

30 YEARS OF SEA RANCHING MANILA CLAMS (*TAPES PHILIPINARIUM*): SUCCESSFUL TECHNIQUES AND LESSONS LEARNED

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Successful mollusk farming, sea ranching, and restocking of historical intertidal populations all require a working knowledge of the local population biology, density, and dynamics during all phases of the project. Too many sea farms or restocking projects have started with the wrong species for the site, the wrong density, too small a seed size for successful recruitment, or with no knowledge of the site's carrying capacity for a given species. Also, given that 50% of the world's population lives within 100 km of the coast, minor to significant disturbance of most intertidal sites probably has already occurred.

Little Skookum Shellfish Growers (LSSG) created guidelines for an economically and environmentally sustainable sea ranch for Manila clams (*Tapes philipinarium*) in 1977 and has operated under these guidelines for 30 years in Little Skookum Inlet near Shelton, Washington. LSSG's system has significance for both sea ranching and stock enhancement programs by offering a rational approach for establishing and monitoring standing stocks of indwelling mollusk populations present during all phases of a sea ranching or restocking project. It includes benthic surveys and seeding to maintain the Manila clam population at the desired biomass. The survey system is simple, economical, and provides educational opportunities for students. It incorporates spreadsheet software to calculate and graph results. While the system has allowed LSSG to sea ranch Manila clams well in excess of 60,000 kg/Ha/yr in sustainable yield, it is also an effective tool for evaluating appropriate habitats, modification of habitats, effects of removal of predators, and annual recruitment of mollusk species along with its primary role of establishing biomass inventory and the size distribution of the Manila clam crop. Until successful acoustical methods for biomass analysis are established, this type of systematic approach may be the only cost effective way of achieving economical and sustainable sea ranching or stock enhancement programs for indwelling mollusks.