



European Fisheries and Aquaculture
Research Organisations

Aquaculture research cooperation with China and ASEAN

Vision of the research community

EFARO

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Our inventory

- What are the main contacts for EFARO institutes, on which topics?
 - What are the key expertise's in China/Asia relevant for the EC R&D priorities indicated by EFARO?
 - What are the key players in China/Asia?
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Key Innovation Challenges

SCIENTIFIC SUPPORT TO POLICIES

- Room for Aquaculture with a low footprint: environmental management, spatial planning and governance, mitigation of risks (escapees, diseases) and nuisance

SCIENTIFIC SUPPORT TO INNOVATION

- Improved (climate smart) production systems (onshore RAS, offshore IMTA), with robust and efficient species, supported by smart breeding, customized feeding and alternative feed resources
- Marine “non food” production (algae, seaweeds)

SCIENTIFIC SUPPORT TO MARKET

- Adapt a level playing field in sustainable global seafood market, with scientifically sound European consumer standards for divers, healthy and responsible seafood; and within the scope of “seafood based nutrition security”
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Key RTD Topics

SCIENTIFIC SUPPORT TO POLICIES

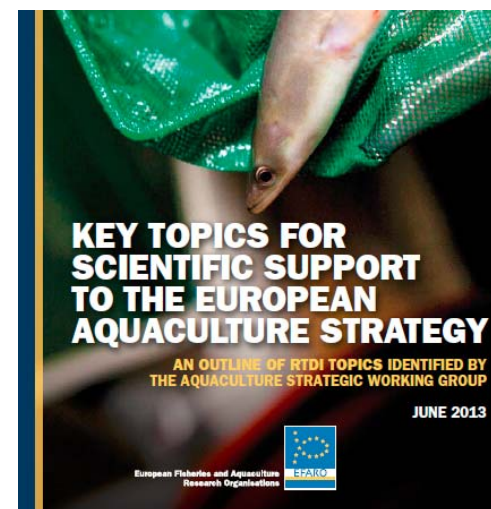
- Spatial planning & carrying capacity ****
- Environmental management and governance ****
- Animal diseases ***
- Escapees & biodiversity ***
- Animal welfare **

SCIENTIFIC SUPPORT TO INNOVATION

- Genomics, breeding and hatching ***
- Feed and nutrition ***
- Production systems **
- New species **

SCIENTIFIC SUPPORT TO MARKET

- Food security, market & seafood chains ***
- Food safety ***
- Sustainability & consumer standards **



Relevant for EU/Asia

SCIENTIFIC SUPPORT TO POLICIES

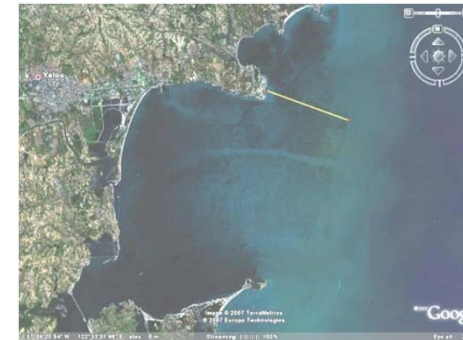
- Spatial planning & carrying capacity
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SCIENTIFIC SUPPORT TO INNOVATION

- Genomics, breeding and hatching
- Feed and nutrition
- Production systems

SCIENTIFIC SUPPORT TO MARKET

- Food security, market & seafood chains
 - Food safety
-



SCIENTIFIC SUPPORT TO POLICIES

- sustainable intensification: environmental carrying capacity, escapees, disease control
- responsible feed: nutritious alternatives for fish oil and fish meal





SCIENTIFIC SUPPORT TO INNOVATION

- Fish breeding
- Eel reproduction
- RAS (trout, salmon, seriola, eel, tuna, sole)
- IMTA
- Artificial reefs with shellfish





SCIENTIFIC SUPPORT TO MARKET

- Level playing field in terms of the regulation, food safety, disease control, bio-security, certification
 - Sharing the world market for expensive species
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EFARO institutes with contacts in China and ASEAN

- IMARES/ WageningenUR
 - IFREMER
 - CEFAS
 - DTU-Aqua
 - Marine Scotland
 - von Thünen Institute of Fisheries Research
 - RKTL/FGFRI (Finland)
 - IMR
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Key partners in China

- **CAFS Chinese Academy of Fishery Sciences**
(Qingdao, Guangzhou, Jinghzou, Jiangzu): aquaculture, disease control, breeding, bio security, trout in dams, shellfish cultures, spatial planning.
 - **CAS Chinese Academy of Sciences / The Institute of Oceanology** (Qingdao): RAS, IMTA; Institute Hydrobiology: Feed and Nutrition.
 - **Liaoning Ocean and Fisheries Science Research Institute** (Dalian) Large scale RAS
 - **College of Marine Science and Technology** (Zhejiang)
 - **Ocean University** (Zhoushan)
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Key partners in ASEAN

- **Vietnam:**
 - Research Institute for Aquaculture nr 1 (Hanoi): Rainbow Trout, animal diseases, genomics breeding & hatching, Production systems, New species. Feed/nutrition
 - Hanoi University of Agriculture: Sustainable land use and rural development in mountainous
 - NAFIQAD: seafood safety monitoring and quality control
 - **Philippines:**
 - Southeast Asian Fisheries Development Center: aquaculture-environment interaction & management, alternative life food for fish & shrimp larvae, fish physiology/nutrition and pond management
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Key partners in other Asia

- **Japan:**
 - Hokkaido University (Sapporo). eel reproduction
 - **Taiwan:**
 - Rearing techniques for zooplankton production for aquaculture (copepods)
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