

Patrick White

Aquaculture Specialist France



Patrick White is a specialist in marine fish hatchery production and expert on the environmental impacts of aquaculture.

He has over 35 years of experience in the private sector, as well as governmental research and for international agencies.

As chief technical adviser to the Fish Farming Centre in Jeddah 1986 to 1991, he helped pioneer aquaculture in Saudi Arabia.

Recently, White participated in reviews of the country's fisheries for the Agricultural Development Fund.

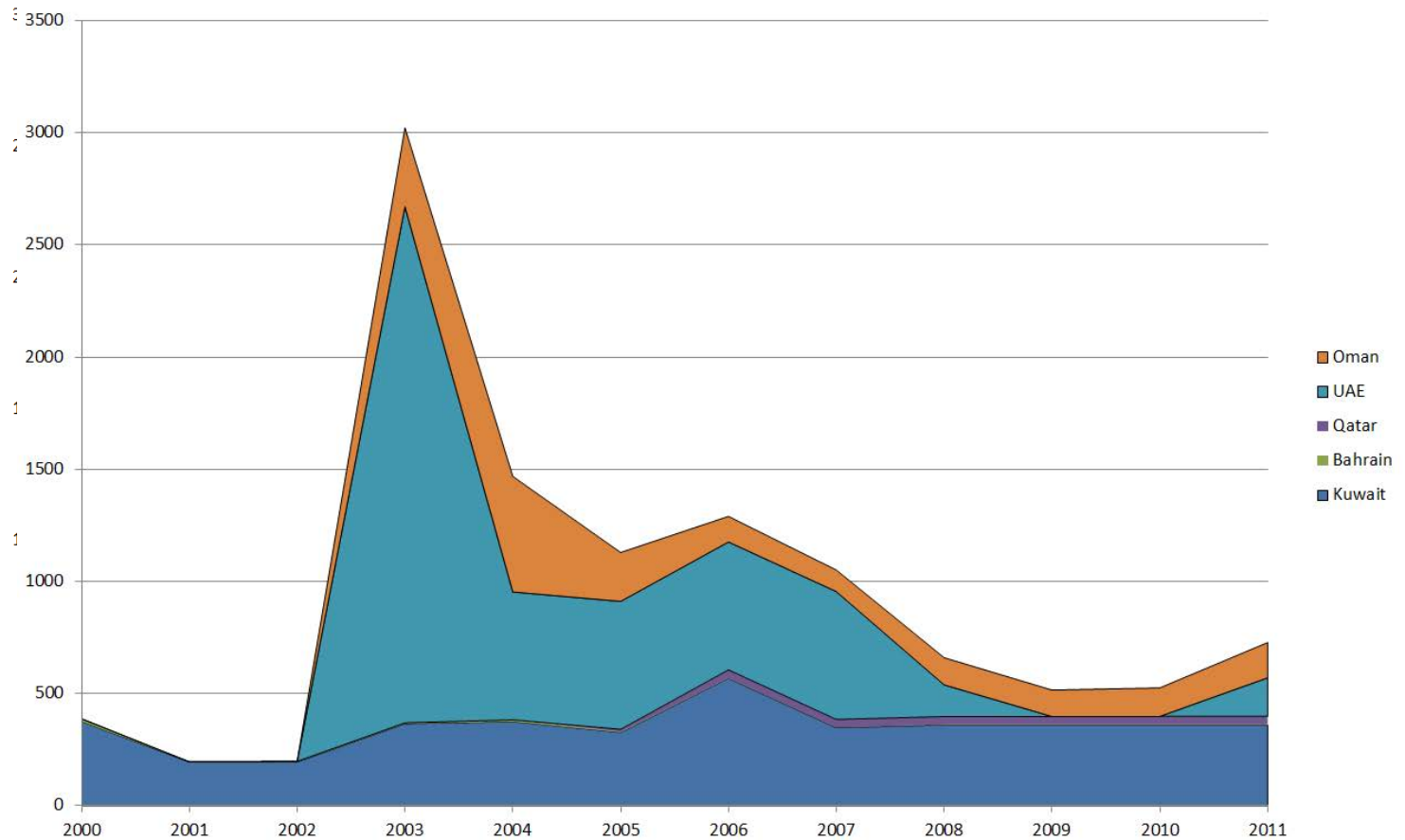


The Journey Towards Responsible And Sustainable Aquaculture Development On The Arabian Peninsular

Patrick G. White

Aquaculture production from Arabian peninsular countries

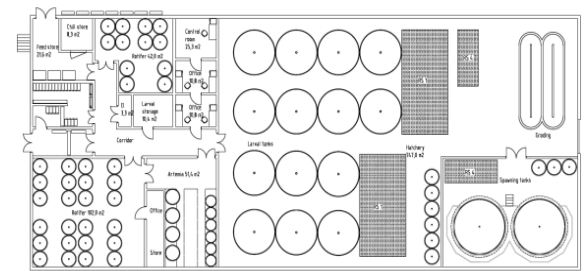
Arabian Peninsular Countries without KSA



