UCONN COLLEGE OF AGRICULTURE, HEALTH AND NATURAL RESOURCES

Sea Grant Connecticut

Connecticut Shell Recycling

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Tim Macklin – Fairfield Shellfish comm/CORR

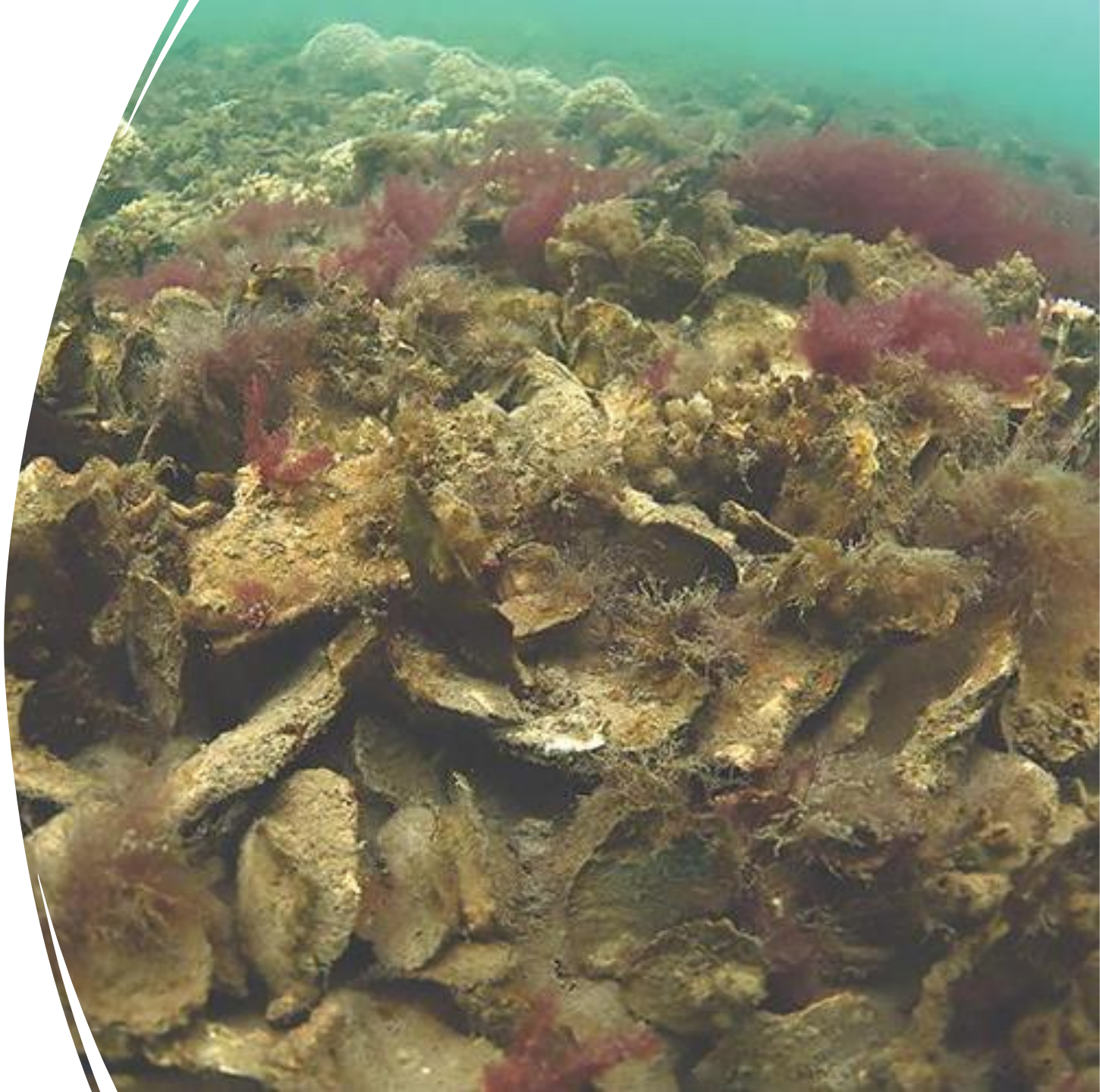
What is Shell Recycling?

