CT DEP Long Island Sound Fish Trawl Survey

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THE JOHN DEMPSEY: Connecticut Department of Environmental Protection's largest research vessel, the *John Dempsey,* underway in Milford Harbor during a day of sampling for the Long Island Sound Trawl Survey in June 2005. The Long Island Sound Trawl Survey takes place each year in the spring (April through June) and in the fall (September through October).

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THE HAUL: Each month during the Long Island Sound Trawl Survey, more than 40 sites throughout the Sound (in both Connecticut and New York waters) are selected for sampling. At each site, the trawl net is set and towed along the bottom for thirty minutes. At the end of that time, the net is retrieved and lifted aboard, forcing all the fish in the net into the codend (the bag of the net).

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SORTING: The contents of the codend are released onto the sorting table where everything is separated by species as quickly as possible and held in water to await further processing (weighing, counting, and measuring). In these pictures, you can see striped bass, dogfish, skate, lobster and flounder.

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PROCESSING: Sometimes the catch is predominately one species, as is the case here, where the catch is mostly small butterfish with a few other species mixed in (a large windowpane flounder, small spotted hake, river herring and small winter flounder). With small fish like this, the sorting and counting is often accomplished by sliding the fish off the table into a basket which is submerged in water.

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BUCKETS: As the catch is sorted by species, each species goes into a separate bucket or basket full of water. Here you can see striped bass, scup and multiple baskets of dogfish. Deck space fills up quick when there are a lot of big fish or a large number of different fish – both of which may require several buckets and baskets.

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ASSORTED FISH: Here are some fish species commonly seen in the Long Island Sound Trawl Survey. The picture on the left shows a skate and at least three species of flatfish (fourspot flounder, winter flounder and windowpane flounder). There are also some lobsters, hake, scup and a northern sea robin on the table. The picture on the top right is a scup (porgy), a very popular sport fish in Long Island Sound. The bottom right picture is a striped sea robin with its right pectoral fin extended.

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FISH: Some close-ups of more fish commonly seen in the Long Island Sound Trawl Survey. The two pictures on the left are of a fourspot flounder, so named because of the distinctive pattern of four ocellated spots (two near the tail and two toward the middle of the body). The top right picture shows a winter flounder above a fourspot flounder, note the winter flounder has lots of little spots all over the body. The bottom right picture shows a little skate *(left)* and a winter skate *(right).*

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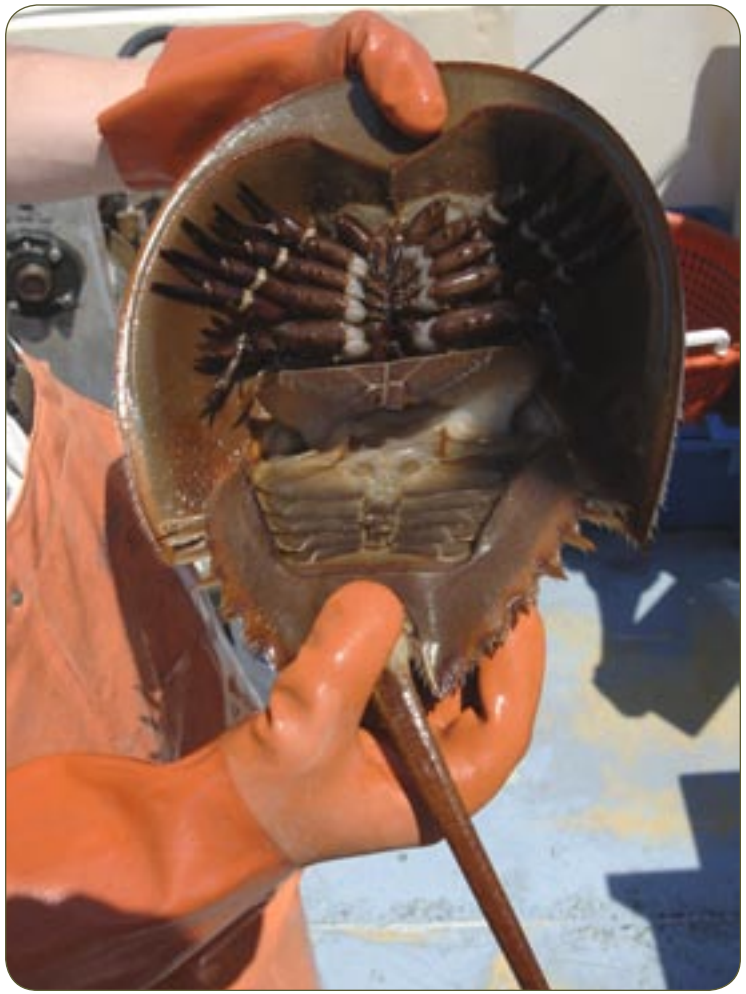

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HORSESHOE CRAB: The horseshoe crab is an ancient creature that has survived approximately 200 million years with very little evolutionary change. Horseshoe crabs are not actually a "true crab" like other invertebrates in the subphylum Crustacea and they are more closely related to spiders. Here you can see one crab being measured for the prosomal width (width of the carapace at the widest point) and the underside of another crab showing the walking legs (forward) and "book gills" (near the tail).

