
Northeast/Midwest Edition
Northeast Dive News
JUNE 2007
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DUTCH SPRINGS
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Lake Effects in
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This flat mud crab makes its home in the waters of Peconic Bay in this photo by Eco-Photo Explorers Michael Salvarezza and his associate Christopher P. Weaver.

www.ecophotoexplorers.com.

TAKE JUNIOR DIVING

Derived from the word *juvenis*, Latin for "young people," June seems appropriately filled with a sense of promise. Warm but not overbearing sunny days have turned May's flowers into budding fruits and vegetables that will mature by fall. Animals too have finished building nests to raise broods that will fledge by late summer. All of these natural forces help to fuel the urge to merge experience with dreams to grow physically and mentally so we can get the most out of life. For divers this is the month to set aside the books and training manuals that prepared us for the season. The gear is back from being serviced at the shop. Now get out and apply those ideas in the water.

An especially good aspect of diving is its ability to bring together people of all backgrounds and ages in a spirit of adventure. Whether young or young at heart, divers find a common ground for sharing experience and love of nature to have good times together. Yet looking around the regulars at dive club meetings and charter boats, it appears that many of us aren't sharing our long-term love of diving enough with younger generations. This is a great time of year to relate diving stories to them. Many have a curiosity about diving but are caught up in the myriad of modern options for enjoying free time. Water sports are never more alluring than in the summer. As ambassadors of the sea, we can help to reverse the graying of the sport while learning from our newfound buddies what makes generations X, Y and Z tick.

At *Northeast Dive News*, we're heartened to see growing industry support as evidenced by an up-tick in advertising and dive shop listings in this issue. While that made the stories look a little squeezed, it's the sign of a promising trend. As it gains momentum, we'll be able to molt to a larger size that will be an even better forum for you to share your news, features and photos with your buddies who read these pages.

Bob Sterner

Northeast Dive News
The complete resource for diving in the Northeast and Midwest.

www.nedivenews.com

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Northeast Dive News is committed to promoting the sport of scuba diving in the Northeast. We will present a practical, unbiased point of view regarding all aspects of the sport of scuba diving. Topics covered will include information on current events, dive sites, dive training, dive safety, boat diving, dive buddy network and the personal experiences of our readers.

Northeast Dive News believes in honesty and integrity in business and will support all efforts related to this. We encourage readers to participate in determining the content of this publication by giving us their opinions on the types of articles they would like to see. We invite letters to the editor, manuscripts and photographs related to diving or diving-related business. Send us your stories and photos!

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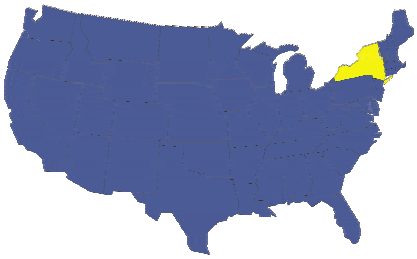
LONG ISLAND'S Marine Plague

Story and photos by Michael Salvarezza and Christopher P. Weaver



Beneath the surface of Long Island's Peconic Bay lies a varied marine habitat filled with a great diversity of life. Despite the shallow murkiness, scuba divers are often rewarded with seeing Long Island's endemic marine species up close and personal in these coastal waters, bays and estuaries.

Peconic Bay is the water between Long Island's North and South forks. Its waters teem with such creatures as spider crabs, horseshoe crabs, brittle stars, sea cucumbers, anemones, sea urchins, flounder, weakfish, porgy and snapper. Dense beds of eelgrass along its bottom are a perfect protective haven for young fish and many species are often found laying eggs in this area. One of the most spectacular inhabitants of these waters, however, is one that is also at the center of an environmental calamity that is wreaking havoc with Peconic Bay and those who make their living off it: The Atlantic bay scallop.

Photo © Eco-Photo Explorers*

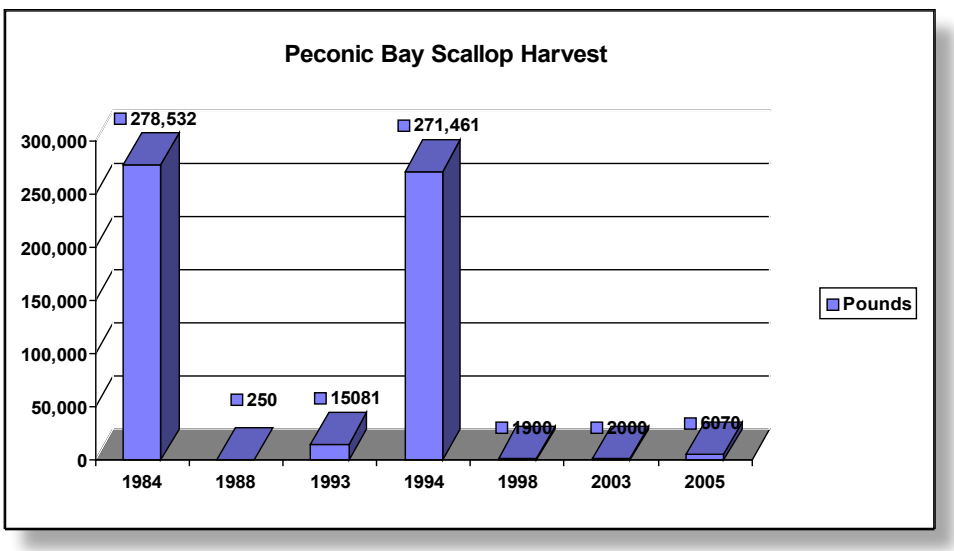
Photo © Eco-Photo Explorers*

Photo © Eco-Photo Explorers*

▲ *Top photo, blue eyes line the rim of an Atlantic bay scallop's shell. Bottom left, small calico crab rears up to threaten a photographer. Bottom middle, northern moon snail stalks shellfish prey. Bottom right, brittle star fish walks the bottom of the bay.*