- The process of collecting, curing, and reusing shells to rebuild, reinforce and maintain natural oyster populations.
  - Also called "Shell Recovery"

- Connecticut Public Act 21-24 – Effective in 2021

Why Recycle Shell? - Ecological Importance

- Oysters improve water quality via filter feeding
- Oyster shell is preferred substrate for oyster settlement
- Oyster beds can:
  - Provide habitat for other organisms
  - Protect against coastal erosion
- Oyster shell is in short supply

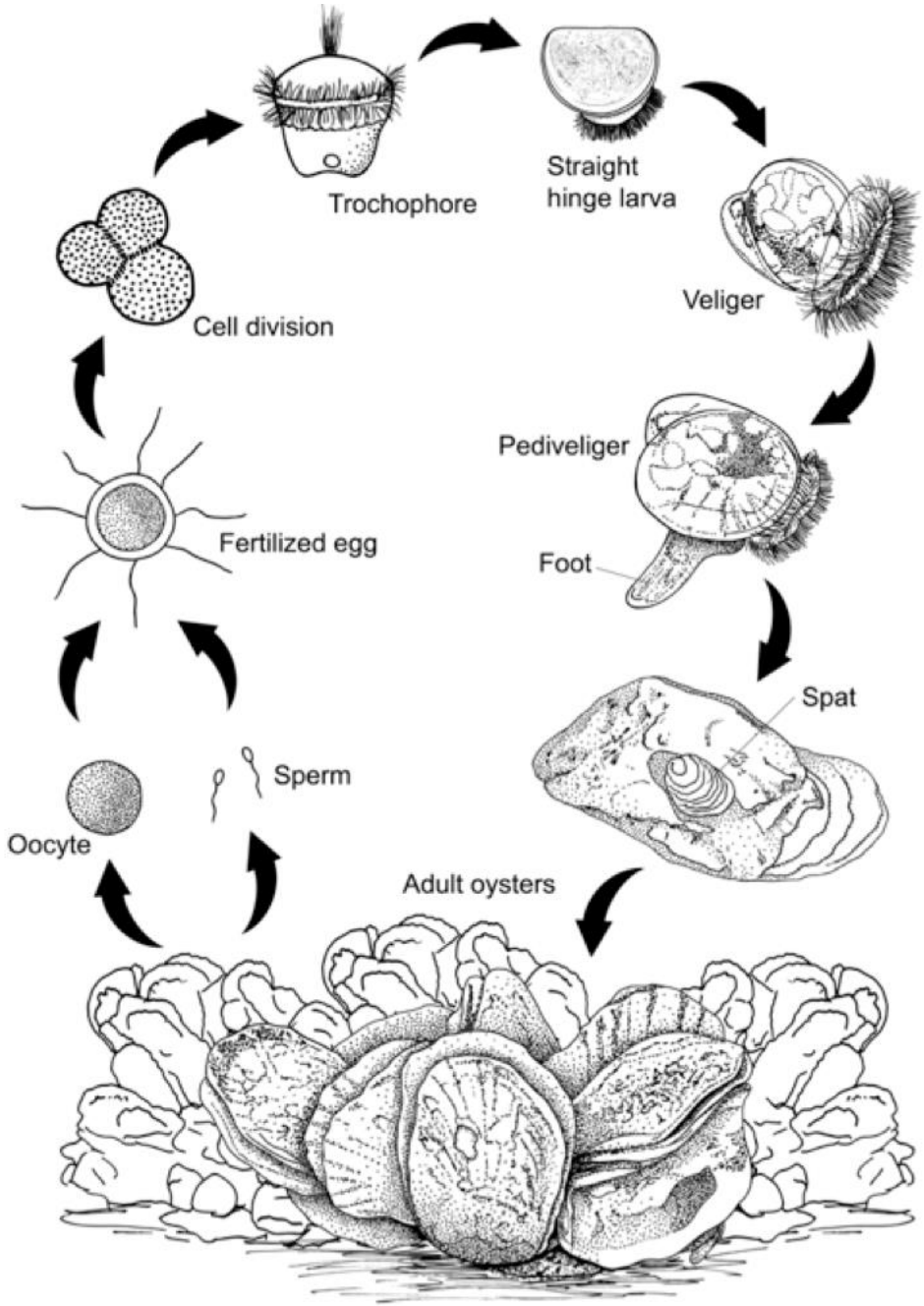


Life Cycle

Male and females produce gametes (eggs and sperm) that are fertilized in open water

