

# Partnerships

## Work in Fish Sampling Efforts

By Heather Corbett, Senior Fisheries Biologist and Michael Celestino, Principal Fisheries Biologist

Scientific fisheries data collection is not easy. With ever-increasing federal mandates, dwindling budgets and staff reductions, New Jersey Division of Fish and Wildlife is forced to find innovative ways to collect new, essential data for fisheries stock assessments—and we have. Our agency is cultivating a solution to one aspect of data collection through the generous cooperation with party boats and fishing tournaments.

Biological samples—such as fish otoliths (ear bones), scales and total fish lengths—are a key component to many fisheries stock assessment methods. The use of biological samples and measurements provide us with information essential to create an age/length key for reference when only a fish's length is known. For two common New Jersey species—striped bass and bluefish—considerable data on age structure are required for stock assessment.

The success of the two fish sampling strategies described below—initiated in association with federally mandated striped bass management programs—led Fish and Wildlife's marine fisheries staff to theorize that the same strategies could assist New Jersey with assessing the feasibility of collecting biological information from bluefish in advance of any bluefish-related federal mandates. Read on to learn how these programs developed and have proven to be invaluable.

### Party Boat Sampling on the Queen Mary

The majority of Fish and Wildlife's biological samples are collected from striped bass. These fish are primarily caught during Atlantic States Marine Fisheries Commission (ASMFC)-mandated field surveys but additional data are needed. Over the years, Fish and Wildlife has periodically sampled fish on several party or charter boats. Since 1999, Captain John Brackett (JB) has hospitably welcomed Fish and Wildlife staff to sample the striped bass catch on the F/V Queen Mary, a vessel based in Point Pleasant, New Jersey. The Queen Mary's staff and regular customers have made sampling easy and efficient and as a result, the Queen Mary has become our "go-to" vessel when sampling opportunities arise. Sampling from party boats is an excellent way to supplement survey data with much-needed samples from both kept and released fish.



Captain John Brackett (L) and deck hand Eric Olsen.

**Striped Bass** During our time sampling on the Queen Mary, Fish and Wildlife measured 753 fish averaging 25 inches in total length and collected scale samples from 663 fish for age determination, ultimately yielding data from fish ranging between two and 13 years old.

**Bluefish** Previously, all age-related information for bluefish came from Virginia. Comprehensive age information is critical for bluefish stock assessment. The ASMFC Bluefish Management Board is considering whether to impose a requirement for some states (including New Jersey) to collect age-related information. Recognizing our current staff and funding limitations, we know that initiating a new sampling program is not practical, but Fish and Wildlife is determined to collect this valuable information for this significant fishery.

In 2010, this goal motivated Fish and Wildlife to once again approach Captain JB, requesting his help to initiate a sampling program focused on collecting recreationally caught bluefish for otolith extraction. Biologists would attempt to discern differences in fish lengths obtained from using fish racks (fish with both fillets removed) versus those measured from whole fish. These data will allow New Jersey to assess the feasibility of this program, and will likely influence future coast-wide sampling programs (i.e., if rack length significantly differs from whole fish length, collection programs and assessments must take this into account).

In 2010, Fish and Wildlife extracted otoliths from 85 bluefish collected on the Queen Mary, ranging in total length from 12.25 to 34.0 inches. In addition, results from our whole versus rack-length comparison preliminarily suggests that fish between 10 and 23 inches are likely to be between  $\frac{1}{16}$  to  $\frac{3}{8}$  inches smaller when filleted compared to those measured whole. For fish larger than 23 inches, filleted fish can be up to  $\frac{7}{8}$  of an inch smaller than their whole counterparts.

### Tournaments

**Striped Bass** Fish and Wildlife has established another source for collecting valuable striped bass data through New Jersey fishing tournaments. This endeavor began in 1997 when our agency was invited to attend the Sea Shell's 1<sup>st</sup> Annual Striped Bass Derby in Beach Haven. The information collected was especially useful in supplementing field survey data with samples from large fish, data that is currently lacking but is critical information for stock assessments. After the data-gathering success at the Derby<sup>1</sup>, a conscious effort was made to attend more of these events. In 2009, Fish and

<sup>1</sup>In 2009, the Derby raised \$20,000 for the John F. Hughes III Scholarship Fund for Southern Regional High School athletes.



