



VALUING NATURE

Identifying evidence needs for
modelling and valuing aquaculture
potential in marine plan areas

Dr Sofia C. Franco

Background

School of

Marine Science and Technology

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BBSRC-NERC Aquaculture Knowledge Exchange Fellow



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Background



Background

Sofia is an Aquaculture Knowledge Exchange Fellow, funded by NERC, working with the UK aquaculture community, providing expert input to the UK Aquaculture Network and contributing to the development of the UK Aquaculture Initiative. She works across NERC and BBSRC R&I communities in HE institutions and research organisations, engaging closely with a range of businesses to enable uptake of NERC-BBSRC research and identifying knowledge prioritisation needs. Besides knowledge exchange and public engagement, Sofia is interested on the application of aquaculture to resource management, as well as towards international development and poverty alleviation. Current focus on

Research



Current projects

- **Aquaculture Knowledge Exchange Fellowship** (2016-2019; BBSRC-[NERC](#))
- **Aquapollis⁺**: Aquaculture of stalked barnacles (*Pollicipes pollicipes*) in Portugal (2016-2019; [Portugal 2020](#)) Scientific team: T Cruz (PI), R Fragoso, JJ Castro, D Jacinto, JN Fernandes, I Seabra, T Silva, A Pombo, SC Franco, AS Clare

Past projects

- **Laboratory measures of the settlement behavior of barnacles and algae** (2014-2016; US [Office of Naval Research](#); AS Clare and N Aldred, PIs)
- **Development of a novel high performance foul-release coating for marine applications** (2014-2016; [Innovate UK](#); AS Clare, PI)
- **Aquapollis**: Biological and economical viability of the aquaculture of stalked barnacles (*Pollicipes pollicipes*) in Portugal (2014-2016; [FCT/QREN](#))
Scientific team: T Cruz (PI), R Fragoso, JJ Castro, T Silva, D Jacinto, J Fernandes, SC Franco
- **Aquaculture of stalked barnacles (*Pollicipes pollicipes*)** (2010-2014; PhD grant to SC Franco; [FCT](#)) (source: Newcastle University)



UK AQUACULTURE INITIATIVE

(source: BBSRC/NERC)

Current work

Aquaculture Knowledge Exchange Fellowship

- NERC funded: 2016-2019
- Franco (Newcastle Uni), PI
- Connect businesses and academics, determine capability and R&I needs & assess public perception

BBSRC-NERC UK Aquaculture Initiative



ARCH-UK Aquaculture Network

- BBSRC funded: 2017-2021
- McAndrew (Stirling Uni) & Rowley (Swansea Uni), PIs
- Finfish and Shellfish groups
- Foster collaborative activities and identify R&I challenges



Gateway to Research

Innovate UK

Aquaculture Directed Knowledge Exchange Fellowship

Lead Research Organisation: [Newcastle University](#)
 Department Name: Marine Science and Technology

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Overview Organisations People

Abstract

With the global population expected to rise to 9.6 billion by 2050, there is increasing pressure for aquaculture to meet the rising demand, while maintaining sustainability and food security standards. While European aquaculture has been struggling to maintain competitiveness, at a UK level research investment has dropped considerably, until the recent joint BBSRC-NERC initiative. Prior funding has largely focused on salmonids and shellfish, mainly spanning the areas of disease or environmental impact, often focusing on Scotland but not fully covering the breadth of strategic needs of the sector. Furthermore, there is often a decoupling between basic research funded by research

Funded Value:
£197.299
Funded Period:
set 16 - ago 19
Funder:
NERC



Gateway to Research

Innovate UK

UK Aquaculture Initiative Network. Aquaculture Research Collaborative Hub -UK (ARCH-UK)

Lead Research Organisation: [University of Stirling](#)
 Department Name: Institute of Aquaculture

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Overview Organisations People

