



AquaVitae

Work Package 6 -Environmental monitoring, risk assessment and sustainability

Increasing Resilience and Adaptation Potential of Low-trophic Aquaculture Systems

KEYWORDS

Sustainability indicators, sustainability analysis, ecosystem services, risk analysis, risk mitigation, risk management monitoring, resilience, climate change

GOALS

- Map the most influential positive and negative ecological, economical and societal sustainability aspects for low- trophic species (LTS).
- Enhance the understanding of pressures exerted by, and upon, aquaculture of LTS in the Atlantic Ocean.
- Produce knowledge to enable prediction, adaptation and resilience to these pressures.
- Identify adequate measures to avoid, prevent or mitigate the most severe risks.
- Suggest improvements and additions for monitoring programs as tools for risks management.

CHALLENGES

The main objective of work package 6 (WP6) is to develop recommendations on how to increase LTS aquaculture production with a net positive impact on sustainability in and around the Atlantic Ocean.

All aquaculture production systems are, in one way or another,

connected to the surrounding environment. There are several emerging pressures which are increasing the risk to the aquaculture industry from the external environment (e.g., climate change, increased population pressure on coastal areas and new pollutants). Correspondingly, aquaculture exert pressures on the environment (e.g., waste production, resource utilisation, disease transfer or interactions with wild populations).

Aquaculture can affect – and at the same time be affected by – society and environment both positively and negatively, therefore recommendations for a sustainable development must be based on an accepted and holistic framework. This would describe synergistic and antagonistic effects between aquaculture and other activities and identify how positives can be increased and negatives decreased in mutually beneficial ways.

EXPECTED RESULTS

WP6 will give broad recommendations on how to optimize the sustainability of increasing LTS aquaculture production on a geographical, temporal and activity scale. This will include:

- Positive sustainability aspects to exploit.
- Negative sustainability aspects to minimize.
- Risks to be considered.
- How to monitor the system for early identification and mitigation of specific risks.

Also, thresholds beyond which low-trophic species aquaculture will give net positive or net negative impacts on sustainability.

AT A GLANCE

- Geographical scope: Atlantic basin
- Project period: 2019 - 2023
- Recommendations to increase LTS aquaculture production with a net positive impact on sustainability.
- Thresholds for net positive or net negative impacts on sustainability.
- Map of ecosystem services related to LTS aquaculture using the Nature Contributions to People framework (NCPs).
- Framework for risk assessment.
- Review and assessment of environmental monitoring frameworks.



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EXPECTED USERS

- Policy-makers
- Aquaculture industry and business
- Certification organisations
- Research community

WORKPLAN

The work in WP6 is divided into 5 tasks:

1. Establishing a challenge-structuring framework for sustainability and risk assessment analysis, and at identifying suitable indicators for sustainability analysis.
2. Analysis and quantification of ecosystem services related to LTS aquaculture and performance of sustainability analysis.
3. Risk assessments will be performed using risk identification and analysis and subsequent risk evaluation and management.
4. Present day monitoring will be mapped and compared to identified risks in T6.3 to determine the needs of adjusted or additional monitoring to mitigate identified risks identified.
5. Broad recommendations on how to optimize the sustainability of increasing LTS Aquaculture production.



Framework for sustainable low-trophic species aquaculture.

SCOPE OF WORK

An assessment domain will be developed based on several characteristics (organism group, system type, geographical region and more).

A framework for indicator selection based on SDGs, identification of desired state, deconstruction of this into sustainability categories and subsequent matching to an indicator array will be also developed.

Ecosystem services related to LTS aquaculture will be mapped using the Nature Contributions to People framework (NCPs) and knowledge gaps will be identified, quantified and included in the upcoming sustainability analysis.

A framework for risk assessment will be developed using a bottom-up approach: the AquaVitae consortium and stakeholders will contribute to the identification of risks.

Using the outputs from the risk assessment, current environmental monitoring frameworks will be reviewed and assessed for their appropriateness to monitor the identified risks.

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