## Age Length Keys

### Goal:

To create an age-length key (ALK) which will accurately reflect the age structure of a fish species.

### Project to achieve goal:

Fish age and length data collection through biological sampling techniques.

### Q. What is an age-length key?

**A.** An ALK is a table or plot that displays the age of a fish based on its size.

### Q. What information is needed to develop an ALK?

**A.** Methods vary depending on the species. Fish scales are the most common body structure used to age striped bass, primarily due to ease of collection without harming the fish. Scales are not effective for aging bluefish. Using otoliths (fish ear bones) is preferred for bluefish but otoliths are also proven to be more accurate for striped bass, especially in older fish. The aging technique is similar when using either an otolith or a scale; the process involves counting growth rings to determine age, analogous to counting the growth rings from the cross-section of a tree.

Otoliths (fish ear bones). Bluefish (left) and striped bass.



Photos by Heather Corbett/NJ Div. Fish and Wildlife



Another fine striper caught while fishing the Queen Mary.

Wildlife also collected samples from the South Jersey Big Bass Open at South Jersey Marina in Cape May and Bay Point Marina's Striped Bass Tournament in Cedarville.

During fall 2009, Fish and Wildlife collected lengths and weights from 120 harvested striped bass, averaging nearly 38 inches and 21.5 pounds. Using scales and otoliths, biologists determined that fish sampled in 2009 ranged from five to 15 years old; the majority were age 13. Interestingly, the age 13 fish were from the 1996 year class, an above average index year for New Jersey's Striped Bass Recruitment Survey in the Delaware River and the highest index for Maryland's similar survey in Chesapeake Bay.

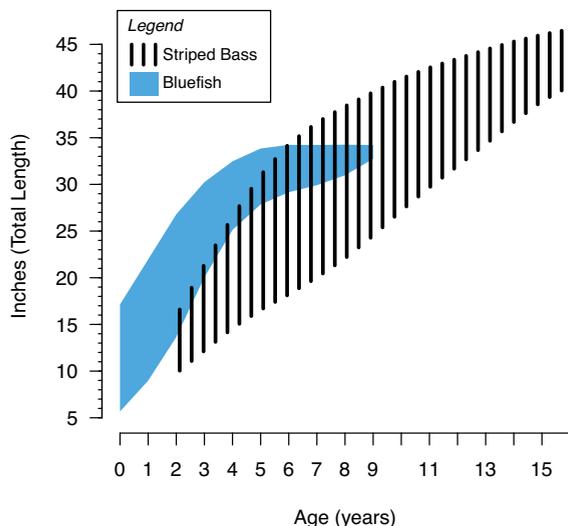
**Bluefish** Our success sampling striped bass from tournaments prompted us to consider the same avenue to supplement our bluefish data collection. In our inaugural year, Edward Goldman (New Jersey Marine Fisheries Councilman) and the Absecon Saltwater Sportsman's Club graciously permitted us to collect samples from the Nuncio Bruno Kids Under 16 Bluefish Tournament held

at Chestnut Neck Marina. We extracted otoliths collected from 23 fish ranging in total length from 17.5 to 29 inches.

### Conclusion

Fish and Wildlife's successful collaboration with the Queen Mary and the Sea Shell Striped Bass Derby has resulted in significant data collection for striped bass and bluefish and provides the template for future programs. Fish and Wildlife values any occasion to collect additional data at different fishing tournaments or on additional fishing vessels. Future sampling effort goals may include additional species such as weakfish. If you are—or know of—an interested tournament coordinator or vessel operator who might allow Fish and Wildlife to attend your striped bass, bluefish or weakfish event, contact Heather Corbett or Michael Celestino at (609) 748-2020.

Age length keys for striped bass and bluefish



### For additional information

- [www.njfishandwildlife.com/artstrpbass10.htm](http://www.njfishandwildlife.com/artstrpbass10.htm)
- [www.njfishandwildlife.com/pdf/2010/artdel\\_fishtraveled.pdf](http://www.njfishandwildlife.com/pdf/2010/artdel_fishtraveled.pdf)
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# Can You Dig This?