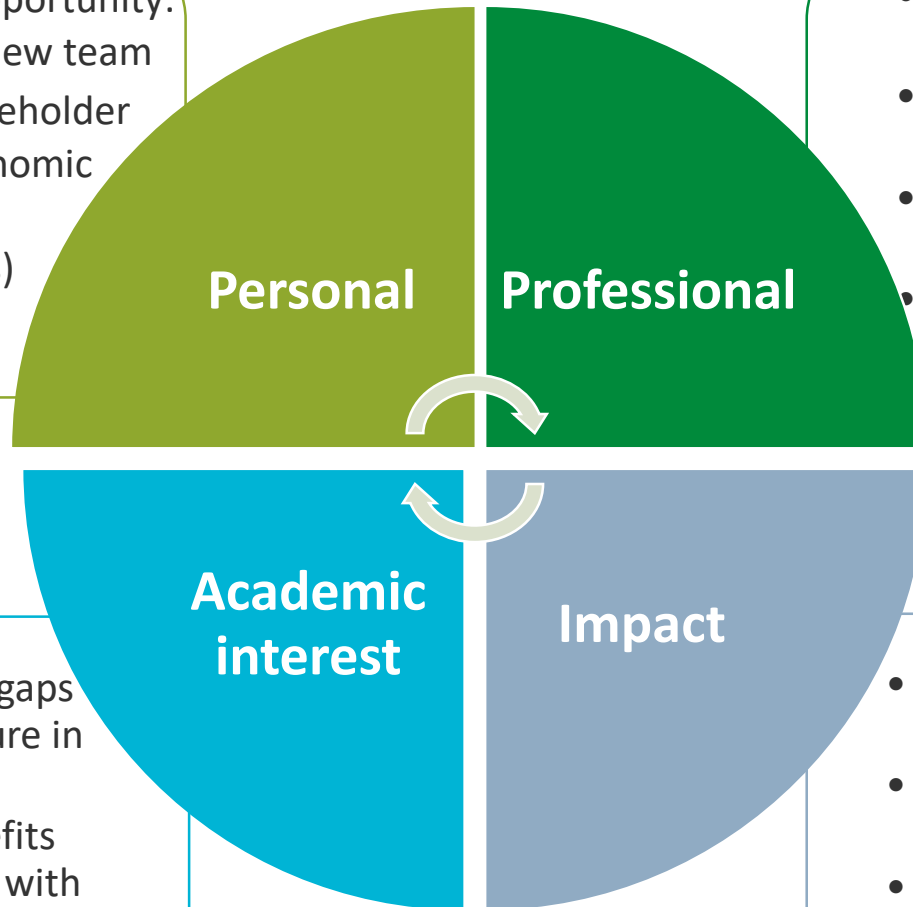
Abstract

The UK aquaculture sector contributes around £600 million to a UK seafood industry worth at £6.3 billion in 2016. The UK seafood market is complex and includes large added value through wild fish imports, and both wild and farmed seafood exports. Within the UK the aquaculture sector in England, Wales and N. Ireland collectively produce 19,000 metric tons (mt) of shellfish and 9,200 mt of trout, with production coming mainly from SMEs. Scotland is a major producer of Atlantic salmon (>163,000 mt; third largest producer globally) and the industry is both highly consolidated and export focused. In Scotland there is also significant trout (6,000 mt) and shellfish (6,300 mt)

Funded Value:
£395.142
Funded Period:
feb 17 - feb 21
Funder:
BBSRC

Why this placement?

- Challenge & learning opportunity: topic, perspective and new team
- Develop new skills (stakeholder consultation, socio-economic data collection and qualitative data analysis)



- Extend KE work to regulatory frameworks and policy
- Develop relations with MMO (also DEFRA and CEFAS)
- Gain non-academic and interdisciplinary experience
- Diversify network, expertise and publications

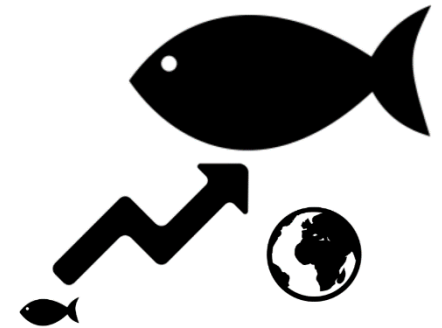
- What are the evidence gaps for modelling aquaculture in marine plan areas?
- How can we value benefits and impacts associated with aquaculture and use these for marine planning?