Fertilized egg transforms into a planktonic larvae

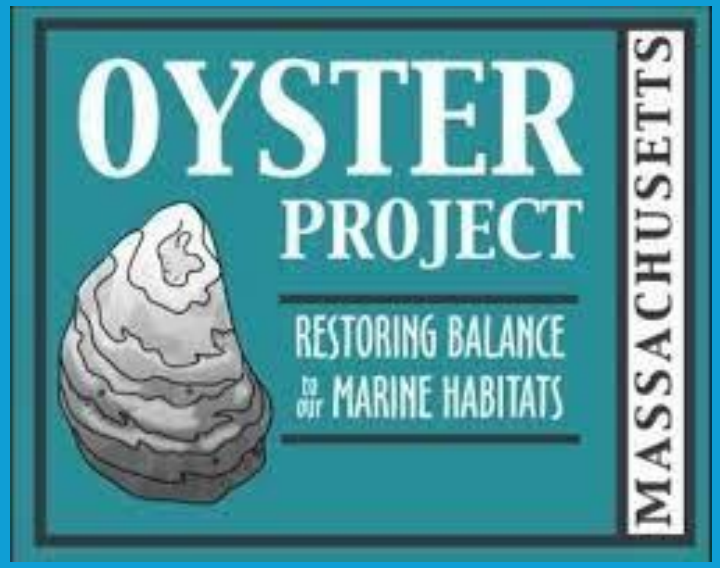
Several stages before settling either to a hard substrate



Why Recycle Shell? - Human Importance

- Connecticut produces:
  - Over 2 million tons of trash a year (DEEP CMMS)
  - 1.25 million tons of recyclables (DEEP CMMS)
- CT Public Act 14-94 – Passed in 2014 with a promise to create a strategy to reduce 60% of CT solid waste generation
- Previously, close to 100% of all bivalve shells disposed of as solid waste in CT!!
- Shell is HEAVY!!

Where has shell recycling been successful?



Active since 2021 throughout the Mass/Cape Cod Coast

BILLION OYSTER PROJECT

1,000 tons removed since 2014. 122 million oysters restored

COALITION TO RESTORE
CRCL
COASTAL LOUISIANA

6,000 tons removed since 2014

How can shell recycling look in Connecticut?

Internal Process – Farming

Check this out! - Traditional Oyster Cultivation series - SG/UConn Extension

Non-Profit – Municipality, Groton, CORR

For-Profit – Private company (not well understood yet)

Limitations do exist…

- Curing sites can be hard to come by!
  - Requires space without direct runoff potential
  - Inspected By Health Dept./Bureau of Aqua.
- Odor/Pest control
- Equipment:
  - Hydraulic dump trailer
  - Skid Steer/ 3/4 ton truck
  - Experienced Operators
- Transportation
- Funding
- Labor

Northeast Aquaculture Conference & Exposition (NACE)
January 10 -12, 2024

OYSTERS ON TREES - A LOOK BACK AT THE POQUONNOCK METHOD (1868-1880)

By:
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EXTENSION

Off Bottom Culture in a Larval Trap

- Certain waterways, based on geography, can function as natural larval traps for shellfish
  - This includes oysters (heat) and bay scallops (cold) in the Poquonnock River
- In the late 1860's, birch trees became a popular method to use as oyster spat collectors
  - As shown here, from a Popular Science Article in 1926.

October, 1926 POPULAR SCIENCE MONTHLY 43

Now They Grow Oysters *on* Trees

Discovery of Surprising New Way to Raise Bivalves Saves a Vanishing Industry

Section of sewer pipe to which young oysters attached themselves, in tests to find the best means of raising them

Planting "oyster trees"—birch brush—in shallow tidal water. Each twig will easily provide a home for hundreds of future oysters

Herbert F. Prytherch (above), of the U. S. Bureau of Fisheries—the man who developed the "oyster tree" idea

IF YOU happen to walk on an ocean beach at low tide and see a gang of men working with a scow-load of shrubs don't laugh if someone tell you the men are planting "oyster trees"! For that is exactly what they are doing.

Growing oysters on trees is an accomplished fact, though quite new. The oysters that you eat for dinner very likely spent their youth clinging to the twig of a birch in the shallow waters of a tidal flat.

