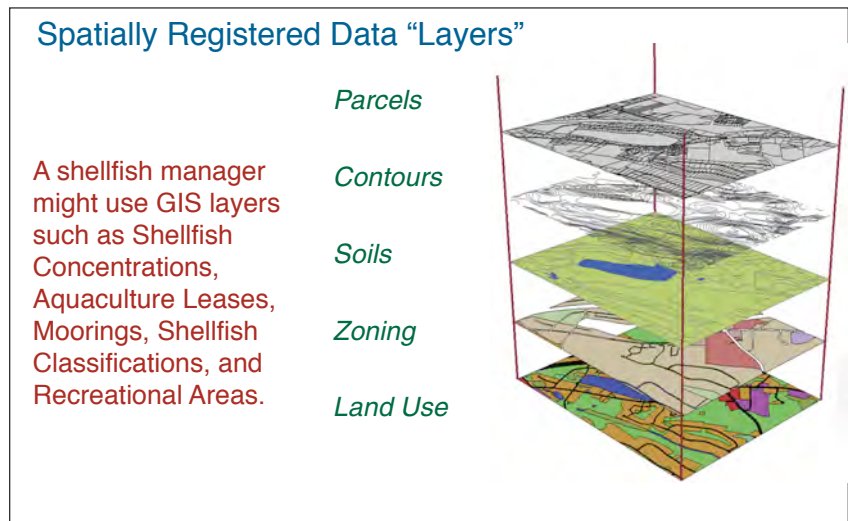


Using Geospatial Technologies to Improve Shellfisheries Management

by Tessa S. Getchis

Geospatial technologies, including Geographic Information Systems (GIS) and Global Position Systems (GPS), are powerful planning tools that can be used for natural resource management. A GIS is a system that is able to capture, store, edit, integrate, analyze and display spatially reference information, in other words, data that is identified by a geographic location on Earth. GPS is a system of satellites, computers, and receivers. The system enables a GPS receiver to determine and record its geographic location. Data used in a GIS is often derived from GPS data collected in the field. According to Sandy Prisloe, University of Connecticut Geospatial Technology Extension Specialist, “One major advantage of GIS over other management tools is its ability to organize multiple types of georeferenced data into one format.” Each data set or “layer” can be analyzed and compared to data in other layers, and also visualized in descriptive maps. These tools have been utilized by planning officials and resource managers to make decisions and answer questions regarding land-use and development, and are now becoming increasingly important for managing shellfisheries and aquaculture.

Connecticut’s shellfish populations are an extremely valuable natural resource. They play a vital role in the greater estuarine ecosystem and support an economically important commercial aquaculture industry, valued at greater than \$25 million dollars. In addition, municipal shellfishing programs provide locations to access and harvest shellfish locally. These commercial and recreational shellfish beds are managed by municipal shellfish commissions comprised of committed but untrained volunteers. For these managers, access to and use of geospatial data is becoming increasingly necessary for effective management of the shellfisheries and aquaculture under their jurisdictions. Spatial information about the distri-



Within a GIS database, digital data usually are stored as “layers” using a common coordinate system. Each layer represents a relatively homogeneous set of data. This “registration” of datasets facilitates their manipulation and the layering of data makes it easy to turn layers on and off to visualize data in a way most appropriate for a particular application.

bution and abundance of shellfish, lease areas, shellfish classification areas, coastal development, pollution discharge locations, impervious surfaces, docks, mooring areas, etc. are all necessary for effective resource management and access to these data for abutting municipal and state managed areas is also of critical importance.