- Provide tools for marine planning and decision making
- Review evidence needs & inform/engage stakeholders
- Create a framework for aquaculture valuation

Project

Evidence needs and valuing aquaculture in marine plan areas

- Marine management plans for England that consider aquaculture are still at an early stage of development
- Existing models are limited by the lack of evidence and do not offer sufficient support to decision-making
- Socio-economic and environmental trade-offs of the different types of aquaculture and their associated value are not currently considered



How to simultaneously meet demand, maintain sustainability and assure food security standards?

Objectives

Create the conditions to improve curr. models & propose recommendations

Review existing evidence needs and define priority research areas

Value trade-offs and impacts of different types of aquaculture

Support decision-making and sustainable aquaculture development



Gaps

- Which evidence is missing? Which research is needed?
- Which aquaculture systems constitute an added-value in specific environmental and socio-economic contexts?

Project

Evidence needs and valuing aquaculture in marine plan areas

Host



Marine Management Organisation

- **Dr Ainsling Lannin,** Evidence team (Newcastle upon Tyne)
- 4 months

Our responsibilities

We're responsible for:

- managing and monitoring fishing fleet sizes and quotas for catches
- ensuring compliance with fisheries regulations, such as fishing vessel licences, time at sea and quotas for fish and seafood
- managing funding programmes for fisheries activities
- planning and licensing for marine construction, deposits and dredging that may have an environmental, economic or social impact
- making marine nature conservation byelaws
- dealing with marine pollution emergencies, including oil spills
- helping to prevent illegal, unregulated and unreported fishing worldwide
- producing marine plans to include all marine activities, including those we don't directly regulate
- enforcing wildlife legislation and issuing wildlife licences

(source: Marine Management Organisation)

HOST

- Evidence gaps & needs of marine plans will be identified
- Research needs will be shared with academics and funders
- New approach will be explored

CANDIDATE

- Gain insight on operations, priorities and challenges
- Learn methodologies on socio-economic evidence collection
- Access to MMO data and contact networks (DEFRA/CEFAS)

