

ICES WGSCALLOP

Scallop Assessment Working Group [WGScallop \(ices.dk\)](https://www.ices.dk/WGScallop)

Lynda Blackadder & Isobel Bloor
North Western Waters Advisory Council, June 2024



Science for sustainable seas



ICES – The International Council for the Exploration of the Sea



We are an intergovernmental marine science organization. Our mission is to **advance and share scientific understanding** of marine ecosystems and the services they provide and to **use this knowledge** to generate state-of-the-art advice for meeting conservation, management, and sustainability goals.

Geographic scope

- 20 member countries
- Strategic partnerships globally

A global scientific community

- 1500 active experts annually in over 160 working groups and workshops



ICES WORK AREAS

- **SCIENCE**
Facilitating cooperation and research in marine science
- **ADVICE**
Providing impartial, evidence based scientific advice on environmental issues and fisheries management
- **DATA & INFORMATION**
Custodian and provider of fisheries and environmental data
- **TRAINING**
Building capacity to support scientific advice
- **COMMUNICATION**
Communicating science, data and advice



EXPERT GROUPS – THE ENGINE OF ICES

Most ICES work is accomplished through our network of Expert Groups which address topics spanning all aspects of marine science.

- Expert Groups are established, dissolved and guided by the [Science Committee \(SCICOM\)](#) and [Advisory Committee \(ACOM\)](#)
- SCICOM oversees all aspects of ICES scientific, training and data work while ACOM is responsible for ICES advice
- Interactions between the two Committees and the Expert Groups are facilitated by [Steering Groups](#)



Aim of our Working Group

Members of the Scallop Assessment Working Group (WGScallop) discuss the key issues surrounding scallop species and are working towards the improvement and further development of appropriate stock assessment methods.

Terms of Reference (ToR)

These are established and agreed for a three year cycle. Typically we have 7 or 8 separate work areas, each with a leader or champion who takes responsibility to progress and provide updates to the wider group.

