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Open Ocean Aquaculture and Its Technology

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Perspective

Offshore aquaculture, also known as open-sea or open-sea aquaculture is a form of marine aquaculture (seawater aquaculture) in which the farm is located in deeper, unprotected waters, slightly off the coast where the aquaculture stores more aquaculture. This is a new approach. It exposes naturalistic living conditions with stronger ocean currents and more diverse nutrient flows. Existing "offshore" developments are not entirely offshore and fall primarily into the exposed area category. As established by the Shipping Class Association DNVGL, development and knowledge building are required in several areas to realize the potential available in the deep sea. One of the concerns about coastal aquaculture operating in more protected (and therefore milder) shallows is the accumulation of nutrients discarded from unused feed and feces on the seabed of farms, damaging bottom ecosystem algae. And sometimes it can increase. It blooms. According to supporters of offshore aquaculture, waste from farms that have moved to the sea is usually washed away and diluted to the open sea. The transition of aquaculture to the sea also provides a more ecological space where production can be increased to meet the growing market demand for fish. Offshore facilities also avoid many of the conflicts with other marine resource users in more dense coastal waters, but user conflicts can still exist offshore. Critics are concerned about issues such as the continued impact of spills of antibiotics and other drugs, and the potential for farmed fish to escape and spread the disease to wild fish.

Technology

To withstand high-energy offshore environments, you need to build a farm that is stronger than a land farm. However, the design of offshore technology is evolving rapidly to reduce costs and maintenance. The ranch system currently used for tuna uses open mesh cages at sea surface (asin salmon farming), but offshore technology primarily uses diving cages. These large, stiff cages, each capable of accommodating thousands of fish, are anchored to the seabed but can move up and down the water column. They are often attached to surface buoys that include mechanisms for feeding and storing the equipment. Similar technology is used in waters near the Bahamas, China, the Philippines, Portugal, Puerto Rico and Spain. By submerging the cage and shellfish farming system, the effects of waves are minimized and traffic disruptions on boats and ships are reduced. Remote control can make offshore farms more efficient and safe, and technologies have been developed to automatically feed and monitor fish over long periods of time, such as 18 tons of buoys.

Existing offshore structures

The multifunctional use of offshore water has the potential to lead to more sustainable aquaculture "in areas where it can also be used for other activities such as energy production". Fillet and crustacean plants are being developed. For example, a project by the Hub SeaWorld Research Institute to transform an abolished oil platform 10 nm off the coast of Southern California into an experimental offshore aquaculture facility. The institute plans to grow mussels and red abalone on a real platform, and White Sea bass, striped bass, Bluefin tuna, halibut in California, and yellowtail in California in floating cages.

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