

Proposed EAS Thematic Group - GEAR

Title

Culture of cod (and other gadoids) enhancing production and restoration - knowledge exchange between researchers, producers and other stakeholders.

Short title and acronym: Gadoid Enhancement for Aquaculture and Restoration (GEAR)

Mission

To advance the culture of gadoid species for sustainable seafood production, stock enhancement, conservation, and ecosystem restoration through collaboration among researchers, producers, managers, and other stakeholders.

Rationale

Gadoids have historically been among the world's most important seafoods and continue to play a critical role in food production, coastal economies, and marine ecosystems. Unfortunately, many gadoid populations face challenges associated with climate change, habitat degradation, altered ecosystem dynamics, and recruitment failure. Fortunately, advances in aquaculture, hatchery technologies, nutrition, genetics, health management, and conservation aquaculture provide new opportunities for both commercial production and restoration initiatives. The proposed thematic group within EAS will establish a platform bringing together stakeholders working on the culture of gadoids across the production–restoration continuum, fostering communication, collaboration, and knowledge exchange among scientists, industry representatives, resource managers, policymakers, and students.

Objectives

Production

- Promote innovation in gadoid aquaculture.
- Exchange knowledge on broodstock management, larviculture, nutrition, health, welfare, genetics, and grow-out technologies.
- Support sustainable commercial production of existing and emerging gadoid species.

Restoration and Enhancement

- Advance science and practice related to conservation aquaculture.
- Explore the role of hatcheries in stock enhancement and population recovery.
- Share experiences from restoration initiatives targeting cod and other species.
- Promote evidence-based approaches for release, monitoring, and evaluation.

Knowledge Exchange

- Connect researchers, producers, NGOs, managers, and policymakers.
- Facilitate interdisciplinary collaboration.
- Promote best practices and standardization where appropriate.

Capacity Building

- Support students and early-career professionals.
- Organize training opportunities, workshops, and mentoring activities.

Areas of Interest

Reproduction and Broodstock

- Reproductive biology
- Gamete quality & compatibility
- Selective breeding
- Genomics

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Early Life Stages

- Egg/embryo quality
- Larval development & biology
- Live feeds
- Nutrition
- Weaning
- Juvenile quality

Production Systems

- RAS
- Flow-through systems
- Offshore production
- Welfare and health management

Restoration and Conservation

- Conservation aquaculture
- Stock enhancement
- Supportive breeding
- Genetic considerations
- Monitoring and evaluation
- Habitat restoration interactions

Environmental Change

- Climate impacts
- Hypoxia
- Ocean warming
- Pre-release offspring acclimation potential
- Ecosystem resilience

Potential Activities

Potential EAS Conference Session Examples:

- *Gadoid Culture for Production and Restoration*
- *Conservation Aquaculture and Marine Fish Recovery*
- *Advances in Cod and Gadoid Larviculture*

Workshops

- Hatchery techniques for gadoids
- Larval feeding and nutrition
- Restoration and stock enhancement methodologies
- Pre-release offspring acclimation potential
- Genetics and broodstock management

Outputs

- Position papers
- Best-practice guidelines
- Special journal issues
- Collaborative research initiatives
- Interaction with stakeholders and policy

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Why EAS Should Support It

The group directly aligns with EAS goals by:

- Bridging science and industry.
- Promoting sustainable aquaculture.
- Supporting ecosystem restoration and biodiversity goals.
- Encouraging international collaboration.
- Providing opportunities for students and early-career researchers.

Importantly, it creates a rare platform where **commercial aquaculture and restoration science meet**, allowing lessons learned in hatcheries to inform recovery efforts and vice versa.

Founding Members

- DTU Aqua, Denmark
- NOFIMA, Norway
- BalticWaters, Sweden

Other members interested:

- Uni Hamburg, Germany
- GEOMAR Helmholtz Centre for Ocean Research, Germany
- University of Gothenburg, Sweden
- Institute of Oceanology, Polish Academy of Sciences, Poland
- Marine and Freshwater Research Institute, Iceland
- Institute of Marine Research, Norway
- NTNU, Norway
- Sintef, Norway
- Other

Along with commercial cod producers and hatcheries.

Targets

To various extents, interest in culturing for production and restoration directly or in the outcome and results indirectly.

North Atlantic core

- NO Norway
- IS Iceland
- FO Faroe Islands
- DK Denmark
- DE Germany (North Sea + Baltic systems)
- SE Sweden
- GB United Kingdom (Scotland especially)
- CA Canada (Atlantic provinces)

Baltic Sea basin

- PL Poland
- EE Estonia
- LV Latvia
- LT Lithuania
- FI Finland

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Northeast Atlantic / European continental shelf expansion

- FR France
- ES Spain
- PT Portugal
- IE Ireland
- NL Netherlands

Mediterranean

- ES Spain
- FR France
- IT Italy
- GR Greece
- CY Cyprus
- SI Slovenia
- HR Croatia
- TR Türkiye

North America (beyond cod-focused Atlantic Canada)

- CA Canada (broader Pacific)
- US USA (Northeast US marine labs and Alaska cod + pollock systems)

Arctic and sub-Arctic relevance increases

- GL Greenland (important for cod)
- Arctic research networks across Nordic countries

North Africa

- MA Morocco
- DZ Algeria
- TN Tunisia

Further non-European extension

- ZA South Africa
- AR Argentina
- CL Chile

Targeted species

- Atlantic cod (*Gadus morhua*)
- Baltic cod populations

Additional species of emerging interest

- Haddock (*Melanogrammus aeglefinus*)
- Saithe/Pollock (*Pollachius virens*)
- Pollack (*Pollachius pollachius*)
- Whiting (*Merlangius merlangus*)
- Blue whiting (*Micromesistius poutassou*)
- Hake (*Merluccius merluccius*)
- Burbot (*Lota lota*)
- Alaska pollock (*Theragra chalcogramma*)
- Other emerging gadoid species