## SHELLFISHING IN NEW JERSEY

By Jeffrey C. Normant, Principal Fisheries Biologist

**New Jersey's coastal bays and rivers** offer many recreational opportunities, such as fishing, boating and kayaking. However, one activity that is often overlooked is recreational shellfishing for hard clams or "clamming." Many locals and visitors to the New Jersey coastal region enjoy eating these succulent treats, but may not realize that great clamming opportunities exist from the Navesink River south to the small bays and sounds of Cape May County. As with fishing, there is always a great sense of accomplishment that comes with "catching your own," especially while enjoying a day on the water with family.

**New Jersey has a storied history** for harvesting shellfish that dates back centuries, with Native Americans harvesting shellfish for sustenance, later evolving into a commercial industry around colonial times. Recreationally, catching clams and oysters was a popular pastime that has, over the decades, seen a decline in the number of participants.

Contributing to this decline in participation are various factors such as loss of shellfish harvest areas closed due to poor water quality, overharvest and shellfish habitat loss from coastal development. Over the last several decades, improvements in water quality have expanded areas available to harvest, while tougher coastal development regulations have preserved existing shellfish habitat. Although shellfish populations have not yet returned to the numbers seen during the "glory days" of the past, there are still many good places to harvest shellfish.

**By far, the majority of shellfish harvesters** in New Jersey target hard clams (*Mercenaria mercenaria*). Clamming can be a relatively inexpensive activity; all that's needed to get started is a recreational shellfish license and a pair of old shoes or booties. Since clams are predominantly found in sand/mud bottoms and are buried just below the surface, the easiest way to start clamming is with the technique commonly known as treading. The harvester wades on a shallow water flat and probes the bottom with their feet or hands. Once a clam is found, you simply pull it out of the bottom.

Be sure to check your tides though; low tide is the ideal time to harvest. This is critical to the success of your trip as treading in head-high water will only make you a better swimmer!

Another popular method is using a scratch rake; a gardener's hand rake will also work fine. Simply pull the rake along the bottom until you hear and feel a clink, indicating a clam has been located. Use the rake to pull the clam out of the bottom.

Most shellfish harvesters utilize boats or kayaks to find areas to shellfish. However, there are many public

access areas along the coast, such as Island Beach State Park, for those without access to a boat. A great way to find clamming areas is to visit a local bait and tackle shop.

**Hard clams** can be found in a wide range of substrates and depths. For those who wish to expand their opportunities, a long handled shinnecock rake or tongs can be used off a boat in deeper waters inaccessible to treading. As you gain more experience, you will start to fine-tune your harvesting technique and become more efficient.

**Other species of shellfish** such as oysters (*Crassostrea virginica*), soft clams (*Mya arenaria*), blue mussels (*Mytilus edulis*), bay scallops (*Aequipectin irradians*), surf clams (*Spisula solidissima*) and other bivalve mollusks can also be harvested under the recreational shellfish license. Periodic oyster tonging seasons are set dependent upon current oyster bed conditions. New Jersey's tonging areas are the Maurice River Cove in Delaware Bay and in Great Bay near the mouth of the Mullica River in Atlantic County.

A recreational shellfish license costs \$10 for residents, \$20 for non-residents and \$2 for a juvenile under 14 years of age. Seniors over 62 years old that are New Jersey residents may obtain a free lifetime recreational shellfish license (initial \$2 application fee). Licenses may be purchased at a shellfish license agent (see page 21) or online at New Jersey Division of Fish and Wildlife's Web site at [WildlifeLicense.com/NJ](http://WildlifeLicense.com/NJ).

The recreational license allows for the harvest of 150 shellfish (in aggregate for all shellfish species) per day. Hard clams have a minimum size limit of 1½ inches in length. Shellfish harvest is permissible between sunrise and sunset. Shellfishing is not permitted on Sunday (except for in the Navesink and Shrewsbury rivers). For more detailed information, see shellfish regulations on page 18 in this *Digest* or visit our Web site.

