2008

Shellfish Spotlight: 2008

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The reasons for the variable clam population are unclear and are still investigated. Some scientists believe the number of suitable habitats, called "standing stocks," is a good indicator of the health of the intertidal zone. If these numbers are low, it means there are fewer places for clams to live. The number of standing stocks, called "clams," varies from year to year, and the reasons for this are unclear. Part of the reason might be due to changes in water quality and the health of the clams themselves. Over time, the clam population has fluctuated, with some years seeing more clams and other years seeing fewer. Scientists are working to understand the factors that affect the clam population and how they can be managed to support a healthy ecosystem.

In addition to the threats listed in the previous paragraph, oyster (Crassostrea virginica) and Chinese mitten crab (Eriocheir sinensis) are also present in Great Bay. These species may cause competition and predation, which could affect the clam population. The black sea urchin (Strongylocentrotus droebachiensis) is another threat to the clam population. This species is a predatory snail that feeds on clams and other bivalves. The number of black sea urchins has increased in recent years, which could put pressure on the clam population. Other threats include climate change, which could cause changes in water temperature and acidity, and pollution, which could affect the health of the ecosystem and the clams themselves. Scientists are working to understand the factors that affect the clam population and how they can be managed to support a healthy ecosystem.
The standing stock of oysters in the Hampton-Seabrook Harbor has declined significantly since the 1960s. One reason for this decline is the prevalence of a disease called sarcomastous neoplasia, which may be the prevalence of this disease throughout the region (New Hampshire Fish and Game Department Clam Hotline). The number of oysters harvested in recent years has also declined. One possibility for this decrease is the prevalence of the disease. The prevalence of oyster disease in 2001 was 36% of the estimated oyster population. In 1993, at that time, the largest beds held about 100 oyster populations per square meter. Currently, the standing stock is about 20 oyster populations per square meter.

There are some positive signs that may encourage oyster standing stock in the future. A successful standing stock in 2004 resulted in a strong year class for oysters in Great Bay. To encourage this year class, researchers asked that the waste oyster shell be recycled. Shells can be recycled at Adams Point in Hampton-Seabrook Harbor. Finally, the prevalence of oyster disease is a positive sign for a clam resource that declined from 1996 to 2001. Oyster disease is a major obstacle to oyster restoration. Shells are to continue the improvement to 2015. Standing stock of oysters was 3.2 bushels in square meters for harvesting in 2006, which is 36% of the estimated oyster population in 1993. At that time, the largest beds held about 100 oyster populations per square meter. Currently, the standing stock is about 20 oyster populations per square meter.

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### Oyster Conservationist Program

Since 2006, a number of citizens around the Great Bay Estuary have taken several voluntary actions aimed at helping to restore depleted oyster populations. Called Oyster Conservationist Program at the New Hampshire Fish and Game Department, the program was started by Dr. Ray Grizzle and funded by the New Hampshire Estuaries Project and New Hampshire Coastal Program. The program is dedicated to empowering citizens to become a very active role in restoring depleted oyster populations. Called Oyster Conservationists, they are fifteen volunteer families with docks in the Great Bay Estuary. The amount of water that oysters can live among the oysters on the constructed reefs is high, and the oysters are not restricted by the conditions earlier this year to a greater extent in Great Bay. Researchers have developed new technologies to study the plant and animal communities, and the reefs continue to develop. The research has also helped in understanding how the reefs could be used for restoration purposes. The research has led to the development of the Oyster Conservationist Program at the New Hampshire Fish and Game Department, which is dedicated to empowering citizens to become active in restoring depleted oyster populations.

### New Hampshire Fish and Game Department Takes Steps to Protect Oysters in Great Bay

The New Hampshire Fish and Game Department (NHFG) is working to improve the health of oysters in the Great Bay Estuary. The department has developed new technologies to study the plant and animal communities, and the reefs continue to develop. The research has helped in understanding how the reefs could be used for restoration purposes. The research has led to the development of the Oyster Conservationist Program at the New Hampshire Fish and Game Department, which is dedicated to empowering citizens to become active in restoring depleted oyster populations.

### Restoring Oysters Likely Benefits Many Species

Dr. Bruce Smith, with funding from the New Hampshire Estuaries Project and New Hampshire Coastal Program, has been studying the potential benefits of restoring oyster populations. Smith has found that restoring oyster populations can benefit many species, including fish, crabs, and mollusks. The restored oyster reefs provide habitat for these species, which can then benefit from the increased numbers of oysters. In addition to providing habitat, the restored oyster reefs also improve water quality by reducing sediment and nutrient runoff. The increased water quality benefits other species, such as seagrass and red tides, which can also benefit from the decreased sediment and nutrient levels.

### Research Examines the Extent of a Deadly Crab Disease

Dr. Charles Walker of the University of New Hampshire has been studying the extent of a deadly crab disease known as "white-tipped" among the population of a crab found in the Great Bay Estuary. Walker has found that the disease is widespread and negatively impacts the crab population. The crab disease, known as "white-tipped" or "white-tipped cancer," affects the crab's digestive system and can cause it to become weakened and die. The crab disease is caused by a bacterial infection, which is spread through the crab's digestive system.

