

HEALTH

Fish farming goes urban thanks to Israeli ingenuity

By Karin Kloosterman February 04, 2008

There's nothing fishy about it. Israeli Prof. Yonathan Zohar has spent a lifetime researching fish production and has a solution that might stop the world's dramatic decline in fisheries. Hip "green" environmentalists and sushi lovers will like it too.

Zohar has created fish farms for the urban environment. His special self-contained fish pools can be built close to fresh food markets, in city warehouses and even in your condominium.

"It is clear that the consumption of seafood and fish is on the rise, because of the great health benefits... but now we are over-harvesting," warns Zohar, director of the Center of Marine Biotechnology at the University of Maryland. "We need to change that practice and become more efficient in a way that is compatible to the earth."

Zohar, who was born in Jerusalem and is a graduate of Hebrew University, thinks his solution is ideal. In the basement of the center in Baltimore, he has built a series of high-tech fish pools. They are filled with freshwater from the tap, and have been adjusted with salts and buffers to mimic the marine environment.

Using advanced concepts of microbiology, Zohar has entrained special microbes to live in symbiosis with the fish in order to digest their waste. Aerated by plastic plugs that house the microbes, the fish pools are bio-secure and contaminant free, according to Zohar.



Fishing for the future: Prof. Yonathan Zohar hopes his urban fish pools can stop the alarming decline in world fish supplies.

In addition, part of the solid waste that is created by uneaten food or microbial byproducts is converted into methane and used as biofuel, says Zohar. This is significant. Zohar was one of the original team to develop the technology of fish farming in floating cages at sea in Israel.

These cages have become deeply controversial because the waste created by the farmed fish pollutes the surrounding seawater. In addition, the waters where the fish are raised are often heavily polluted with heavy metals such as mercury, leading to problems such as the recent toxic sushi scare in the US.

"I am trying to develop the next generation technology, to address cages and nets in light of environmental concerns," he says. "It is clear we are over-harvesting the ocean and running out of fish. We've focused on an alternative land-based method that can be used in the urban environment."

The urban fish pools, each about the size of a children's pool with higher walls and a roof, can be put into operation anywhere Zohar stresses. "They can be placed in the mid-West or in Las Vegas," he says.

These urban fish pools certainly address the problem of declining fish populations. According to the Food and Agricultural Organization, about 75 percent of the world's commercially fished species are either depleted, overfished or fully fished. If current trends continue, the fisheries will collapse by 2050.

The pools can also address another environmental issue - our carbon footprint - how far food needs to travel before it arrives at the dinner table. Eating locally is becoming not only fashionable in the United States; some people consider it to be more important than eating organic.

Zohar is now looking for an investor to build a pilot plant. But the idea is not a dream – a prototype, replete with living fish, now resides in Baltimore. There, he is growing Mediterranean gilthead seabream (*Sparus aurata*), also known as dorade royale, or aurata.

And the taste? "Our fish were tested by local seafood restaurants and were highly praised for their taste, texture and freshness," says Zohar. "We are currently shifting our focus to additional high value marine fish, to include the European seabass (bronzini) and cobia."

Click here to see the video on YouTube-

<http://www.youtube.com/watch?v=wDM-swSM9T0&eurl=http://www.israel21c.org/bin/en.jsp?enScript=PrintVersion.jsp&enDispWho=Articles^11959>