The Atlantic bay scallop (*Argopecten irradians*) is a drab gray, yellowish-brown or reddish bivalve that inhabits eelgrass beds and sandy-mud bottoms near the low tide line in shallow water. Divers who encounter these sometimes elusive creatures are struck by the vivid blue eyes, 30 to 40 of which line the rim of the shells. Each of these eyes has a lens, retina and optic nerve and they are extremely sensitive to light and movement. Indeed, at the slightest hint of danger, the scallop will slam its shells shut and wait patiently for the threat to pass. However, it is the threat from something more insidious that is killing off the once thriving populations of these animals. The dreaded brown tide.

The brown tide refers to an environmental phenomenon known as an algae bloom. Specifically in the Peconic Bay the microscopic is brown algae *Aureococcus anophagefferens*, which translates to "golden round organism that causes starvation." For reasons not completely understood the populations of these tiny plants, a form of plankton, occasionally explode, causing the water to turn a deep coffee color. Visibility often drops to zero.



As the bloom progresses, other microscopic plants and animals that the shellfish usually feed on are choked out. Unfortunately, the brown alga isn't part of the normal diet of the shellfish and eventually, as brown algae begin to dominate the environment, the shellfish begin to starve.

The brown tide doesn't kill just the shellfish. As the blooms continue, sunlight is prevented from penetrating the water column. The eelgrass and the myriad small life forms living in it die as well. Additionally, the sea gulls, ducks, loons and other migratory birds that depend upon these waters for food are also affected. Without the large quantities of baitfish, crabs and shellfish, these birds leave the area to hunt elsewhere. However, it is the scallops that are particularly hard hit because they produce larvae at the same time the bloom usually occurs, in mid-spring and early summer. Since the scallop only lives for two years, a prolonged bloom can decimate the entire population of the scallop. Eventually, the brown tide seems to dissipate and, despite years of research, no one knows precisely what causes the blooms and why they eventually die off.

One direct result from the damage caused by the brown tide is the reduction of the annual scallop harvest on Long Island. Each year, beginning in November, East End Baymen begin culling scallops from the bays and estuaries of the Peconic Bay system. It is a livelihood in peril.

In the early 1980s, before the first major outbreak of the brown tide, the annual scallop harvest was between 200,000 and 400,000 pounds of scallop meat per year, valued at around $3 million in 2005 dollars. In 1985, the harvest was 278,532 pounds. In 1988, the crop had diminished to just 250 pounds after the first major outbreak of the brown tide. In subsequent years, the brown tide appeared to be on the wane and that, combined with efforts from state agencies to replenish the depleted stocks, enabled the harvest to climb back up to a respectable 271,461 pounds in 1994. However, in 1995, the brown tide returned and stocks were lowered again. In recent years, the average harvest has been below 3,000 pounds. 2005 was an encouraging year, though, with a harvest of 6,070 pounds valued at $153,258. Still, this is dramatically lower than in the mid-1980s prior to the first major occurrence of the brown tide.

A number of steps have been taken to try to bring the scallops back. In addition to moving the opening of the scallop season from October into November, regulators and scientists created two new spawning grounds in Orient Harbor and Northwest Harbor

Divers exploring these waters can easily spot these beautiful creatures and can play an important part in monitoring the health of our marine environment because they can see exactly what exists beneath the waves. Some organizations welcome the input of divers in their efforts to document the condition of the environment.

Officials and scientists continue to struggle with the problem of determining the causes of the brown tide. Elevated levels of nutrients, possibly from sewage treatment plants and nearby duck farms have been implicated, as well as various weather patterns, but the research is still ongoing. It is known, however, that brown tide organisms begin to affect scallops in concentrations of 200,000 to 250,000 cells per milliliter of water. During the peak of the brown tide, concentrations of 1 million or more have been measured. Eventually, the bloom begins to recede, and it is thought that this occurs when the water reaches a certain temperature in late summer.

Algae blooms do not only occur in Peconic Bay. Great South Bay, Shinnecock Bay and other marine estuary areas on Long Island also suffer from the periodic effects of the brown tide. Brown tide is not toxic, but other algae blooms that occur in the ocean are. Such blooms, sometimes known as red tides, occur worldwide including the Northeast and can harbor such dangerous organisms as ocean-borne cholera and other toxin-emitting bacteria. Unfortunately, the occurrences of these dangerous algae blooms appear to be on the rise. In fact, the brown tide in Peconic Bay may be part of a larger, global problem. Ocean pollution, combined with higher water temperatures due to global warming, overfished waters and trans-continental shipping, which permits the transport of ocean-borne bacteria through ballast water, may be helping to create a much larger threat than the destruction of the local scallop industry.

Research is continuing into brown tide causes and possible controls. Hopefully, something can be identified to help reduce the effects of this phenomenon and preserve the populations of the scallops for generations to come. For divers, the great diversity of marine life in Peconic Bay, which creates such great dive opportunities, is at stake. For some of the Baymen of Long Island, their very livelihood may depend upon it.

Michael Salvarezza and his associate Christopher P. Weaver have documented a world of adventure topside and underwater through their Long Island, N.Y.-based business Eco-Photo Explorers. They are popular lecturers and their work has been published in leading diving and general interest magazines. Learn more at www.ecophotoexplorers.com.