State of Kuwait

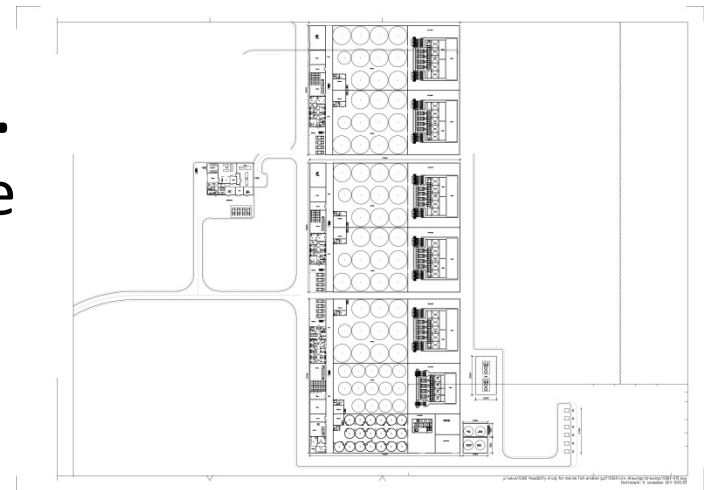
Kuwait Institute of Scientific Research

- Aquaculture Department was established in 1983 and has been the pioneer for marine aquaculture research in the Arabian Gulf
- It has develop hatchery technology to produce fry of **hamoor**, **sobaity**, zobaidy, sheim, tilapia and shrimp.
- The Hatchery about to be upgraded to produce 5 million fry per year at 1.5g size



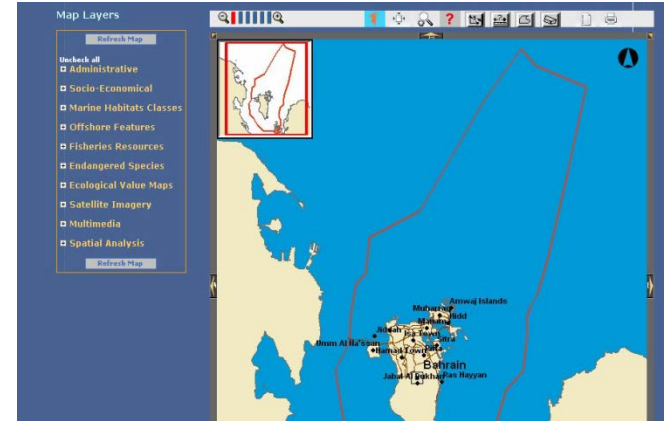
State of Kuwait

- **Cage farm.** The cages operated by the Bubiyan Fisheries Company are located in the Ras Kathmoh Marine Area near Doha Port
- The company produces between 50 to 350 tonnes per annum.
- **Proposed KISR recirculation farm.** KISR is planning to develop a large recirculation farm on Bubiyan Island



Kingdom of Bahrain

- The National Mariculture Centre (NMC) is situated at Ras Hayan on the South-Eastern coast of Bahrain.
- The Centre conducts applied and scientific research and fry production
- In 2009, the total production was 3 million juveniles of three species.
- 1.5-2g size for fish farming and 5g for fish release



Kingdom of Bahrain

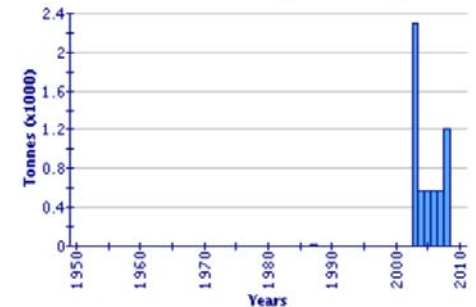
The MC has successfully achieved the hatchery production of the following species:

- rabbit fish (Safee) (*Siganus canaliculatus*) and streaked rabbit fish (*Siganus javus*)
- sobaity bream (Sobaity) (*Sparidentex hasta*),
- brown-spotted grouper (Hamoor) (*Epinephelus coioides*),
- **gilthead seabream** (*Sparus aurata*),
- mangrove snapper (Sheggar) (*Lutjanus argentimaculatus*),
- green tiger shrimp (Rubian) (*Penaeus semisulcatus*).



United Arab Emirates

- The Marine Environment Research Centre (MERC) in Umm Al Quwain on the west coast of UAE in 1984.
- Fry production white-spotted spinefoot (*Siganus canaliculatus*), orange-spotted grouper (*Epinephelus coioides*), large-scale mullet (*Liza macrolepis*) and Sobaity seabream (*Sparidentex hasta*).



