

Behold *Loligo*, a Prolific Molluscan Summer Spawner

by Kurt Gottschall

Many people are unaware that long-finned squid (*Loligo pealei*) are very common in Long Island Sound. In fact they are one of the most common invertebrate species, by weight, caught in the annual Long Island Sound Trawl Survey. Squid have been one of the top three species caught in the Survey for 16 out of the last 18 years. They also comprise a major component of the Sound's forage base for popular sport fish caught by anglers such as striped bass and bluefish. Long-finned squid typically migrate into the Sound in May to feed and spawn and then move back out to the warmer continental shelf waters in the late fall. Squid are molluscs, related to clams, oysters and other bivalves; however, squid have an internal shell called a pen rather than the external protective shell of these other molluscans.

Squid have a unique life history and have unique morphological characteristics that set them apart from other invertebrates. Squid grow extremely fast and only live about nine months to a year. Most squid in the Sound are less than a foot long (mantle length) but some have been recorded up to 16". The larger mature squid show up first in our waters followed by smaller immature individuals. Although squid are known to spawn year round, the majority of squid in the Sound spawn in May through August. The Long Island Sound Trawl Survey (LISTS) catches clusters of egg capsules, or "egg mops", which are often laid on some sort of object like *Fucus* (a common seaweed in the Sound) or other solid object on the bottom. Squid are social spawners, so each one of these egg mops may be comprised of hundreds of egg capsules from several female squid. Egg mops caught by LISTS are typically less than one foot in diameter; however, other parts of the northeast have recorded clusters as large as two to three feet in diameter. Within two to three weeks, depending on water temperature, the eggs will hatch and by mid to late September the LISTS Fall Survey will often see young squid from 3 to 9 centimeters in mantle length (1 to 3 inches long). LISTS' largest catch during a fall survey was over 5,800 squid in a single 30 minute tow. In some years where squid are



Conn. DEEP

It's a boy! and a girl! and...

After fertilization, female *Loligo pealei* deposit clusters of eggs onto the bottom or on seaweed. There may be 10 to 50 strings of eggs, with up to 100 eggs each in a gelatinous mass called an "egg mop". The egg masses later begin to harden in contact with sea water.

particularly abundant the survey has actually averaged about 270 squid per tow.

One of the most fascinating things about long-finned squid is their ability to change color and the patterns of their skin. Like other cephalopods, including octopus, they are often described as the "masters of camouflage". They have the ability to use their well-studied nervous system to control the underlying skin cells to change their color. Squid can selectively control reflecting cells called leucophores and chromatophores which are organs that contain different types of pigment that result in a wide array of varying iridescence.

Looking closely at the surface of the skin one can see many small dots which are the chromatophores. Different colored chromatophores are controlled by muscles which relax or contract to form the overall shape and color pattern.

continued on next page...

continued from previous page...



Conn. DEEP

Squid, *Loligo pealei*, are common in Long Island Sound. Most live only nine months to 1 year. Relaxing or contracting certain muscles controls chromatophores in their skin that allow them to change color and pattern.

Although long-finned squid inhabit Long Island Sound, there hasn't been much of a directed fishery on them in several years. Recent historical landings for Connecticut recorded as much as 412,547 in 1995 but are now down to 11,000 to 33,000 pounds in the last few seasons. Long Island Sound is only a small portion of the squid's geographical range, which extends from Newfoundland to the Gulf of Venezuela, but it is a very important nursery area where the species can flourish.

About the Author:

Kurt Gottschall is a biologist with the Connecticut Department of Energy and Environmental Protection (DEEP) Marine Fisheries Division.

For a slideshow of the Long Island Sound Trawl Survey (LISTS) see: www.ct.gov/dep/lib/dep/fishing/fisheries_management/trawl_show.pdf

Lobster Trade Adjustment Assistance Program

Times are tough when you are a lobsterman, but thanks to a program developed by the USDA's Farm Service Agency, many lobstermen may still have the opportunity to continue what they like doing best—harvesting lobster. The program is called the Trade Adjustment Assistance (TAA) for Farmers and is available to any farmer or fisherman who is affected by foreign imports. With New England lobster, foreign import pressure is one of the many factors that have negatively impacted the industry. The TAA program offers free training, including a small cash benefit, on ways to help lobstermen increase their profitability, improve their production efficiency, find new marketing opportunities for their product, and explore alternative enterprises (careers other than lobstering). Lobstermen also have the opportunity to work one on one, and at no additional cost, with a business consultant to help them improve their current business or start a new one.

The Connecticut Sea Grant Program, in collaboration with other Sea Grant Programs across New England, has been asked to develop and deliver these free training workshops to eligible lobstermen. One workshop entitled Alternative Enterprises, explores career options for lobstermen such as getting a captain's license, finding work on tugboats and ferries, ways to start a charter boat business, and getting into aquaculture. There are also more general workshops which lobstermen can attend, such as the workshop entitled Developing Your Own Business Plan.

Connecticut lobstermen have been hit the hardest and with their industry disappearing quickly, many are looking for ways to support their families. Without the TAA program, many of the offered services would not be readily available to lobstermen and their families, especially when it's at no cost to them. Many lobstermen in New England are well on their way to completing all requirements of the TAA program, and looking forward to starting a new chapter in their lives.

—Anoushka Concepcion
Connecticut Sea Grant Extension