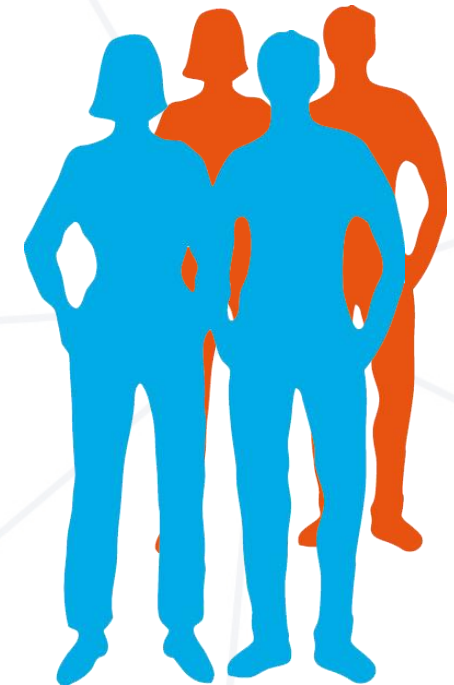
WG members meet annually in October



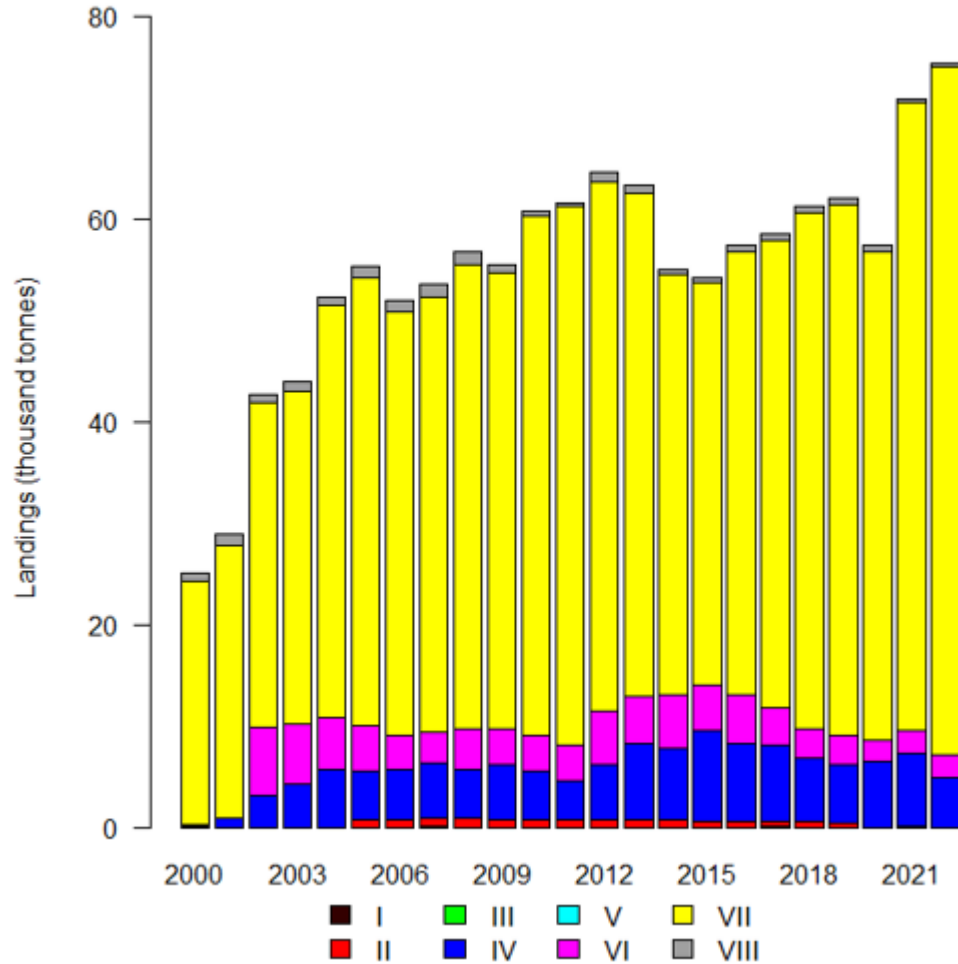
Collaboration and communication



- A network of scientists and experts.
- A forum to discuss issues with surveys, data, models, assessment.
- A shared space to highlight changes with the fishery and possible future options (technology, science, management).
- Knowledge transfer – especially for early career scientists, PhD students and those new to working with scallop fisheries.
- Joint working – sub group meetings, ad-hoc requests, annual reports and collaborations on projects and papers.



Fisheries Data



Compile and present data on scallop fisheries in ICES areas II, IV, V, VI AND VII by collating available fishery statistics

Table 7.10.1. Scallop species list and respective FAO codes.

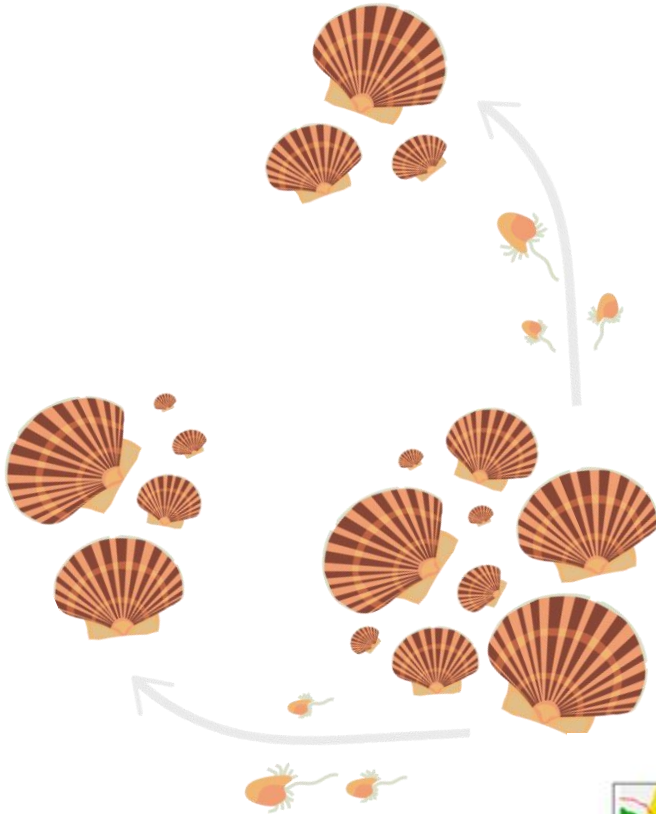
Common name	Scientific name	FAO Asfis Code
Great Atlantic scallop (King scallop)	<i>Pecten maximus</i>	SCE
Queen scallop	<i>Aequipecten opercularis</i>	QSC
Iceland scallop	<i>Chlamys islandica</i>	ISC
American sea scallop	<i>Placopecten magellanicus</i>	SCA
Scallops nei	<i>Pectinidae</i>	SCX

