



The Blue Observer

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LAB GROWN FISH PRODUCTION Overtakes Aquaculture

ATHENS- Cultured fish overtook aquaculture production in Europe for the first time in 2037, according to the European statistics agency Eurostat. The consumption of in vitro fish has been steadily increasing over the last two decades thanks to several technological breakthroughs, consumer acceptance and affordability.

First pioneered in the mid 2010s, mainstream acceptance has steadily increasing due ethical and food safety concerns. In many respects, 2037 was a watershed year for in vitro fish products with many celebrities endorsing the CleanMeat Diet, which promotes cultured meat as a safer, more sustainable and ethical alternative to wild and farmed sources. A spokesperson for Clean Meat International Mersella Fernandes recently stated that "there has been a growing public recognition on the cognitive and emotional lives of nonhuman animals, including fish, which has led to an increasing demand for non-animal proteins"

Prices for in vitro meat have continued to fall with 2032 marking the first time that the price of cultured filets of tuna, salmon and cod fell below that of wild and farmed alternatives. Traditionally, cultured alternatives of complex fish products such as these have been prohibitable expensive, but the introduction of FishX's RepliFish 3000 has revolutionised production and seen costs fall dramatically. However, the industry has recently



Top: Spot the difference: Cultured vs Natural Salmon fillet. Bottom: Fish production data Production data (Eurostat)

been accused of anticompetitive practices and the concentration of food production. In response to this, the visionary founder and CEO of FishX, Tom Redd, last month announced

that his company would create an open source licence for the RepliFish 3000 production unit. While producers have traditionally focused on replicating natural species,

a number of new companies have started offering products combine the qualities of different fish to produce a hybrid. Asked if he thought if that in vitro production would

one day completely replace wild and farmed fish, Mr Redd responded quoting the Nobel laureate Nils Bohr: "Prediction is very difficult, especially if it's about the future".

"Bluebeard" hacker's COLLECTIVE CAPTURES SWARM OF AUTONOMOUS SHIPS

MADRID- The collective is demanding a ransom for the release of the ships which they have seized off the coast of Portugal, the European Union anticyberpiracy operation announced late on Tuesday. A spokesperson of the collective said the amount of ransom demanded was intended to finance marine conservation efforts. Monday's hacking was the first such seizure of a large swarm of commercial vessels since 2035. It came as a surprise to the global shipping industry as online cybersecurity measures of Nato countries, as well as China, India and Iran, had suppressed hackings for several years. However, the United Nations warned in October that the situation was fragile and that several collectives "possess the intent and capability to resume attacks". One expert said some had let down their guard as the situation calmed.

SEA-EXPRESS DELAYS UNDERWATER DELIVERIES

DAKAR- The increase of population of marine mammals after the controversial decision at United Nations is bringing unexpected impacts. A whale hit a pelagic-satellite with temporary damages to underwater communications in the South Atlantic. The control of the 20m depth route between Dakar and Miami is now supported by the Agulhas constellation with reduced capacity. Most of the up to 5 Kg goods from America to Africa are delayed but Sea-Express reassured clients to restore the situation within a week. **Continues page 3**

AUV CIRCUMNAVIGATE THE GLOBE ON ONE CHARGE

LISBON- A European Autonomous Underwater Vehicle (AUV) has completed the first global ocean circumnavigation using only stored energy. The vessel was able to complete the global circumnavigation by using a highly efficient biomimetic propulsion system, which mimics the biology of migratory marine species; coupled with a newly developed bio-battery, capable of storing energy at much higher densities than traditional graphene batteries

Prof. Lekkas, who led the European Ocean Agency project, stated that this achievement was made possible by bringing together experts from fields biomimetic, energy storage and underwater navigation.

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WEATHER

Hurricane Kathrine dispersed the Azores offshore algae culture. Container carriers have been reprogrammed to refuel at the Atlantic-VI floating city. The intensity of hurricanes continues to pose a risk to surface transportation. Forecasting weekly extreme events remains unreliable.

