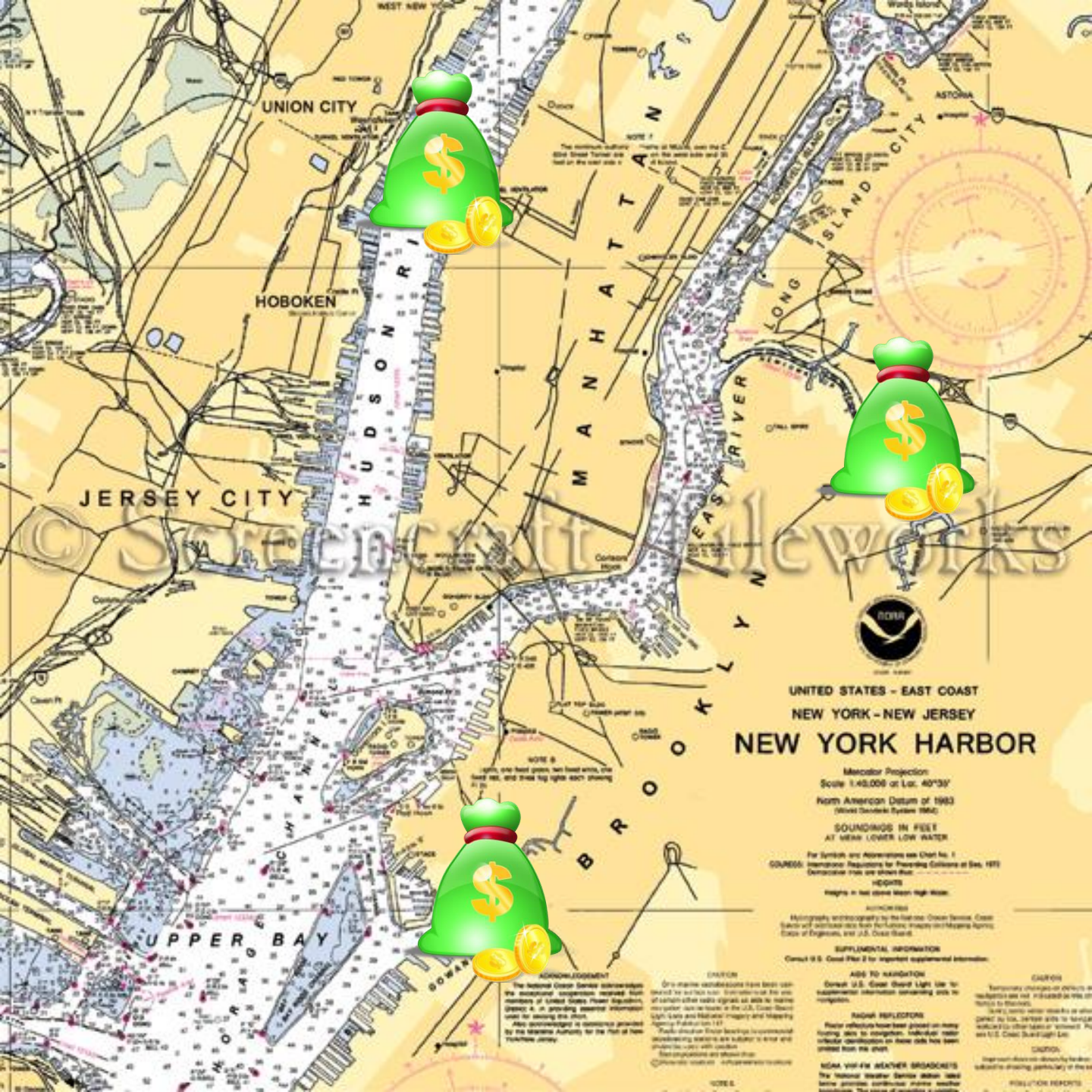
Cape Cod



New York Harbor







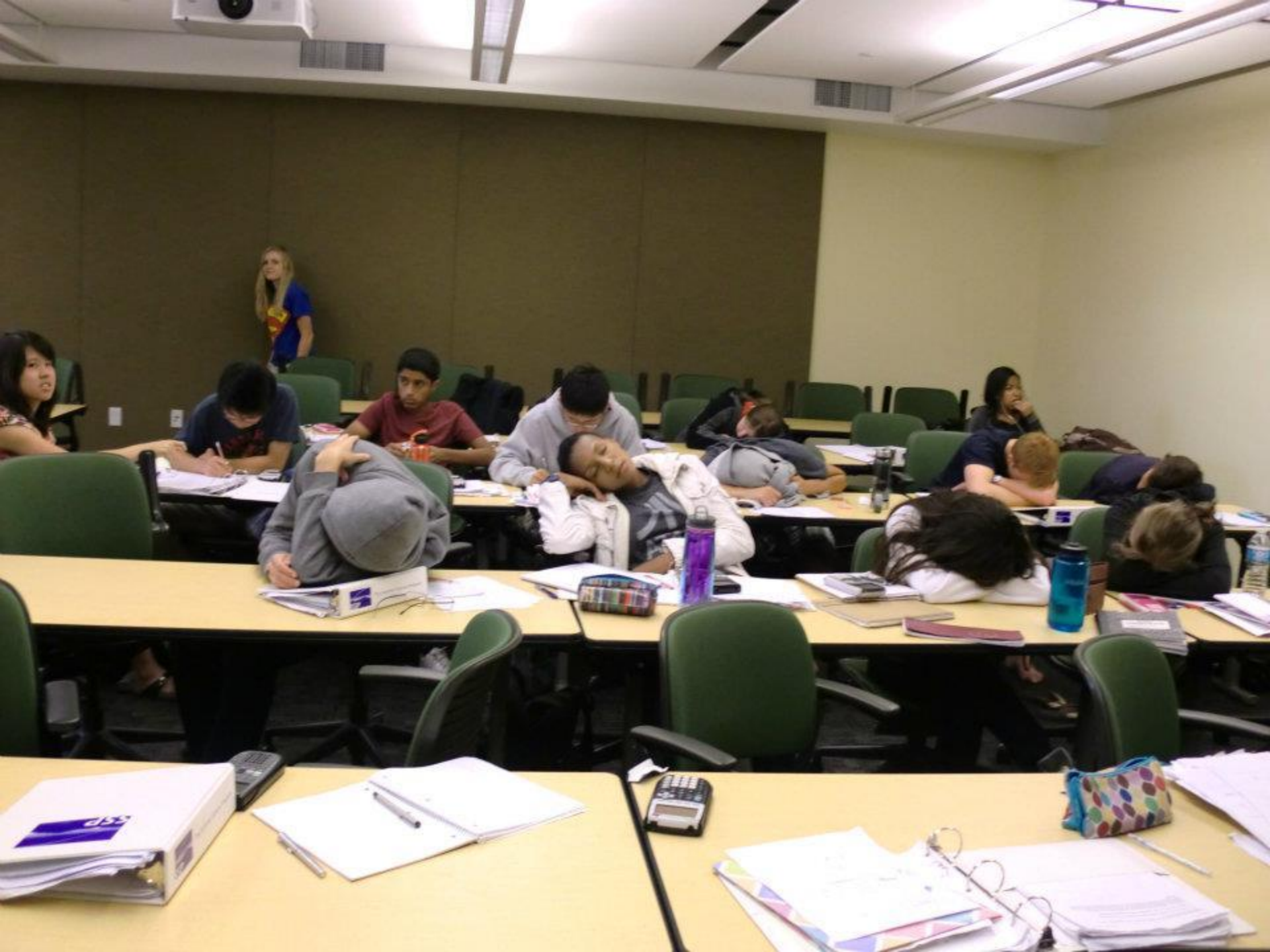
\$1.5 Billion
Hudson River
Cleanup

\$600 Million
Newtown Creek
Cleanup

\$750 million
Gowanus Canal
Cleanup

Schools

- 1.1 Million Public School Students
- 1,700 Public Schools
- 117,000 teachers
- \$27 Billion Budget

