

Challenge

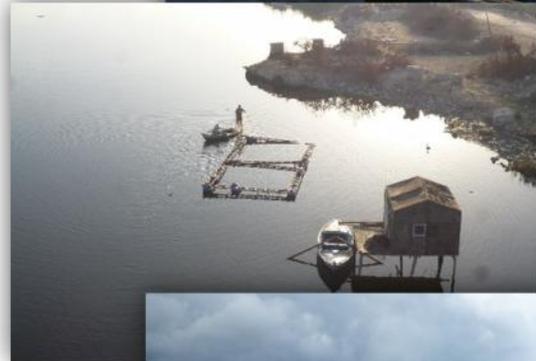
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Sea cage aquaculture is one of the most successful and profitable farming systems, and has demonstrated significant economic benefits internationally. Technical innovations applied to sea cage culture has allowed fish farming industries to expand rapidly in several Countries. In the Mediterranean area this technology is well consolidated in Spain, Italy, Croatia, Greece, Turkey. Other countries in the Middle East are now starting to produce fishes with the cage technologies: Saudi Arabia in the red sea (where FAO is implementing an aquaculture project for the consolidation of Jeddah Centre of Excellency) Kuwait, Oman, United Arabic Emirates and Iran in the Persia Gulf. Egyptian Institution are now evaluating the option to give the “start up” to this technology, both in the Mediterranean and Red Sea. Marine aquaculture has several advantages over other rearing technologies. For instance the cultured fishes are kept in a relatively controlled high quality environment, reducing the stress factors and achieving good productive results in terms of growing rate and meat quality. It is also easy to monitor production and predict the output and harvest. Apart from that, it is possible to adapt the harvest according to market demand and ensure the right size, quality, and volume of the fish at the most opportune time. These factors result in lower production costs and higher profits.

The type, size and design of cages dependent upon a number of factors including, site conditions, the cultured species and environmental factors.

Experience has shown that sea cage culture can be practiced in an ecologically sustainable manner. A well-managed farm with good husbandry practices will have little impact on the environment. Farming locations are sited where optimum currents and other conditions soften the impact on the sea and are favorable for the life of farmed fish. In sum, when properly designed, marine aquaculture has the potential to make aquaculture a sustainable source of high quality protein and of other important elements very useful for human health. A new challenge for the cage farming sector is now to contribute to reduce the fishing effort on the fish stocks used to prepare fishmeal (one of the most important ingredient to prepared the fish feed). Several operators are trying to use plant-based protein sources as a sustainable and cost-effective substitute or supplement to traditional fishmeal protein. Soy-based protein, for example, could be a promising substitute because of its nutritional profile, low cost, and consistent availability.

According to several studies, soy-based protein could provide up to 40% of dietary protein in fish feed without significantly affecting the conversion ratio, the protein efficiency ratio, without impacting the health or nutritional value of the fish. Since its beginning farming in floating cages proved to be a viable type of farming as it has always been possible to overcome all kinds of difficulties encountered. For that reason sea cage aquaculture is a type of farming on which many nations have decided to aim for the development of the aquaculture in the coming years.



MICROSCOPE

Sea Cages: The mooring system

Moorings are required to hold cages against the forces generated by wind, currents and waves that in very severe condition could damage the cage farms, determining also important losses of product (and money). Most moorings systems consist of lines and anchors that secure cages in a particular location. The moorings system influence the stress acting on cage structural members and the flexible reaction of the cage elements in rough weather.

The mooring is therefore an important integral part of the cage system and should be carefully designed, and properly installed. Mooring requirements should be determined by the design and type of the cages and the characteristics of the site. It would first be necessary to quantify the incident forces that are likely to act on the cage under the worst possible weather conditions, and then to evaluate the proportion of energy transferred to the mooring lines and anchors. The loadings transferred to mooring lines vary enormously depending on current and wave conditions, cage design and number of lines employed. Whichever type of mooring layout is employed, a number of elements need to be assembled together, correctly specified and installed, physically and operationally compatible with each other, and effective in use and maintenance. Key elements include the anchor or mooring unit on the seabed, the rising line, which connects the anchor to the surface system, and the surface or subsurface mooring grid. The major elements comprise several smaller sub-units – particularly links, shackles, droppers, safety lines, buoys, etc., which in effect are integral in the complete system. Maintenance of moorings system is critical, to ensure that components are physically sound and that linkages are secure. The items subject to wear (chain links, brackets, shackles, splicing eyes) need to be checked periodically, bolts and shackle pins need to be tightened, and riser lines may need to be adjusted. It is essential that any mooring inspection assesses component strength to see if it deviates significantly from design strength and that it should also assess likely deterioration in the interval to the next inspection.



NEWS IN EVIDENCE

Slow Fish event in Italy

Strong action for MADE Project visibility. IAM Bari organised in Genova Porto Antico Area a high level meeting for consolidating the dialogue between the fishery/aquaculture actors of the two Mediterranean shores. Cosimo Lacirignola, IAM Bari Director opened the meeting remarking the needs to increase the opportunity of experience exchange, taking into account that the Mediterranean Area is a big market where State Public Institution and private enterprises have to compete but also must cooperate to reduce the conflicts both at national and international level. Ms Zakia Driouich Sebbata on behalf of Morocco Marine Fishery Department, stressed the importance of cooperation to improve the life condition of the coastal population, to reduce poverty and to increase the food security. Prof Mohamed Fathy Osman, former Vice Minister for the fishery Sector in Egypt, underlined that EU and Arabic must work together to find common interests, through cooperation actions/projects such as the MADE Aquaculture project financed by the Italian Cooperation/Debt Swap Program. Finally Giampaolo Buonfiglio, RAC /EU President remarked again the needs to have common regulation in the Mediterranean area, stressing also that there is the need to change several aspect of Common Fishery Policy at level of the EU Member States.

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