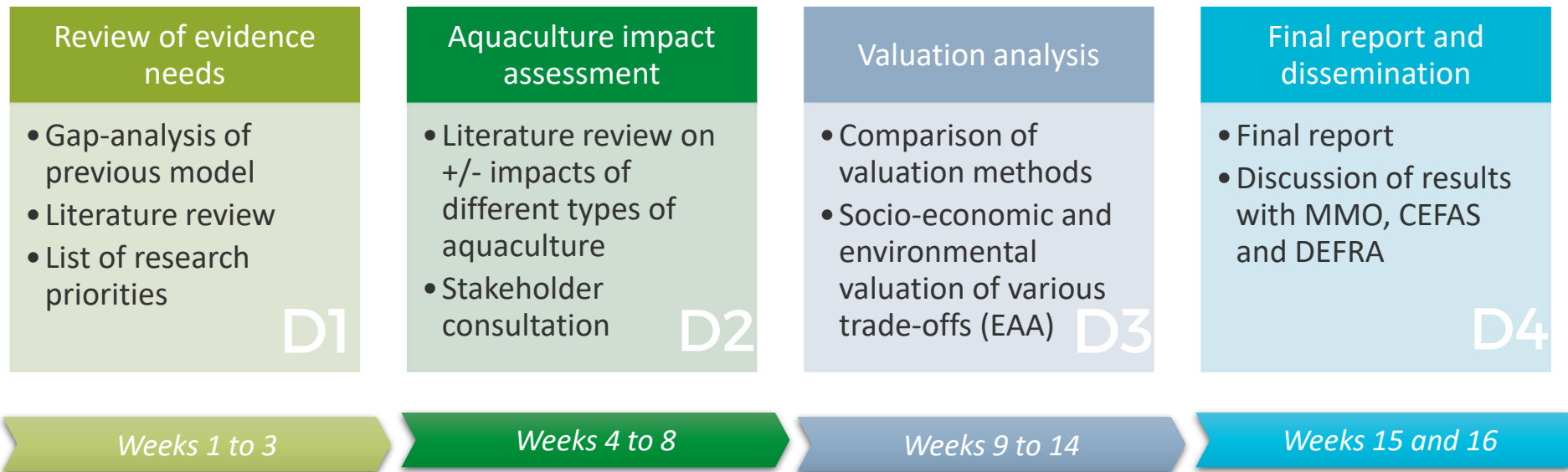
Benefits from the collaboration

Project

Evidence needs and valuing aquaculture in marine plan areas

Workplan

(1st of April to the 31st of July 2017)



Outcomes

Deliverables: gap-analysis and research priorities (D1), impact assessment (D2), valuation analysis (D3) and final report (D4)

Publication (on valuing aquaculture from an integrated ecosystem approach)

Opportunity for engagement between academics and regulatory organisations

Project

Evidence needs and valuing aquaculture in marine plan areas

Fit within



VALUING
NATURE

agenda

Our aim is to improve understanding of the value of nature both in economic and non-economic terms, and improve the use of these valuations in decision making.

To do this, the Valuing Nature Programme will fund interdisciplinary research, and the Valuing Nature Network will build links between researchers and people who make decisions that affect nature in business, policy-making and in practice.

The Valuing Nature Programme

The five year, £6.5m Valuing Nature Programme aims to better understand and represent the complexities of the natural environment in valuation analyses and decision making. It will consider the economic, societal and cultural value of ecosystem services.

The Programme will fund research and support researchers in making links with policymakers, businesses and practitioners through the Valuing Nature Network.

& community

Amy Binner

- Placement Title - From valuing nature to policies and decision making: Co-developing and implementing a 25 year planning tool for the natural environment
- Home Organisation - University of Exeter
- Host Organisation - Defra

Joseph Kenworthy

- Placement Title - Valuing coastal services: Stressor induced impacts, tipping points and societal wellbeing
- Home Organisation - University of St Andrews - School of Biology
- Host Organisation - University of St Andrews - Environmental Economics Research Group

- Explore issues of valuing nature and its application to aquaculture marine planning
- Use valuation analysis as a tool to compare different aquaculture systems in given ecosystems and socio-economic contexts
- Explore interdisciplinary issues of integrated assessment of carrying capacity and EAA

Health & Wellbeing Research Projects



Four projects have been awarded funding from the Valuing Nature [Health & Wellbeing Call](#).

Follow the links below to read a summary of each project.

- **CoastWEB:** Valuing the contribution which COASTAL habitats make to human health and WELLBeing, with a focus on the alleviation of natural hazards. Lead: Dr Nicola Beaumont, Plymouth Marine Laboratory.
- **Improving Wellbeing through Urban Nature:** Integrating green/blue infrastructure and health service valuation and delivery (IWUN). Lead: Dr Anna Jorgensen, University of Sheffield.
- **Green Infrastructure to Promote Health and Wellbeing in an Ageing Population (GHIA).** Lead: Dr Sarah Lindley, University of Manchester.
- **Taking the bite out of wetlands:** managing mosquitoes and the socio-ecological value of wetlands for wellbeing. (WetlandLIFE). Lead: Dr Tim Acott, University of Greenwich.

Tipping Points Research Projects



Three projects have been awarded funding from the Valuing Nature [Tipping Points Call](#).

Follow the links below to read a summary of each project.

- Identifying potential tipping points in the benefits derived from the UK's land ecosystems. Lead: Prof Tim Lenton, University of Exeter.
- Understanding ecosystem stocks and tipping points in UK blanket peatlands. Lead: Prof Mark Reed, Newcastle University.
- Mechanisms and consequences of tipping points in lowland agricultural landscapes. Prof Adrian Newton, Bournemouth University.

(source: Valuing Nature)

Thank you

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