

HATCHERY OPERATION



Algae Production + Shellfish Spawning

All shellfish produced for this project will begin at CCE's state-of-the-art Shellfish Hatchery in Southold. Algae production, spawning, and care of shellfish will be conducted at this site before animals are transported for grow out or seeding on Shelter Island.



a. Algae is produced in order to feed shellfish in hatchery



b. Scallops, clams, and oysters are spawned here



c. Shellfish larvae are fed microalgae produced by CCE



d. Spat-on-shell oysters are produced by setting larvae on recycled shell in a remote setting tank



e. Clams are cared for in a FLUPSY until large enough for seeding in Town waters



f. Bay scallops are placed in lantern nets to grow out and will be planted in a spawner sanctuary

SHELL RECYCLING PROGRAM



Spat-on-Shell Production



Shell recycling is an integral part of the effort to create oyster reefs, as it supplies the preferred setting substrate for oyster larvae. We are removing valuable material from the landfill and in turn it creates valuable habitat, improves water quality and enhances the local oyster population.



a. Participating businesses receive shell buckets, which they fill with oyster shells



b. The buckets are collected and emptied onto the shell piles to "cure" for 6-12 months



c. Staff + volunteers clean and bag cured shells from the previous year



d. The mesh shell bags are stacked in a remote setting tank in preparation to receive oyster larvae



e. Spat-on-shell oysters continue to grow and will be planted to create a reef



f. Business are encouraged to promote their participation in this beneficial program

SHELLFISH RESTORATION



Oysters

Crassostrea virginica



- ✓ Spat-on-shell oysters are used to form oyster reefs
- ✓ Oysters are effective filter feeders and improve water quality
- ✓ Oyster reefs also serve as important habitat



a. Oysters are spawned in CCE's hatchery



b. Recycled shell substrate is cleaned, bagged, and placed in the remote setting tank



c. Oyster larvae are added to the setting tank along with plenty of microalgae for food



d. Larvae set on the shell, becoming spat-on-shell



e. Spat-on-shell oysters continue to grow until ready to plant at the restoration site



f. CCE Marine staff + volunteers empty bags of spat-on-shell to form new oyster reefs

SHELLFISH RESTORATION



Hard Clams

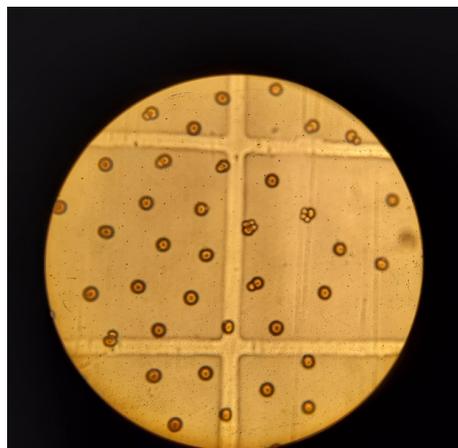
Mercenaria mercenaria



- ✓ Clams are filter feeders and reduce nitrogen in surface waters
- ✓ Clams will be produced in CCE's Shellfish Hatchery
- ✓ A FLUPSY will provide ideal grow out conditions



a. Clam broodstock is prepared for spawning



b. Spawning activity yields millions of clams each year



c. Clams are sorted, cleaned and fed in the hatchery



d. Once big enough clams will be transferred to a FLUPSY, which offers optimal growth



e. Clams will be held in the FLUPSY and cared for by staff + volunteers



f. Clams will be seeded in Town waters, utilizing volunteers when possible

SHELLFISH RESTORATION



Bay Scallops *Argopectin irradians*



- ✓ CCE has led local bay scallop restoration efforts for over 15 years
- ✓ Bay scallops are economically important to the region
- ✓ Spawner sanctuaries are a proven method for localized population enhancement



a. Bay scallops are spawned in CCE's Hatchery



b. Scallops are cared for in a nursery setting to encourage growth and increase survival



c. A nursery net system is used for growout



d. View of bay scallops, protected from predators, in lantern nets



e. The scallops are seeded using CCE staff and vessels



f. A small spawner sanctuary with ideal bay scallop conditions will offer increased survival

COASTAL PLANT RESTORATION



Eelgrass *Zostera marina*



- ✓ Offers critical nursery habitat and foraging grounds for many marine species
- ✓ Eelgrass takes up excess nutrients in the water
- ✓ Helps protect shorelines from erosion



a. Marine Meadows Workshops engage the public in this work



b. Various methods are used, including BuDS and burlap discs



c. Eelgrass is woven into burlap "tortillas" by volunteers



d. Tortillas are transported to carefully selected restoration sites



e. CCE's divers hand plant each tortilla creating new eelgrass meadows



f. Eelgrass plantings are monitored for survival and species utilization, including bay scallop spat