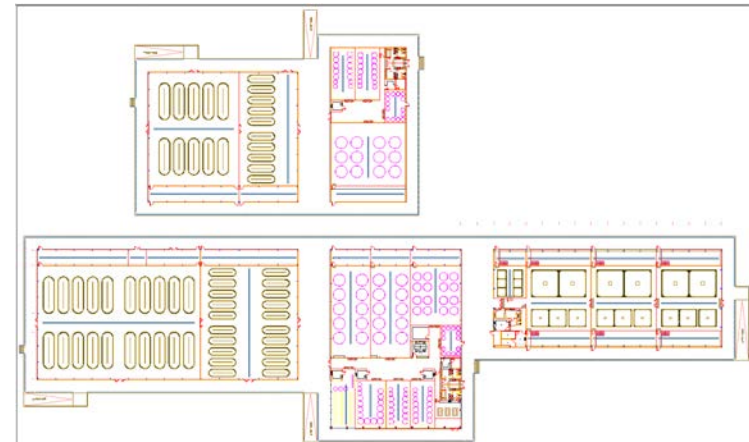
United Arab Emirates

- Commercial cage culture started in 1999 by the International Fish Farming Company in Dibba followed by Mubarak Fisheries is the second.
- Fresh water aquaculture in UAE is confined to a few irrigation channels, ponds and tanks adjacent to agriculture farms.
- Large scale microalgae (*Dunaliella*) Futaisi farm
- A new aquaponics project combining tilapia aquaculture with vegetable hydroponics.
- There is now funding available from the Kalifa fund



Khalifa Bin Zayed Marine Research Centre in Umm Al Quwain, UAE

- The project features a hatchery facility with a capacity to produce 10 million fingerlings of local and non-indigenous commercial species per year.
- It will also have laboratories, and educational, multi-purpose, administration and accommodation facilities.



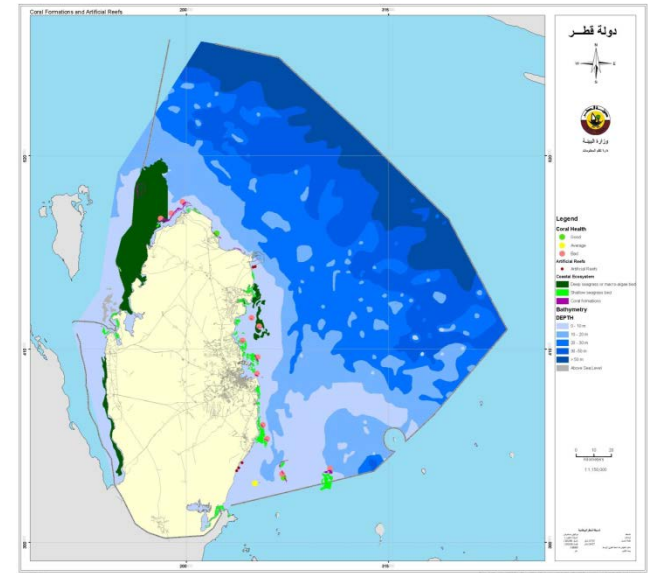
AquaOrbis Sturgeon farm in Musaffah, Abu Dhabi

- A local/German joint venture between the Bin Salem Group and United Food Technologies
- 50,000-square-metre recirculation Sturgeon farm situated on six-hectare site costing \$120 million
- Target production is 35 tonnes of caviar and 485 tonnes of sturgeon meat annually.



State of Qatar

- Aquaculture in Qatar is in its early stages
- There is some small scale tilapia culture undertaken.
- Larval production of yellowfin sea bream and green tiger prawn (*Penaeus semisulactus*) for marine stock enhancement programmes.
- Proposed new aquaculture research facility at Ras Matbekh near Al Khor



Potential aquaculture systems

- Clustering of small-scale cage culture for fishermen in aquaculture parks
- Shallow water cage and pen culture
- Pearl oyster aquaculture



Potential aquaculture systems

- Recirculation technology for marine fish hatcheries and intensive fish production
- Large scale microalgae pond or tank culture for bio-diesel
- Aquaponics (fresh, brackish and marine)



Potential aquaculture systems

- Use of brackish ground water for fish production (abandoned agriculture farms) and biofloc systems
- Integration of commercial aquaculture with leisure and tourism
- Aquaculture marketing with own restaurants



Constraints to be addressed

- Rationalising and streamlining land and sea allocation for aquaculture
- Building capacity within Aquaculture Departments
- Training of technicians and managers
- Research on domestication of local species
- Technology transfer and adaptation
- Risk from algal blooms in the Arabian Gulf



Thank You!

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