Age reading



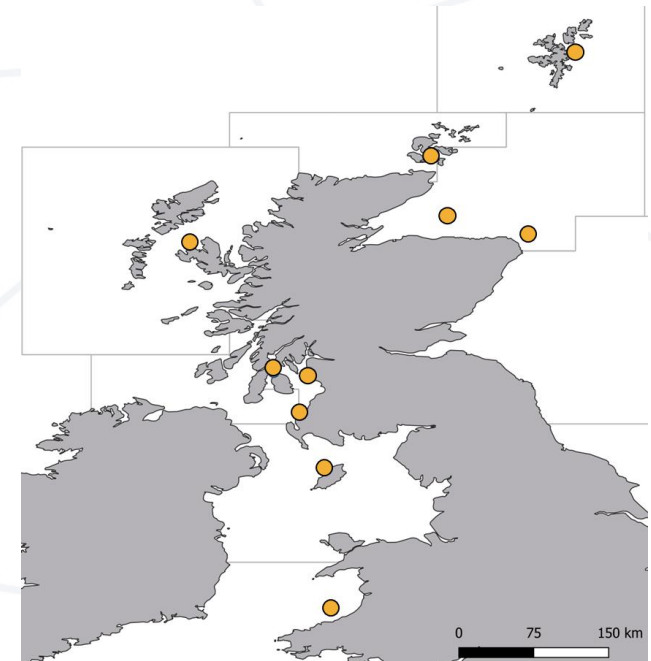
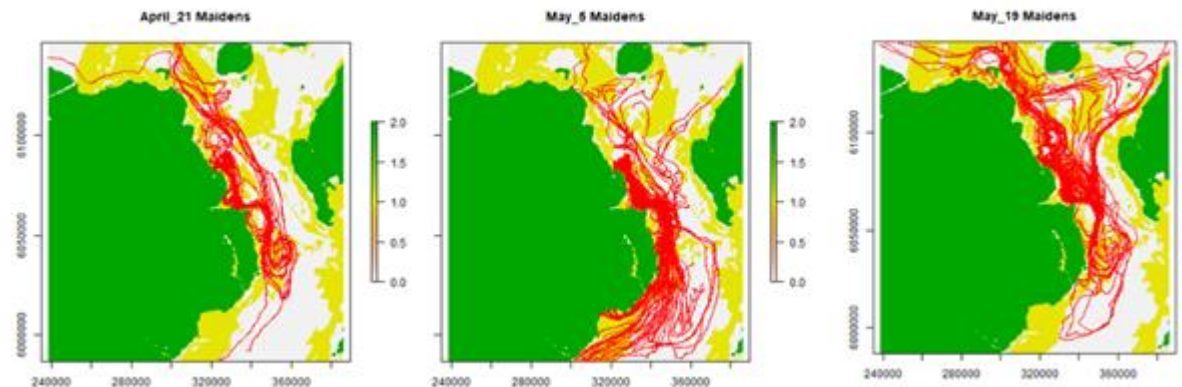
- Compare age reading methodologies and develop common practices and determine precision and bias of scallop age reading data derived from different readers
- Workshops on Scallop Aging
- [WKSA2 \(ices.dk\)](https://www.ices.dk/WKSA2)
- ICES TIMES document on aging methodologies

