USING NUTRIENT-RICH COASTAL WATERS FOR FUTURE FISH RESTOCKING OF THE MEDITERRANEAN SEA

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The use of hatchery-raised fish to supplement and enhance (restock) the world's water bodies is a proven fisheries management plan of action. With 71% of the Earth covered by water, restocking fish as a tool for fisheries management could help increase global food production.

Due to overfishing and coastal habitat degradation, nature cannot support the quantities of fish harvested as it used to. For example, the Mediterranean Sea is suffering a 40% decline in its annual fish harvest due to common fishing and environmental practices:

- Overfishing
- Fishermen enteringfish farms.
- Using unsuitable fishing nets to harvest fish.
- Pollution of coastal waters from the discharge of by-products from industrial facilities.

Fish Restocking Project Development: Main Steps and Way Ahead

2019 - After presenting the initiative at an economic conference in Milan, Mr. Berzak set up an aquaculture team as part of his company's ("Galidi") activities with experts from 6 countries - Spain, Germany, Malta, Turkey, Israel and Egypt to formulate a plan to restock the Mediterranean Sea with hatchery-raised fish. The goal of the Mediterranean project - to increase fish harvest by 400,000 tons / year to 1,200,000 tons per year as it had been in past years.

As part of the project development process, Mr. Berzak visited ongoing stock improvement programs that have been working successfully for many years.

2021 - Mr. Berzak visited government-run fish hatcheries in Texas (USA). Their hatchery stocking program raises 25 million fingerlings per year for release into coastal waters.
Dr. Robert Vega, who founded and managed the project 31 years in Texas, has joined the group of experts and is contributing greatly from his experience in establishing the project in the Mediterranean.

2022 - May - Mr. Berzak visited the South Korean Fisheries Resources Agency (FIRA), which is engaged in restocking to improve the seas around the country's peninsula. Their hatchery stocking program aims to raise 750 million fingerlings per year for release into coastal waters, and 50 million for release into inland waters.

2022 - December - Mr. Berzak presented a program at the Economic Commission for Europe in Morocco that could be used to increase fish harvests in the Mediterranean. Due to the COVID-19 pandemic, the project was delayed.

Many countries around the world – America, Europe and Asia – are successfully restocking fish in the sea and on land, which are raised in hatcheries. Mr. Berzak has observed that it is very clear to him that the technical side of replenishing fish populations is well established, while maintaining the genetic diversity of native fish stocks. The success of the project is based on measures in the recovery of depleted stocks, and management objectives (such as a fishing monitoring program, fishing regulations, habitat protection and restoration, and the provision of fish raised in hatcheries) to ensure that fish stocks are sustainably managed, as outlined in the 32nd United Nations Committee on Fisheries meeting (https://www.pewtrusts.org/en/research-and-analysis/articles/2016/07/11/10-ways-world-leaders-can-improve-fishery-management).

Mr. Berzak proposes consideration of the following fish restocking program from 2025 –

1. Establish three pilot project sites in the Mediterranean Sea – Eastern, Central and Western Mediterranean – for stocking by targeting two native fish species at each site. Utilize nutrient-rich coastal waters hatchery production methods to culture the fishes, and determine the number of hatchery-reared fish to be released at each site.
2. Establish, in conjunction with governmental entities, fisheries monitoring programs, fishing regulations, and habitat protection and restoration objectives.
3. Establish an organizational plan to evaluate established fish stocking project goals and deadlines.