

# RANCHING OF MARINE INVERTEBRATES

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Sea ranching of invertebrates have the possibility to increase harvest of invertebrates and can restore ecosystems if done correctly

A marine invertebrate is an animal without a backbone that lives in the ocean or intertidal zone. Examples that people eat are abalone, mussels, clams, scallops, octopuses and squid.



**Sea Ranching** is the release of cultured juveniles into an unenclosed marine environment, with intentions of harvest after individuals grow to a larger size. Released individuals are not expected to contribute to the reproductive population, but can happen when they are expected to be harvested after sexual maturity or not all released individuals are harvested.

**Benefits:** Sea ranching reduces the amount of time animals need to be raised in hatcheries, compared to land based aquaculture, saving money. Invertebrates have high recapture rates, fast growth and low hatchery production costs leading to high economic efficiency. Increases in catch, and general populations increases is a possibility. Sea ranching of shellfish can be used at river outlets to consume extra nitrogen and phosphate that is run-off from human activities. Reducing extra nitrogen and phosphate is important as too much can lead to algae blooms that often disrupt the marine ecosystem.

**Costs:** Raising animals in hatchery settings can lower chances of survival in the wild. There is a chance of outbreeding depression with the introduction of a new population. Outbreeding depression meaning the wild populations could lose adaptations needed for the specific environment. Introducing too many animals into an area can cause the whole ecosystem to shift, leading to unintended changes in other species populations. Introductions of the hatchery animals could spread diseases to the wild population, which could lower the overall population.



**Recommendations:** Each species and location needs to use an ecological model and adaptive management plan to monitor the correct number of individuals released each year. Fishing rights based on special management to ensure ownership of stocks and correct harvesting practices. Hatchery conditions need to match wild conditions as much as possible for optimal success of released individuals.

Sea ranching of marine invertebrates is possible with enough knowledge of the species and locations in which they are released.

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