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JELLIES: Loligo squid is a species commonly found in Long Island Sound during certain seasons. Here you can see a mature squid on the right and a mass of squid eggs on the left. Both the squid and squid eggs provide food for many other species found in Long Island Sound.

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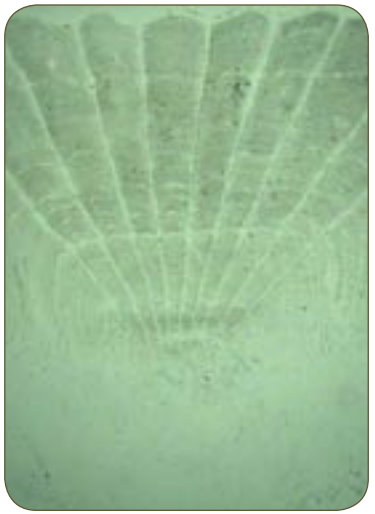

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LAB: For some of the species collected in the Trawl Survey, some body parts are processed and sent back to the lab for age determination. There hard parts are frequently scales taken from the side of the fish (as seen here). Back in the lab, the scales are cleaned and pressed onto a small piece of acetate (plastic) and the impression is then projected so the pattern can be used to determine the age of the fish (in years).

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MEASURE: All of the fish captured during one tow are processed before the catch from another tow is brought onboard. Processing includes recording the weights, counts and lengths of fish. On the left, a striped bass is measured. On the top right, butterfish are being measured. Bottom right shows a smooth dogfish being released after it has been measured.

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DATA: Obtaining lobster measurements involve using calipers to precisely measure the carapace length for each lobster. The lobster's sex is determined and recorded along with other biological information.

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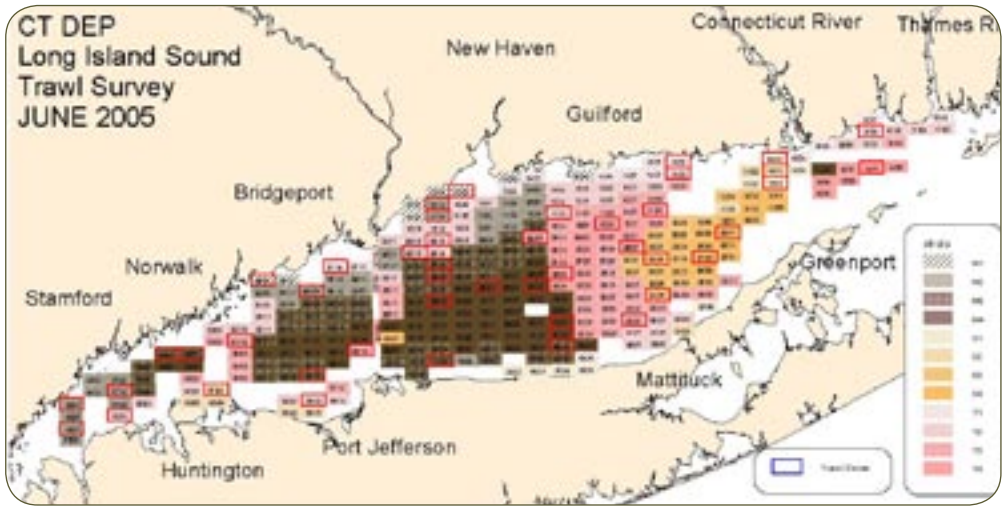

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WATER/DATA: The bottom right shows a map of Long Island Sound with the Trawl Survey site grid colored by a combination of water depth and sediment type. The sites to be sampled for the month (June 2005) are outlined in red. Some of the data recorded at each site include water temperature and salinity, both at the surface and at the bottom. The picture on the left shows a Niskin bottle that was just retrieved from the bottom with a water sample inside.

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RETURNED TO SEA: Just like this striped bass, fish caught in a research tow are returned to the sea in the best possible condition (unless collected for further research such as age determination, food habit studies, or tissue contaminant analyses).

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END OF A LONG DAY: The *John Dempsey* arriving back in port after a cruise. Typically a monthly Long Island Sound Trawl Survey cruise consists of ten to twelve sea days working about twelve hours each day.