Currently, each municipal shellfish commission develops much of its own map data and is responsible for managing, using and updating these data. Some data, such as shellfish classification areas and state managed lease areas are provided by state agencies but for the most part each shellfish commission is responsible for acquiring and using its own resource data. Until recently, most of this data has been recorded on hand-drawn or computer-generated maps that do not have accurate geographic or temporal references. This has made it difficult to review shellfisheries and aquaculture applications or evaluate stock enhancement efforts in an efficient manner.

continued on next page

To address this need, the Connecticut Sea Grant Extension Program and University of Connecticut (UConn) Department of Extension formed a partnership with the Connecticut Department of Agriculture Bureau of Aquaculture to develop a geospatial technology training course specific to municipal shellfisheries management. Extension specialists Sandy Prisloe and Cary Chadwick from the UConn Department of Extension's Geospatial Technology Program and Tessa Getchis of the Connecticut Sea Grant Extension Program and UConn Department of Extension, hosted the course. The project, funded by a Connecticut Department of Agriculture Ag Viability Grant, provided hands-on geospatial technology training to approximately 30 shellfish commissioners throughout the state. Following the training workshops, commission

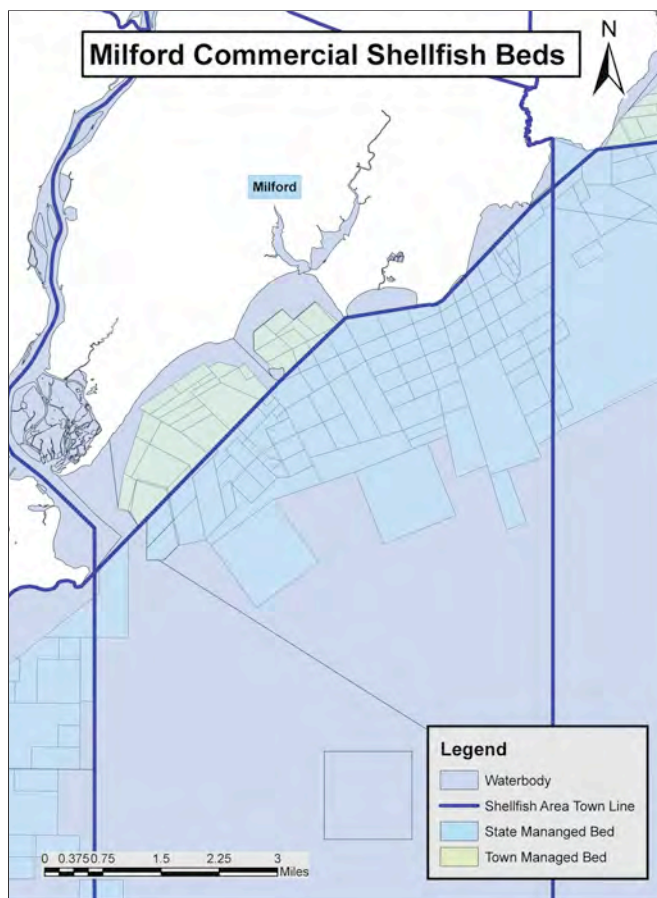


Municipal shellfish commission members learn the basics of desktop GIS at a workshop offered at the University of Connecticut.

members were asked to complete a field project to test their newly acquired geospatial skills.

These techniques and training sessions can help to promote environmentally and economically sustainable growth of aquaculture in local communities, ensuring more local seafood in our markets and more opportunities for recreational shellfish harvesting. As a result of the training effort, the majority of commissions reported having an increased understanding of geospatial technologies and feeling better equipped to make informed decisions regarding commercial and recreational shellfisheries and aquaculture. Those commissions also noted that they saved time and effort through the use of geospatial technologies rather than traditional planning methodologies, and that they were more likely to use GIS for making decisions about shellfisheries management in the future.

The Sea Grant Extension Program and UConn Department of Extension are planning a follow-up project which will provide Internet-based access to coastal and shellfish resource data in the form of an easy to use interactive online mapping system.



Example of a GIS map, delineating town and state managed commercial shellfish beds in Milford.

About the Author:

Tessa Getchis is a Extension Educator, specializing in aquaculture and shellfisheries, with the Connecticut Sea Grant Program and Department of Extension based at the University of Connecticut.