

## Status of Manila Clam, *Ruditapes philippinarum*, culture and fisheries on the West coast of North America

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The Manila clam *Ruditapes philippinarum* was inadvertently introduced into the Northeast Pacific Coast in the early 1900's with seed shipments of Pacific oysters (*Crassostrea gigas*). The species was first detected on the east coast of Vancouver Island in 1930 and spread rapidly. It is now found from the Central Coast of British Columbia to California. Production from aquaculture and commercial fisheries is approximately 5938 tones from British Columbia, Washington and California.

Commercial fisheries for Manila clams began in Washington State in the 1940's and the 1960's in British Columbia. Aquaculture of Manila clams supplemented by hatchery produced seed began in 1972 in Washington State; clam aquaculture was permitted since 1981 in California and 1985 in British Columbia. Washington State is unique in that tidelands may be privately held and this has promoted the development of intertidal shellfish aquaculture. Tidelands are leased from the State and the Provincial governments in California and British Columbia respectively.

Aboriginal groups in British Columbia and Washington State have differential access to wild stocks of Manila clams. Under federal treaties of 1854 and 1855, Washington tribes reserved the right to harvest fish and shellfish at all usual grounds and stations. Recent court decisions have upheld the Puget Sound tribes' rights to up to 50 percent of the sustainable yield from natural shellfish beds which exclude aquaculture sites. In British Columbia there are 597 Aboriginal Commercial Fishery licenses which are held by various First Nations (aboriginal communities) which subsequently distribute them to members. British Columbia First Nations' traditional harvest for Food Social and Ceremonial purposes

may occur coast-wide where areas are open for harvest. In both Canada and the USA aboriginal groups who previously had strong cultural ties to shellfish are exploring or becoming increasing involved in clam aquaculture.

Clam aquaculture in North America utilizes conventional techniques included the use of hatchery produced seed to augment natural recruitment and predator netting to protect seeded stocks. Most harvesting is conducted by hand raking although the adaption of mechanical digging machines is being used at certain sites in Washington State and tested in British Columbia.

Social conflicts with clam aquaculture are increasing within the Strait of Georgia (British Columbia) and Puget Sound (Washington State) where upland urbanization is increasing. Controversy includes the concerns over the use of intertidal areas for shellfish cultivation, and licensing of new farms. These include increasing opposition to the use of predation netting which is believed to cause negative effects on wildlife, benthic ecosystems, increasing mechanization in the marine environment and public use and enjoyment of the marine areas. Non-point source pollution in these areas as a result of population increase have resulted in downgraded water quality and increased restrictions on harvesting in certain areas. Depuration of clams harvested from areas with decreased water quality is practiced in British Columbia only. Social conflicts are one of the drivers of research examining ecosystem interactions of clam aquaculture. Recent research projects have examined the ecological impacts that clam aquaculture may have in the marine environment as well as the ecosystem services that it may provide.

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