

Vectors for Introduction of Alien Macroalgae in Europe: Oyster Transfers

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Transport of shellfish is a common feature in European aquaculture. During the early 1970s, the Japanese cupped oyster *Crassostrea gigas* has been introduced in France. Some macroalgal introductions have been associated with this event, such as the primary introduction of *Undaria pinnatifida* and *Sargassum muticum*.

Some areas such Mediterranean coastal lagoons have been more affected by these macroalgal introductions. This is the case for the Thau Lagoon (south coast of France) where 45 exotic species have been observed, mainly native from the Japan and Korea area.

An experiment has been carried out to assess the risk of transferring exotic macroalgae to other European culture areas. Indeed, the Thau Lagoon is a growing site for oyster culture in France and there is much exchange of livestock with the Atlantic coasts and other parts of Europe.

Oyster shells have been processed by farmers (cleaning with high pressure spray followed by a short stay in the lagoon) and conditions of a normal transfer have been recreated (emersion in isothermic boxes). Shells are then cultured in tanks. Around 20 species of macroalgae (with some exotics present only in the lagoon) were found after a 40-day period of culture.

Short or long duration transfers have no effect on the flora. Consequently, propagules of exotics are constantly introduced from the Thau Lagoon to other shores. Short immersion in hot seawater seems to be an efficient treatment against macroalgal epibiontes.

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