

*New Jersey Sea Grant College Program*  
**New Jersey Sea Grant Extension Program**

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# Bulletin

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## Opportunities in Oyster Restoration

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New Jersey's oysters are a valuable economic, nutritional, cultural and ecological resource.

Restoration and maintenance of sustainable oyster resources ensures continuation of the species for many generations.



Historically, New Jersey's bays produced large number of oysters. These harvests fed the appetite of growing urban population and created an important economic base. In the 1920s, more oysters were landed at Bivalve on the Maurice River in Cumberland County than at any other port in the U.S. Declines in oyster populations and the loss of oyster habitat (oyster beds, shell piles, etc.), have severely reduced the New Jersey's oyster harvest. Oysters in Delaware Bay manage to maintain some production by using and refining techniques that were started by their grandfathers.

Rutgers Cooperative Extension and the *New Jersey Sea Grant College Program*, with support from the Haskin Shellfish Research Lab, the Delaware Estuary Program and the Aquaculture Development Corporation, have begun a series of oyster projects to increase the population of oysters in the Delaware Bay and to educate the public about the value of sustainable oyster populations. In North Jersey, the Hudson River Foundation's Baykeeper Program has begun oyster reef building in the New York/New Jersey Harbor. Public participation in these projects is encouraged. Statewide educational programs, such as New Jersey Sea Grant, can provide training to enhance the oyster

and its associated species and to inform the public about the public health concerns in oyster culture.

### Ecology of the Oyster

Oysters are a "keystone species" in an estuary. This means they are the basis and support for a network of species and ecological relationships in the estuary.

The substrate created by oyster shells and the organisms attached to them create habitat for many other species, including crabs, worms and fish. Important commercial and recreational species like blue crabs, weakfish and striped bass depend on healthy oyster beds for protection and food. The number and abundance of associated species in the bay can increase and decrease in relation to the amount of oyster habitat available.

### Life of an Oyster

Oyster species are common estuarine shellfish with a worldwide distribution. They live in "shell beds" on hard bottoms of coastal bays and feed on small planktonic plants. The waters of the U.S. East Coast and Gulf States are home to the American oyster, *Crassostrea virginica*.



These oysters spawn in the spring when warm coastal waters stimulate them to release eggs and sperm. Rapidly developing oyster larvae are planktonic, swimming and feeding, in flowing estuarine waters. They can be carried far from their parents by currents, tides and winds.

As the larvae mature (at about two weeks), they begin to search for a place to attach and grow to adult size. Attachment is critical because the “settled” oyster is fixed for life and will not be able to swim again. In New Jersey, they will require three to five years to grow to three inches.

Oysters prefer to attach to a firm, clean, and permanent substrate. The oyster industry often collects small oysters or spat by providing a substrate of shells (oysters, clams, etc.), rocks, slag or other “cultch.” This “cultch,” with young oysters attached, is often moved from seed beds to better growing areas known as planted grounds. Oysters are also filter feeders. Filtering and removing food and nutrients from bay waters. Many scientists believe that this filtration effect can help control harmful algal blooms, reduce nutrient and sediment loads and reduce the incidence of anoxic conditions. Scientists at Virginia’s Institute of Marine Science (VIMS) have estimated that large oyster populations at the turn of the century could filter all the Chesapeake Bay’s water in three to four days. Now it would take the bay’s smaller population over one year to accomplish the same feat.



### Examples of Oyster Restoration Efforts

Recent advances in disease resistant oyster studies, supported by *New Jersey Sea Grant College Program* research and the development of new culture gear and techniques, mean that more opportunities exist for the restoration of oyster habitat and production of oysters. Project areas include:

#### Commercial Production

- Delaware Bay industry voluntarily limits harvests to maximize economic return and reduce ecological impact.
- Disease Resistant Oysters are being cultured to promote oyster farming.
- Industry and State partnerships are working to rebuild substrate or “cultch” for oyster beds.

### Student Programs

Students at the Richard M. Tietleman School in Cape May County are :

- Learning principles of oyster farming
- Producing “seed” oysters for restoration projects and oyster gardens
- Designing and “evaluating” seed collecting devices

### Coastal Residents

- Can participate in Sea Grant or Baykeeper oyster gardening techniques
- Can produce “seed” for oyster restoration projects
- Can increase their understanding of Estuary Habitats

### Interested in More Information? Want to Participate in Oyster Projects?

For more information or to participate in oyster restoration projects, contact Rutgers Cooperative Extension Agent **Stewart M. Tweed** at **609-465-5115**.



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