

BUBBLE-NET - System to catch fish and the respective method of use

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Fishing is a socio-economic activity of great relevance worldwide. However the environmental sustainability of the fishing arts is far from being effective. It is necessary to find more selective types of fishing to ensure sustainable catches of target species and also to protect other organisms accidentally caught with no commercial value. The answer to these problems arise, often, from the nature itself, as is the case of bubble net feeding, the feeding behavior of the humpback whale (*Megaptera novaengliae*). We tried to mimic the hunting behavior of these whales through the production of a continuous network of bubbles, therefore replacing traditional fishing nets used to catch pelagic fish (sardines, mackerel, horse mackerel ...).

We believe that this device presents large environmental benefits such as the reduction of bycatch, the absence of ghost fishing, clean capture, that is, the absence of human handling, and sustainable yield by allowing the capture of the legal quantities and sizes. Additionally, it also lets the remaining fish to be returned alive to the ocean, either in excess or small in size. There are also obvious economic advantages, such as the reduction of cost of the fishing gear, increased lifetime of the device and also the reduction of cost associated with maintenance.

Tests carried out under controlled conditions in aquaculture show success indicators regarding the behavior of the bubbles relatively shoal. Pilot scale prototype is currently being developed to validate the results obtained in real sea conditions. The device includes a compressor, an air-lung, two sets of hoses, floaters and ballast. Finally, further tests are required for the implementation and optimization of this new gear on commercial vessels.

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