**All shellfish must be harvested** in waters classified as "Approved" for shellfish harvest or within the open harvest period of "Seasonally Approved" waters (usually between Nov. 1 to April 30 of each year). Shellfish Growing Water Classification Charts may be obtained at shellfish license agents or viewed online at the NJDEP's Bureau of Marine Water Monitoring Web site at [nj.gov/dep/bmw/waterclass.htm](http://nj.gov/dep/bmw/waterclass.htm). Shellfish harvesters must avoid shellfish aquaculture lease



Clammers Jennifer Samuels (L) and Kim Schneider show their catch.

Joe Golden

grounds. These grounds are used privately for the cultivation of shellfish and are typically delineated with cedar or PVC poles.

**In an effort to provide more shellfish harvest opportunities in New Jersey**, both recreationally and commercially, Fish and Wildlife has made significant efforts to enhance and restore New Jersey's natural shellfish beds. Popular programs such as the hard clam seeding behind Island Beach State Park and on the flats in Great Bay near Seven Islands have been successful, as they have provided excellent recreational harvest opportunities. Partnering with Rutgers University, various federal agencies, local municipalities and organizations such as ReClam the Bay, Fish and Wildlife's Bureau of Shellfisheries has initiated numerous programs designed either to enhance existing shellfish beds or to restore extant or remnant beds.

These programs have included the purchase and planting of clam and oyster "seed" (young shellfish raised beyond the larval stage) from hatcheries plus the purchase and planting of clean clam and oyster shell to provide excellent cultch material (growing substrate) for the setting of oyster larvae. These programs have been successful, providing excellent harvest opportunities in addition to the ecological benefits.

The enjoyment of exploring New Jersey's coastal waters while finding your own "clamming hotspot" and feasting on your bounty at the end of the day are the best rewards of all. With tens of thousands of acres in New Jersey's back bays and tidal rivers available to harvest shellfish, why not give it a try?

*To stay up to date on important news and events related to shellfish, sign up for our shellfish and marine fisheries e-mail Listserv. Visit Fish and Wildlife's Web site at [NJFishandWildlife.com/lstsub.htm](http://NJFishandWildlife.com/lstsub.htm).*

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# GOVERNOR'S SURF FISHING TOURNAMENT

By Karen Leskie, Wildlife Technician **Get Outside and Enjoy One of New Jersey's Natural Resources**

The 20<sup>th</sup> Annual Governor's Surf Fishing Tournament will be held Sunday, Oct. 2, 2011. Once again anglers from New Jersey and neighboring states will descend upon the beaches of Island Beach State Park in hopes of catching the longest fish of the day. The tournament aims to encourage youngsters and adults to learn more about surf fishing while taking advantage of a great family activity. Funds raised by the tournament go toward marine resource conservation and education.

A strong northeast wind blew hard all day at the 19th annual tournament, but that didn't discourage the nearly 800 anglers. Contestants caught blackfish, bluefish, kingfish and striped bass. A total of twenty prizes were awarded in categories for children, teens and adults. However, the grand prize went to Gary Grimm of Flanders, with a 30½-inch striped bass. Lieutenant Governor Kim Guadagno along with DEP Division of Fish and Wildlife Director, Dave Chanda

congratulated Mr. Grimm with a plaque and two rod-and-reel combinations. Also, Mr. Grimm's name has been engraved on the Governor's Cup, which is on permanent display at Island Beach State Park.

Since its inception in 1991, the tournament has generated more than \$120,000 for various marine education and restoration efforts, construction of access ramps for disabled saltwater anglers, surf fishing instruction programs and equipment, specialized wheel chairs that provide beach access to the disabled and elderly, plus the purchase of the first mobile automatic heart defibrillator for use at Island Beach State Park.

For more information about the Governor's Surf Fishing Tournament or to receive a registration form, visit [NJFishandWildlife.com/gsft.htm](http://NJFishandWildlife.com/gsft.htm) or call (609) 748-4347. 



Left to right: Lt. Governor Kim Guadagno; Paul Harris, President, NJ Beach Buggy Association; Gary Grimm, 19<sup>th</sup> Annual Governor's Surf Tournament winner; Frank Dara, President, Governor's Surf Tournament Committee and Mark Taylor, President, Jersey Coast Anglers Association.