Self-assembling cages deployed in MARIANA TRENCH



SPORT

Controversy builds around the decision to allow Human-AI teams to compete in hydrosailing in the 2040 Olympics.



MO'OREA- Last week the Pacific Dredging Association deployed the last of the self-assembling chain of cages licensed by the Global Catching Authority. The challenge to place this advanced artifact on the 11Km deep seafloor has been successful thanks to the new generation of self-assembling anti-fouling materials. They are deployed as a 100m long wire and change their shape as a function of pressure. Last decade chances failed due to the low salinity whose dynamics was unknown and which was not taken into consideration in the modeling. This made quotations of the 5 harpoons restaurants rocketing: deep-sea unique crabs have been already booked for special recipes. Rumors say that the Mermaid Gourmet at the capital of the Polynesian Floating Federation of Cities has invited last crowned heads.

QUANTUM TECHNOLOGIES HACKING THE MARKET OF FOOD?

ROME- The bass at the 3D-food store are bright blue and look delicious, but how do you know these tablets are actually safe for you to eat and antibiotic-free? Since blockchain being used to improve consumer confidence in food safety, you may see another label joining the growing list on your favorite blisters of proteins. The Mediterranean Aquaculture Corporation announced the certification of its products by IBM via the introduction of quantum communication in the transactions. Consumers react positively but competitors are worried: who can control the quantum communication?

TODAY - 15 MARCH 2018... JPI Oceans Backcasting Foresight Workshop

Brussels - KoWi office - Rue du Trône 98

RATIONALE

In recent years, the socio-economic system has faced an increasing number of pressures, challenges, and actors creating a complexity which is hard to tackle. Complex systems are characterized by the difficulty to make accurate predictions on their evolution which can result in abrupt changes, faster than the capacity to adapt and resile. In this context, a knowledge-based support is required, but the ability to foresee the future is a difficult task.

The act or ability to predict what will happen or be needed in the future is usually referred as "foresight" and despite different methodologies can be adopted, their ultimate goal is to support decisions. A Science and Technology Foresight, while driven by societal, political or economic needs, can address scenarios or solutions, eventually identifying breakthrough technologies to tackle the challenges and proposing research and innovation paths.

In the process towards the definition and launch of the Ninth Framework Program of the European Union, a reflection at European level on the role of research and innovation in support to policy is urgently needed, especially when dealing with complex systems as those addressed for Seas and Oceans.

The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) is an intergovernmental initiative launched by the Council of the European Union in 2011. It provides a strategic policy platform for a long-term European approach to marine and maritime research and technology developments. JPI Oceans is registered as an international non-profit association under Belgian law (JPI Oceans AISBL) and its office is located in Brussels. JPI Oceans currently brings together representatives from ministries and research funding agencies of 21 European countries, covering all European sea basins. The workshop, framed in the Horizon 2020 project CSA Oceans 2 whose objective is to support JPI Oceans in its activities, aims at debating research and innovation paths needed to address marine and maritime missions. Three missions have been identified as scenarios for a back-casting approach:

Proteins from the Seas and Oceans, that is, a future where the nutritional protein support from seafood to a global growing population is ensured.

Space-Ocean, that is, a future where the sustainable use of the marine space is enabled for automated human activities.

A Green-Blue Planet, that is, a future where Seas and Oceans are environmental friendly, with zero impact (pollution, CO2, noise etc.) from human activities.

These three missions are not independent of each other and can address cross-cutting aspects. Participants are invited to discuss different visions, research gaps and impacts of breakthrough innovation. The outputs of the workshop will support reflections at policy level on options and/or new ideas for tackling some global challenges for Seas and Oceans.

Experts have been identified from different sectors and initiatives, often not directly related to marine and maritime aspects. They are asked not to speak about the past or the present, but to contribute, without any prejudice or lobby, to a proactive interaction for debating the validity of the scenarios, essential components and feasible deliverables, the main scientific/technological gaps to achieve them.