### 2008 Red Tide Was Worst in Years

The New Hampshire Coastal Program (NHCP) has identified the "red tide" event in Great Bay as the worst in recent years. The event occurred in July 2008, and it was the result of a harmful algal bloom, which is a common occurrence in coastal waters. The "red tide" event caused significant losses to the crab population, and it had a negative impact on the local fishing industry. The "red tide" event also affected other species, such as sea turtles and seagrass, which are important components of the ecosystem. The "red tide" event in Great Bay is a reminder of the importance of maintaining healthy coastal waters to support the health of the ecosystem.
Oyster Conservationist Program

Since 2006, a number of citizens around the Great Bay Estuary area have taken an active role in protecting oysters. Oyster populations are well known to fluctuate, and as a result, New Hampshire has been working to protect and maintain these populations for the past 15 years. The program is a collaborative effort led by Dr. Ray Grizzle, who coordinates the program along with the New Hampshire Estuaries Project (NHEP).

NHEP was established in 1994 with the goal of understanding and preserving the Great Bay Estuary as a priority ecosystem. Dr. Grizzle and his team have worked tirelessly to restore and maintain oyster populations within the estuary.

In 2006, this program expanded in scope to include the Merrimack River Estuary, which is located to the north of the Great Bay Estuary. This expansion was made possible through a grant from the U.S. Department of Commerce, which allowed for the development of a more comprehensive program.

The program continues to grow each year, with more citizens becoming involved in the effort to protect and maintain oyster populations within the estuary. This collaborative effort has been successful in maintaining and restoring oyster populations within the Great Bay Estuary.

Research Examines the Extent of a Deadly Clam Disease

Grizzle and Walker found that the disease is not only found in New Hampshire but also in other areas of the northeastern United States. This finding is significant because it suggests that the disease may be more widespread than previously thought.

Clam Disease

Clam disease, also known as neoplasia, is a serious health threat for clams in the Northeast. The disease is caused by a type of cancer that can spread rapidly and cause the death of affected clams. Clams from New Hampshire and Maine have been affected by the disease, and efforts are underway to address the issue.

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New Hampshire Estuaries Project

The New Hampshire Estuaries Project (NHEP) is a collaborative effort between the New Hampshire Department of Environmental Services and The Nature Conservancy. The project is funded by the U.S. Environmental Protection Agency through an agreement with Hampshire Estuaries Project, Inc.

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Invasive Species Alert! Watch for Chinese Mitten Crab

The Chinese mitten crab, also known as the Chinese mitten crab or the Chinese mitten crab, is a large, invasive species that can harm the ecosystem of the Great Bay Estuary. The crab is a voracious predator that can eat a wide range of marine life, including clams and oysters. It has been a major concern for the New Hampshire Estuaries Project, as it can negatively impact the local ecosystem.

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New Hampshire Fish and Game Department takes steps to protect oysters in Great Bay

To address declining oyster populations, New Hampshire Fish and Game Department (NHFG) and the Oyster Conservationists Program (OCP) have launched a study to determine the state of oyster reefs in the bay and the steps needed to bolster them. Oyster study site monitoring and management, a key component of NHFG’s mission, is restricted to protect the public from contamination and closing shellfish harvesting areas for public health. The research by Dr. Ray Konisky, a marine ecologist with the University of New Hampshire, has led the state agency to add this restriction to protect the public from PSP toxin, which is earlier than usual. Red tide closures have been declared in other coastal areas in the last few weeks. Since the lobsters have disappeared from the Gulf of Maine, the state has halted all shellfish harvesting areas for public health.

New Hampshire Fish and Game Department is conducting a research project that not only added about 1.75 acres of new oyster reefs in Great Bay but also gathered through this process will be used to determine the variety, density, and amount of living creatures on both the experimental and natural reefs. Grizzle has some initial thoughts on how the oyster bed is used by other creatures. “So far, we have found abundant invertebrates and some small fish living among the oysters on the constructed reefs, about 15 to 20 feet across,” he says. For comparison, he repeated the same experiments with experimental areas without the oyster reefs. He counted and measured all living oysters. He collected small sections of six reefs and analyzed the samples up to the present time. The new experiments have been successful with about 500 oysters per square yard. Grizzle’s experiments were fairly straightforward. Oyster beds will be monitored for two years. The state agency added this restriction to protect the public from contamination and closing shellfish harvesting areas for public health. The research by Dr. Ray Konisky, a marine ecologist with the University of New Hampshire, has led the state agency to add this restriction to protect the public from PSP toxin, which is earlier than usual. Red tide closures have been declared in other coastal areas in the last few weeks. Since the lobsters have disappeared from the Gulf of Maine, the state has halted all shellfish harvesting areas for public health.

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Status of New Hampshire Shellfish

The standing stock of oysters increased from 2000 to 2007 from 5,632 bushels to 6,995 bushels. Should the trend continue, the standing stock should be over 10,000 bushels by 2011. Since the program began in 2006, more than 100 bushels of shell have been successfully recycled and used in restoration efforts.

The number of harvestable oysters, collected in recent years, has been improving. Although many scientists and researchers believe there is a consistent upward trend that suggests the improvements will continue, standing stock analysis was 5,213 bushels in 2007, an increase of 3% from 2006. Recent research indicates that standing stock levels, including oyster populations, may significantly impact clam populations. Current research at the University of New Hampshire and the New Hampshire Department of Transportation are working to determine standing stock levels. Standing stock has been defined as the amount of standing stock available for harvest. Historically the standing stock has increased from 1997 to 2004. Standing stock is estimated to be improving, but unfortunately level of standing stock, in recent years has declined a bit from 2006 to 2007. As the number of standing stock levels increases, the standing stock should be more than 1,000 bushels.

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