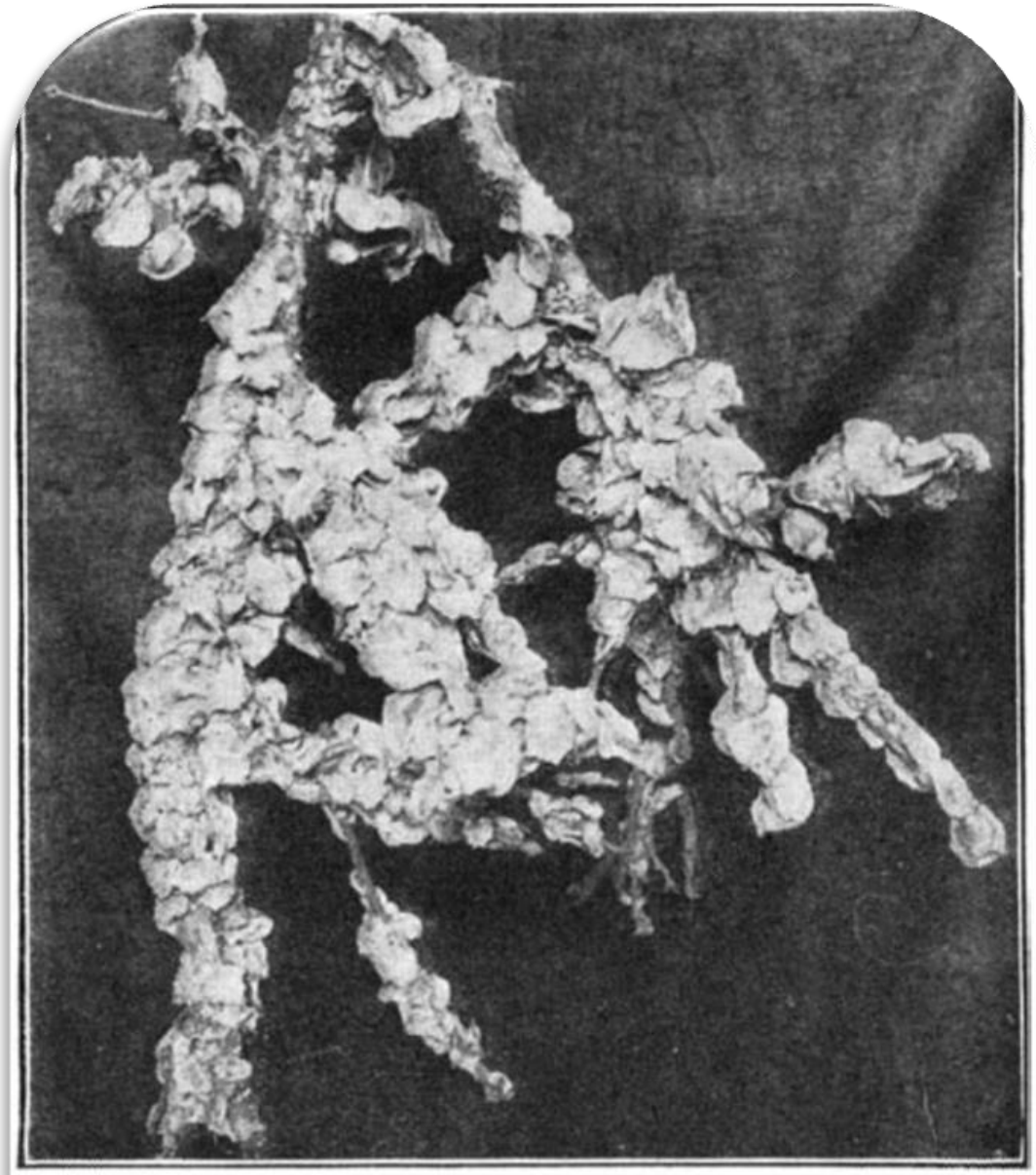
The development is part of a scientific program for making sure that your grandchildren, too, will have oysters for dinner. The oyster population has a heavy death rate, and several other influences have so devastated the supply of bivalves that the Government feared it would be exhausted.

Oysters form the basis of the most valuable fishing industry in the United States, with an annual return of nearly $15,000,000 to fishermen. It was thought worth while to save it, and the best way to do it was to provide a suitable place for baby oysters to develop and reach maturity.

When from fourteen to eighteen days old, oyster larvae attach themselves to a smooth surface and remain fixed. The face of a submerged rock is a favorite resting place. A common practice of oyster growers has been to plant empty oyster shells. Other types of "support" or "collectors" have been tried, including split drainpipes, flowerpots, tiles and stakes. But birch brush, the U. S. Bureau of Fisheries found, provides the best anchorage of all.

Birch brush with its numerous branches provides abundant parking space. A single birch brush may become an apartment house for thousands of future oysters. It is lifted out of the water easily, too.

Within a few years the American coast will probably be lined with submarine forests of oysters.



Ewing Galloway

OYSTERS ON BIRCH BRANCH

This method of cultivation provides ample room for the oysters, even when they are full grown

Sets "cool" again in the early 1900's Poquonnock Method Resurfaces!

- When the climate cools, researchers (Galtsoff) look to larval traps once again as oyster sets continue to fail in the 1920's
  - Areas were mapped and experiments conducted from 1925 to 1928
- Various spat collectors tried in areas as they were known to have frequent oyster sets
  - Including brush in Milford Harbor! (1925)
- However, shallow waters and soft bottoms have limited volumes of seed
  - Greater attention now points to hatchery science

Questions?

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