

**ABSTRACTS**

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SALMONID CULTURE TECHNIQUES IN FLOATING NET-PENS

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Floating net-pens have been in use for over 5 years in Norway, Scotland and Japan for culturing Atlantic salmon and rainbow trout in sea water. More recently, floating net-pens have been used for culturing Pacific salmon (*Oncorhynchus* sp) in coastal areas of North America and France. The present emphasis is on the culture of coho salmon (*O. kisutch*), primarily because of the availability of surplus eggs from west coast hatchery stocks, and their resistance to disease. Commercial production in the U.S. is oriented to harvest fish at a size of 250-500 g, and they are sold as "pan-sized" or "baby" salmon. The bulk of production goes to the restaurant trade, and is probably competing with rainbow trout. In France, the coho are harvested at a size of 400-800 g, and are sold directly to the restaurant trade. The estimated U.S. production in 1974 was approximately 350 metric tons (mt), and the estimated production of cultured coho in France from July of 1974 to July of 1975 was 20-30 mt. One farm in Puget Sound estimates that its production will increase from 250 mt in 1975 to 500 mt in 1976.

Water exchange is dependent on tidal flow and the development of counter-currents created by moving fish. Dissolved oxygen measurements have indicated no serious depletions within the net-pens, even on slack tides. Generally, untreated knotless nylon webbing is used. Serious fouling from settling and encrusting plants and animals can occur within 1 year. This reduces flow efficiency and increases labor handling costs, unless nets are changed.

Inventory discrepancies are a problem that has not been completely defined nor resolved and the efficiency of feeding operations is partially dependent on accurate population estimates. Bacterial diseases are a continuing problem, but the use of mass vaccination techniques has reduced the mortality caused by primary diseases to acceptable levels. Some apparent nutritional diseases have appeared, and are currently being investigated. Prior to the vaccination program, it was recommended to growers that stocking densities not exceed 1 lb./ft<sup>3</sup>. Current tests with vaccinated fish indicate that this level can now be exceeded.

The net-pen systems can be used for extending the rearing time of salmon prior to release. Salmon cultured for varying times in sea water pens change their normal migratory behavior patterns when released, and imprint to the sea water pen culture site. Rates of return vary with species and imprinting time.