

Aquaculture Environmental Impact (I000928)

Wegens Covid19 kan mogelijk afgeweken worden van de onderwijs- en evaluatievormen. Dergelijke afwijkingen zullen via Ufora worden gecommuniceerd.

Cursusomvang *(nominale waarden; effectieve waarden kunnen verschillen per opleiding)*

Studiepunten 3.0 **Studietijd** 90 u **Contacturen** 30.0 u

Aanbodsessies en werkvormen in academiejaar 2022-2023

A (semester 2)	Engels	Gent	integratieseminarie	10.0 u
			werkcollege	5.0 u
			hoorcollege	15.0 u

Lesgevers in academiejaar 2022-2023

Asselman, Jana	LA22	Verantwoordelijk lesgever
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Aangeboden in onderstaande opleidingen in 2022-2023

	stptn	aanbodsessie
Master of Science in Aquaculture	3	A
Master of Science in Environmental Science and Technology	3	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: landbouwkunde (niveau master-na-bachelor)	3	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: milieutechnologie (niveau master-na-bachelor)	3	A

Onderwijstalen

Engels

Trefwoorden

Aquaculture, ecosystem, sustainability, algal blooms, ecological footprints.

Situering

In the past, oceans and seas were often perceived as a limitless source of seafood with an ever increasing supply of fish. However, with an increasing global population, the limits of both our terrestrial and marine food provisioning systems are becoming poignantly clear. Fish and other marine products are an important source of proteins, but as more than 30% of our fish stocks are already overfished, it is unlikely that increasing fishing activities will result in an adequate supply of proteins. Aquaculture, on the other hand, has been exponentially growing since the 1990's. As of today, aquaculture provides already half of the fish products being consumed, providing food security in various areas around the world. However, the impacts of aquaculture on the local ecosystem cannot be neglected. For example, extensive feeding causes eutrophication, which may lead to harmful algal blooms, which on their turn endanger harvests, local ecosystems and human health. Coastal ecosystems, like mangrove forests, often with a high carbon sequestering potential, are being removed in favor of aquaculture with consequences such as coastal erosion, biodiversity loss and a lower carbon sequestration. Antibiotics, applied to avoid losing profit due to diseases in the system, are an important cause of increasing antibiotic resistance. The impact of aquaculture on the environment should thus be taken into careful consideration in order to ensure a sustainable food supply.

Inhoud

The course aims at giving an extensive overview of aquaculture systems and their effects and interactions with the environment. To gain insight in said interactions, knowledge on different configurations and forms, e.g. traditional versus industrial aquaculture, is required and will be illustrated using case studies from all over the world. Additionally, the sustainability of different

configurations will be discussed. Problems associated with aquaculture will be debated, such as, for example, (harmful) algal blooms with special attention to toxin production, species and monitoring. The theoretical insights in system configurations and interactions with the environment will be put into practice during the exercise sessions, in which the sustainability of different aquaculture systems will be quantitatively assessed and compared.

Begincompetenties

Notions on general aquaculture.

Eindcompetenties

- 1 The student has insight into the factors determining the sustainability of aquaculture.
- 2 The student can describe different aquaculture configurations including their advantages and disadvantages with regards to environmental impact
- 3 The student can describe the relationship between different environmental impacts (e.g (harmful) algal blooms) and aquaculture
- 4 The student can quantitatively compare different aquaculture configurations in terms of sustainability and feasibility

Creditcontractvoorwaarde

Toelating tot dit opleidingsonderdeel via creditcontract is mogelijk mits gunstige beoordeling van de competenties

Examencontractvoorwaarde

Dit opleidingsonderdeel kan niet via examencontract gevolgd worden

Didactische werkvormen

Hoorcollege, integratieseminarie, werkcollege

Toelichtingen bij de didactische werkvormen

Theory lectures: lectures based on powerpoint presentations.

Leermateriaal

All learning material will be made freely available via UFORA

Referenties

Vakinhoudelijke studiebegeleiding

Study guidance upon request by email or on appointment.

Evaluatiemomenten

periodegebonden en niet-periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Schriftelijk examen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Schriftelijk examen

Evaluatievormen bij niet-periodegebonden evaluatie

Werkstuk, verslag

Tweede examenkans in geval van niet-periodegebonden evaluatie

Niet van toepassing

Toelichtingen bij de evaluatievormen

*End-of-term assessment: written examination on content of lectures and exercise sessions

*permanent evaluation: Exercise session reports and final report comparing the cases presented in the exercise sessions

Eindscoreberekening

End-of-term assessment: 60%, permanent evaluation: 40%

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.