



Marine Invertebrates

Bivalves

Judd's scallop

Haumea juddi

Nahawele li'i li'i or Hawaiian mussel

Brachidontes crebristriarius



Pa or Pearl oyster

Pinctada margaritifera

Winged pearl oyster

Pteria brunnea

Nahawele or Black purse shell

Isognomon californicum

SPECIES STATUS:

IUCN Red List - Not considered

All Endemic except for *Pinctada*

SPECIES INFORMATION: Judd's scallop (*Haumea juddi*), nahawele li'i li'i or the Hawaiian mussel (*Brachidontes crebristriarius*), the winged pearl oyster (*Pteria brunnea*) and nahawele or the black purse shell (*Isognomon californicum*) are endemic, filter feeding bivalves, while pa or the pearl oyster (*Pinctada margaritifera*) is a widespread species. All have separate sexes and external fertilization. Both nahawele li'i li'i and pa attach to their substrates using strong byssal threads, while nahawele can move using its large foot. Judd's scallop can swim by clapping its shells.

DISTRIBUTION: All species were historically distributed throughout the state. Today they are found throughout the Hawaiian Archipelago; however, nahawele is most abundant around

Maui and the island of Hawai'i. Nahawele li'i li'i is primarily found on the windward or Main Hawaiian Islands.

ABUNDANCE: Pearl oysters were harvested at Pearl and Hermes Atoll in the Northwestern Hawaiian Islands, the only place they were common, but overfishing in the 1930s led to their decline and regulations limiting their harvest. The National Marine Fisheries Service surveyed Pearl and Hermes recently and found that pearl oysters were not rare, but would still not support a commercial fishery. Abundance is unknown for the rest of the species.

LOCATION AND CONDITION OF KEY HABITAT: Judd's scallop's primary habitat is on sandy ocean bottoms at depths of eight to 100 meters (26 to 328 feet). They are situated so their open shells face into the current with their top shell thinly covered with sand. If disturbed, they have been documented to swim two to three meters (six to ten feet). Both Judd's scallop and nahawele li'i li'i form patches or beds. Nahawele li'i li'i primary habitat is limestone shoreline at the low tide mark. However, in shoreline areas where freshwater and salt water mix they grow to their largest size. They can also be found on basalt shorelines, although in lower densities. Pa is found in shallow waters in between corals. The winged pearl oyster's primary habitat is on species of black coral; however, they also can cluster on wire corals. They may also host bryozoans on their shells. Nahawele form clusters in crevices at the high tide mark and prefer brackish waters. Nahawele on islands other than Maui and the island of Hawai'i are found individually in more saline waters.

THREATS:

- Historically, pearl oysters were threatened by harvesting them for their pearls;
- Pollution is a direct threat to these species, because they are filter feeders. This also makes them potentially good indicators of water quality in their habitats.

CONSERVATION ACTIONS: The goals of conservation actions are to not only protect current populations, but to also establish further populations to reduce the risk of extinction. In addition to common state-wide and island conservation actions, specific actions include:

- Collaborate to reduce nearshore pollution;
- Maintain healthy habitat.

MONITORING:

- Survey for populations and distribution in known and likely habitats.

RESEARCH PRIORITIES:

- Improve understanding of factors affecting the species population size and distribution.

References:

Hoover JP. 1998. Hawaii's sea creatures, A guide to Hawai'i's marine invertebrates. Honolulu, HI: Mutual Publishing. 366 pp.

Kay AE. 1979. Hawaiian marine shells reef and shore fauna of Hawaii, section 4: Mollusca. Honolulu, HI: Bishop Museum Press. 653 pp.