

# 'The BIG Questions'

## Lecture Series



## High Time for Bold New Thinking in Ocean Sciences

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16 May 2017 | 16:00 h

Venue: Lecture Hall, GEOMAR (Düsternbrooker Weg 20)

Ongoing climate change is running the course predicted decades ago with the rate of change continuing to accelerate faster than anticipated. The ocean scientific community has so far been reluctant to confront the looming problems, threatening both global humanity and the remaining quasi-natural ecosystems, with novel solutions to provide food security and enhance carbon sequestration.

Given the ongoing technological advances in fields such as material sciences, manufacturing and regenerative energy, open ocean "aquafarming" based on artificial upwelling is becoming feasible. Such "plankton oases" could be established in the ocean's deserts by transporting deep, cold, low-salinity, nutrient-rich water to the surface through vertical pipes where it would be gradually warmed in horizontal "branches" and subsequently provided to fields of floating Sargassum and other macroalgae in addition to unicellular phytoplankton. The macroalgae could be buried in the underlying sediments to reduce the oxygen burden of deep water. In historic terms, planting such plankton oases in the ocean's deserts could well become the modern equivalent of irrigation canals built in the dry river valleys of antiquity that gave birth to modern civilization.

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