**New Jersey Division of Fish and Wildlife** (along with our co-sponsors: New Jersey Division of Parks and Forestry, New Jersey State Federation of Sportsmen's Clubs, Jersey Coast Anglers Association and New Jersey Beach Buggy Association) would like to thank the following organizations for contributing to the success of the 19th Annual Governor's Surf Fishing Tournament in 2010:

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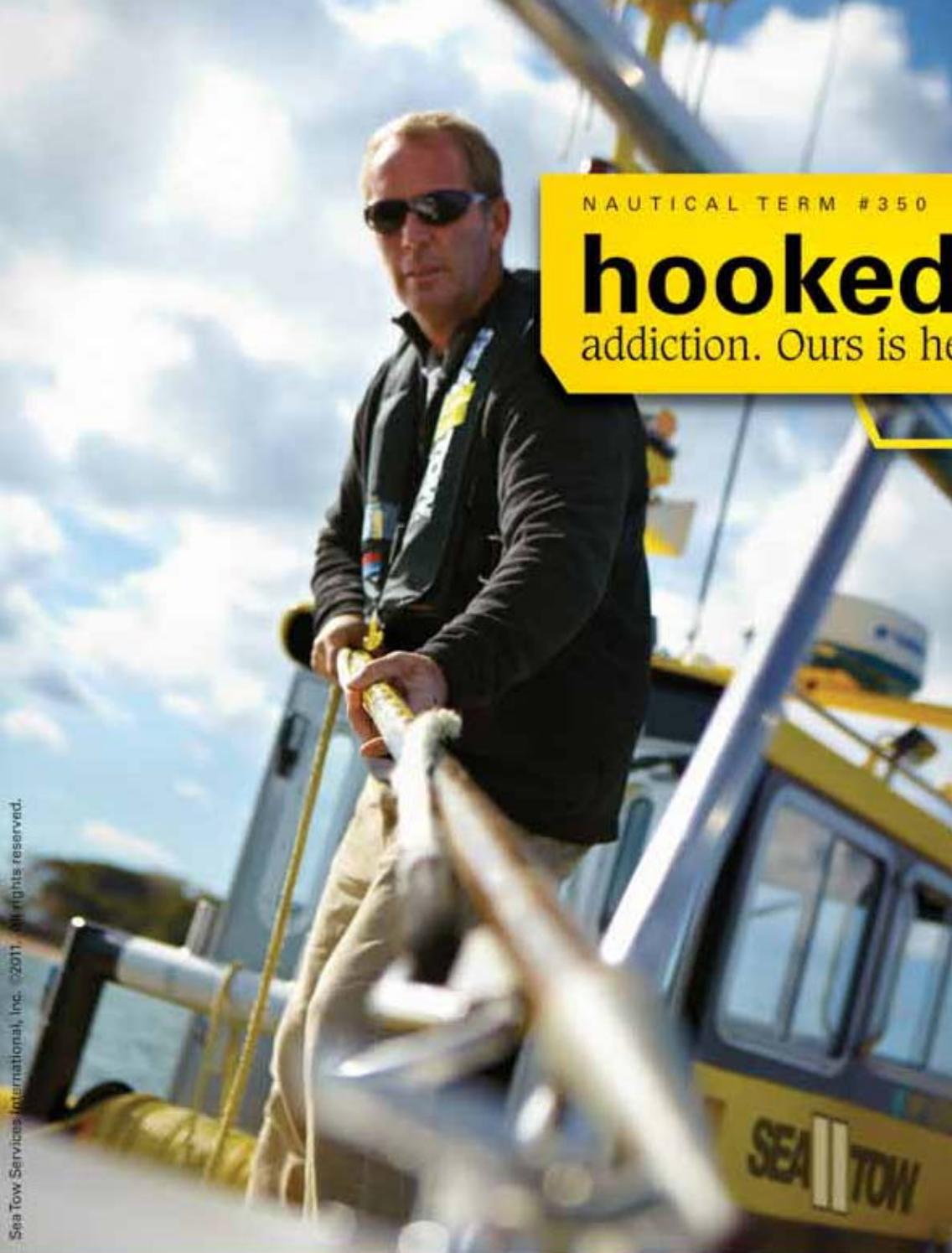

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