AGENDA

- 10:00 10:15 The Foresight excercises to support JPI Oceans, Kathrine Angell-Hansen, JPI Oceans secretariat
- 10:15 10:30 Setting the Scene/Chair, Pier Francesco Moretti, CNR
- 10:30 12:00 Genius speeches:
 - Personalized nutrition and food production: supporting life in space, Natalie Leys, ESA
 - From the Conquest of Space to the enabling of human activities, Didier Schmitt, EEAS
- From "at" to "from, for and with" the sea", Mario Dogliani, Sea Europe

LAST PLASTIC PARTICLE IN OCEAN DISAPPEARED



The World Ocean Agency (WOA) informed on Saturday that it had lost track of the last known particle of plastic in the sea. President Ricky Santos Jr. told press that the WOA's Global Ocean Observation System had last recorded the position of the nano-sized plastic particle at around 5400m depth in the Southern Ocean before it suddenly disappeared.

The WOA could not yet confirm the reason for the sudden disappearance; however, scientists believe that a rare jellyfish was the likely cause. Prof. Andy Boath, Director of the JPI Oceans OceanPlast Programme, the world's longest running research programme on plastic pollution of the seas asserted that a mutated form of the Frank Zappa jellyfish had probably ingested the particle: "The Phialella Zappaesque is one of the only organisms that feeds on plastic polymers and some of the last specimens of this endangered species are known to live in the Weddell Sea".

Plastic pollution was once one of the most damaging pressures on marine ecosystems, which decimated a number of marine animal populations. During the peak of the marine plastic pollution in the mid-2020s, the Phialella Zappesque became the first organism to develop the ability to eat plastic. In the years that followed, the jellyfish population grew to an exponential scale and became a real plague in many tourist hotspots.

Following the move to a complete global circular economy in 2029, which cut the leak of new plastics into the ocean to zero, the amount of plastic in the ocean reduced steadily. With its main nutrient source declining, the jellyfish species population also gradually declined and can nowadays only be found in certain remote areas of the ocean.

MUSSELS OF THE FUTURE: WHO TAKES THE ROYALTIES?

ATHENS- Genetic engineering has always been cause for debate. While at the beginning of this century the main struggle was focused on the ethical ramification of synthetic biology and social consequences, some evolution was not predictable. In fact, the procedures for improving the cultivation of vegetables and animals for food production, resulted in a higher probability of natural mutation in some organisms. A new type of mussels appeared, which seems to be more resistant to diseases and reduces the use of antibiotics. The debate is no more ethical: is this is a spontaneous new species available on the planet, is it a product of the food industry, or is it the property of the Greek farmer, as the first who discovered? Scientists argue that in the time it will take to solve the legal issues the super-mussel might be an invasive species in the Mediterranean. **Continues page 3**

SALMON SKIN PIZZA CRUST. EVEN ITALIANS LIKE IT!



12:00 – 12:15 Introduction afternoon programme, Tom Redd, JPI Oceans secretariat 12:15 – 13:00 Lunch

13:00 – 13:15 Transfer to parallel sessions (Kowi 8th floor, CNR 5th floor, Helmholtz 6th floor)

- 13:15 15:45 Face-to-face experts parallel sessions on the back-casted scenarios, addressing possible components, deliverables, synergies, risks at EU level
- 15:45 16:15 Coffee break and transfer to plenary (Kowi 8th floor)
- 16:15 16:30 Wrap-up of the parallel sessions (Rapporteurs)
- 16:30 17:00 Discussion and conclusions



Vacancies - International Ocean Station (IOS)

The International Ocean Station, located at the Reykjanes Ridge is looking for motivated candidates for the following positions: - Graduate Engineer - Director of VR experience - PhD in community ecology of deep-sea sponge grounds

Candidates are requested to send a CV and genetic profile to vacancies@ios.org

NAPLES- The increasing request of seafood for its nutritional contribution to a healthy diet has struggled to match the demand for gluten-free pizza. Salmon skin, after years of recycling for packaging, has been synthesized in a flour which can supply the new generation of 3d-food printers. Most of the customers say they do not recognize the difference, and the Italians claim that "creativity should support the ingredients to make the difference"!

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