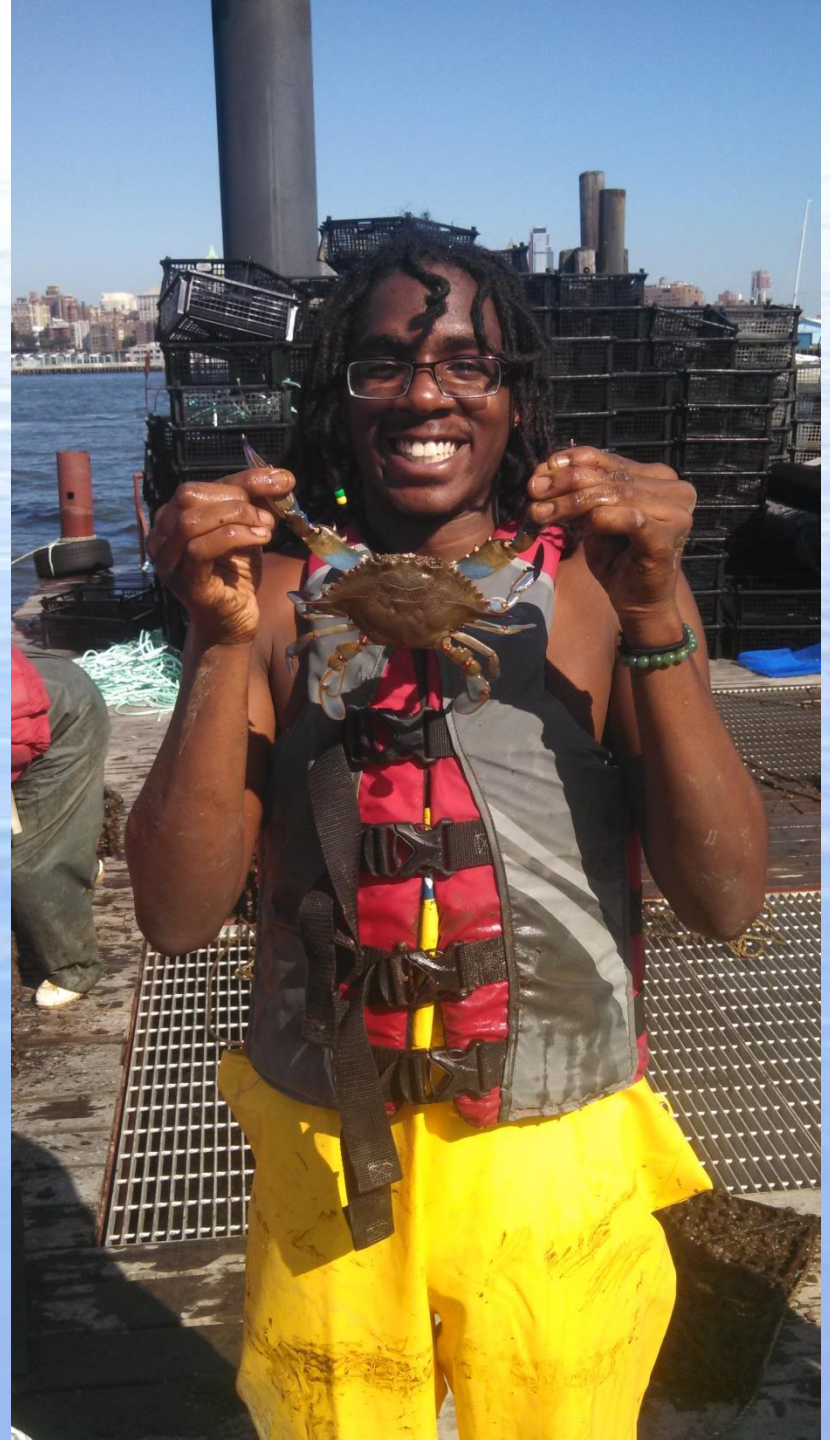
















THE URBAN AGRICULTURE
New York
HARBOR
SCHOOL













Billion Oyster Project By the Numbers

Program	2014	2020
Oysters	11.5 million	91.5 million
Reef	1 acre	16 acres
Shells	50 tons	500 tons
Participants	450	7500
Schools	46	100



THANK YOU!

THANK YOU!

Acknowledgements

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