

Residential Research Partnerships as Vehicles for Community Knowledge Sharing
M.P. Crosby, B. Lausche, Z. Muzyczka and J. Culter
Mote Marine Laboratory, Sarasota, FL, USA

Mote's innovative partnership in Community Based Scallop Restoration in Sarasota Bay directly engages the participation of existing local organizations with world-class scientists to restore the bay scallop populations in the Sarasota Bay estuary system, which extends from southern Tampa Bay to just south of the Venice Inlet on the central Florida Gulf coast. In addition, a pilot scale development of a community based mollusc hatchery that can accommodate the needs of the central Florida coast for continued responsible management of keystone species will be examined.

This community based ecosystem management partnership project serves as a model for how a residential research institute that has been imbedded as part of the local community for 60 years can serve as a vehicle for community knowledge sharing, and a demonstration of the overall evolution of knowledge translation and circulation between and amongst traditional knowledge and formal scientific research stakeholders. Simultaneously with the formation of the restoration project hatchery, and with donations from external sources, Mote implemented a series of workshops with nationally recognized experts in circulation modeling, shellfish aquaculture, ecosystem balance, and predator prey interactions for the purpose of implementing scientifically sound procedures for culturing, releasing and managing scallop stocks in the Bay system.

Shellfish (bivalve mollusks) have long been recognized as keystone species in marine and estuarine environments. Shellfish populations in the bays of the west coast of central Florida have been reduced to a remnant of this once abundant resource, which was devastated by a combination of anthropogenic impacts -- from dredge and fill habitat destruction to overfishing. The bay scallop was commercially harvested in Florida until the mid 1960s when many local populations were depleted. A seasonal recreational harvest is still permitted in certain areas north of the Homosassa River on the west coast of Florida. Recreational scallop harvest can have positive local economic benefits. In Citrus County Florida a single season (2003) of recreational scallop harvest generated over \$1.6 million tourist dollars for the local economy.

The strategy for the Mote Community-based Shellfish Restoration Initiative consists of assembling a cooperative community based consortium to implement science-based restoration and monitoring of populations of the bay scallop, *Argopecten irradians*. This project draws together the large pool of dedicated volunteer citizen-scientists in the local communities to work alongside aquaculture experts to produce shellfish, thus markedly reducing the inherent labor expenses and ramping-up community involvement in a popular restoration effort. The project draws on local stakeholders and common interests of existing organizations including Mote Marine Laboratory, Mote Aquaculture Park, Sarasota Bay Estuary Program, Sarasota Bay Watch, Bay Shellfish, Inc., New College, University of South Florida-Sarasota/Manatee, University of Florida, Nagano University in Japan, the Florida Fish and Wildlife Conservation Commission, and NOAA-Fisheries.

The project strategy draws on past research that has demonstrated feasibility of bay scallop restoration in small-scale projects that have been conducted in Florida. Although direct impacts to scallop habitats no longer occur and water quality is good and seagrass beds are expanding, scallop populations have yet to recover in Central Florida areas south of Tampa Bay. Lack of recovery is believed to be due to a lack of sufficient larval recruitment. *Argopecten* live 12 - 14 months and may spawn several times after reaching an age of approximately 10-12 months. As broadcast spawners, wild scallop populations require a large enough population of reproductive adults for successful fertilization of eggs. A successful seeding program must stock to a (threshold) density high enough so that individuals are close enough together to successfully fertilize broadcast eggs.

Technical expertise for retrofitting aquaculture systems for scallop production and the successful collection, spawning, larval rearing, and nursery, feeding and release of juveniles is being provided by Mote scientists with assistance from local scallop and clam hatchery experts. The program is also coordinated with the Florida Fish Conservation Commission Fish and Wildlife Research Institute's (FWC-FWRI) Shellfish Research Program. Training of the citizen-scientists for participation in hatchery operations and maintenance, techniques of field monitoring and data quality assurance is being conducted by Mote scientists in cooperation with the other participating NGOs.

Progress of this community-based partnership is being measured as the increased level of understanding and awareness for the value knowledge translation and circulation between and amongst traditional knowledge and formal scientific research stakeholders; implementation of stakeholder workshops; the organization, education and training of citizen-scientists; engagement of citizen-scientists in spawning and release of scallops, field monitoring of scallop settlement, growth and survival to assess the effectiveness of stocking strategies and the level success in restoring scallops locally, and collection of relevant environmental field data by citizen scientists. Data collected by the volunteers is being provided to Mote Marine Laboratory where scientists and volunteers are compiling and analyzing the information.

Surveys have been developed by Mote to assess changes in perceptions of participants in this community based partnership with respect to forcing functions for why volunteers are participating, and what they are learning through their participation in the partnership initiative. Preliminary results from partial analyses of survey data indicate that there is a diverse demographic representation of volunteers across age groups and gender, with most participants being local residents as opposed to visitors to the region. In addition, all participants surveyed felt the partnership initiative had positive impact on themselves and others with respect to increasing knowledge about environmental quality, impact of humans on the environment, naturally occurring changes to environments and the role of scallops in the ecosystem. There is also a major change in perceptions of participants over the time that they are involved with this partnership initiative.