Connectivity

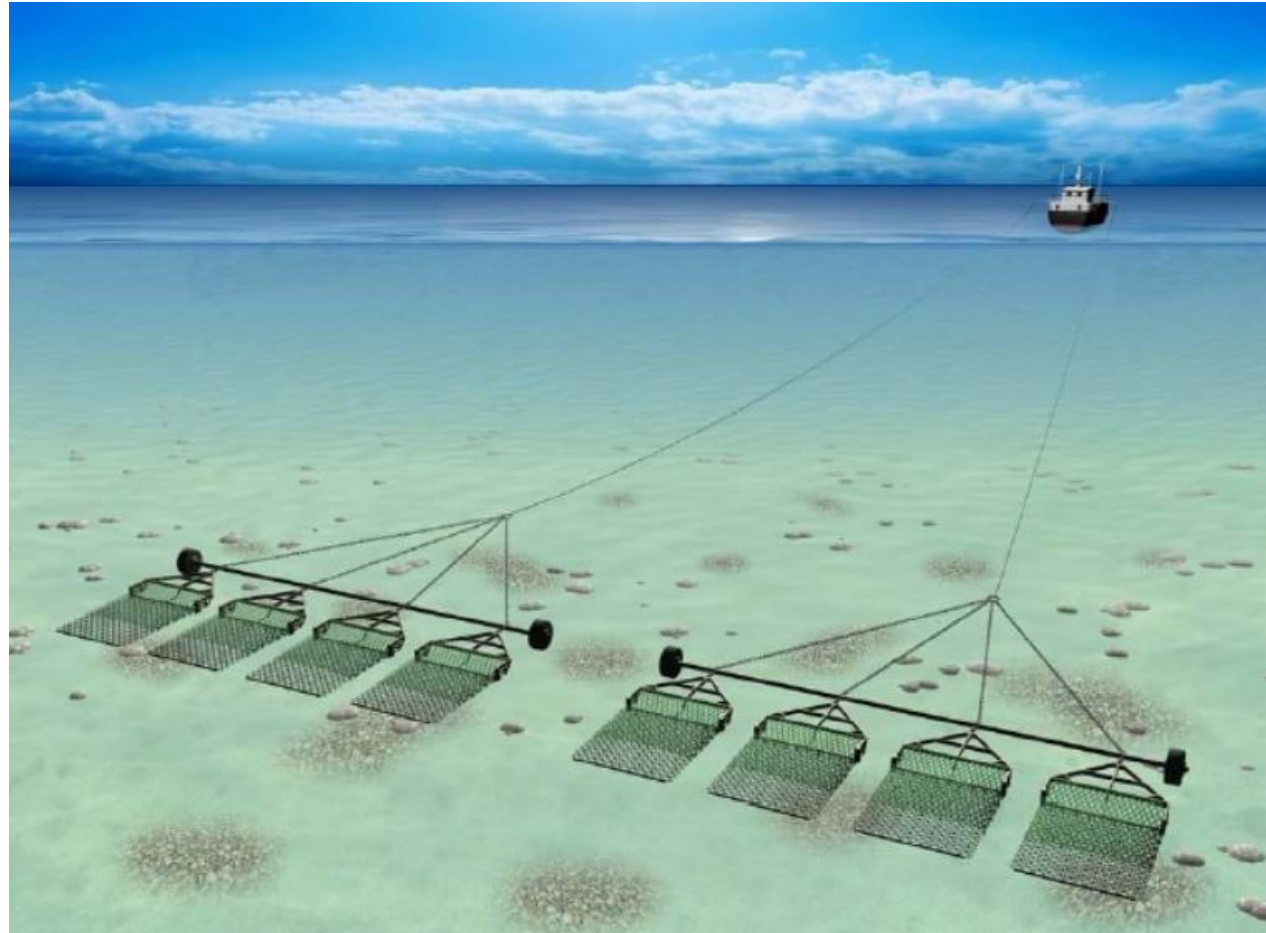


Continue to refine stock structure using best available information on genetics and larval dispersal and improve current mapping of scallop stocks.

Understanding the biological stock area to determine if the assessment areas are appropriate.



Dredge Efficiency



A Global Review of Catch Efficiencies of Towed Fishing Gears Targeting Scallops

Adam J. Delargy^a, Lynda Blackadder^b, Isobel Bloor^c, Carrie McMinn^d, David B. Rudders^e, Claire L. Szostek^c, Helen Dobby^b, Mervi Kangas^f, Bryce D. Stewart^g, James R. Williams^h and Kevin D.E. Stokesbury^a

^aSchool for Marine Science and Technology, University of Massachusetts Dartmouth, Massachusetts, USA; ^bFisheries Advice Group, Marine Scotland Science, Aberdeen, UK; ^cSchool of Ocean Sciences, Bangor University, Bangor, UK; ^dEnvironment and Marine Sciences Division, Agri-Food and Biosciences Institute, Belfast, UK; ^eVirginia Institute of Marine Science, William and Mary, Gloucester Point, Virginia, USA; ^fAquatic Science and Assessment, Department of Primary Industries and Regional Development (DPIRD), Hillarys, Australia; ^gDepartment of Environment and Geography, University of York, York, UK; ^hNational Institute of Water & Atmospheric Research Ltd (NIWA), Auckland, New Zealand

ABSTRACT

The catch efficiency of towed fishing gears is the fraction of the target species in the gear path that were caught and retained. Catch efficiency is fundamental for calculating population status required for establishing fisheries management reference points. Consequently, catch efficiency has been estimated for many commercially important scallop (Pectinid) fisheries. This article synthesizes and discusses estimates of catch efficiency of towed gears used to target scallops, the methods for estimating catch efficiency and the factors that influence these estimates. There exists considerable variation in catch efficiency estimates among studies (0.1 to 0.7), and it is important that this variation is accounted for during surveys and stock assessments to avoid erroneous advice and estimates. The high variation was driven by differences in experimental conditions, estimation methods and scallop behavior. Scallop size and substrate type were the two most common reporting categories discussed in the studies and consequently should be considered the two most important drivers of catch efficiency. Other important factors such as gear specifications, and scallop species were featured in some studies. This review will be highly useful for designing catch efficiency experiments, survey design and stock assessments by understanding, and accounting for, catch efficiency variation.

KEYWORDS

Scallops; catch efficiency; gear design; global review; survey design

Introduction

The efficiency of a towed fishing gear to catch the target species is an important consideration of commercial fishing operations, scientific surveys, and assessments of natural finfish and shellfish populations. Commercial fishing operations generally focus on maximizing profits and are therefore likely to seek high catch efficiency, whilst balancing other considerations such as fuel efficiency and bycatch legislation (Shepperson et al. 2016). In contrast, fishery-independent surveys focus on consistency and standardization of catch efficiency so that changes in target species abundance or biomass over space and time may be detected (Pennino et al. 2016). Therefore, the catch efficiency of commercial fishing operations and fishery-independent

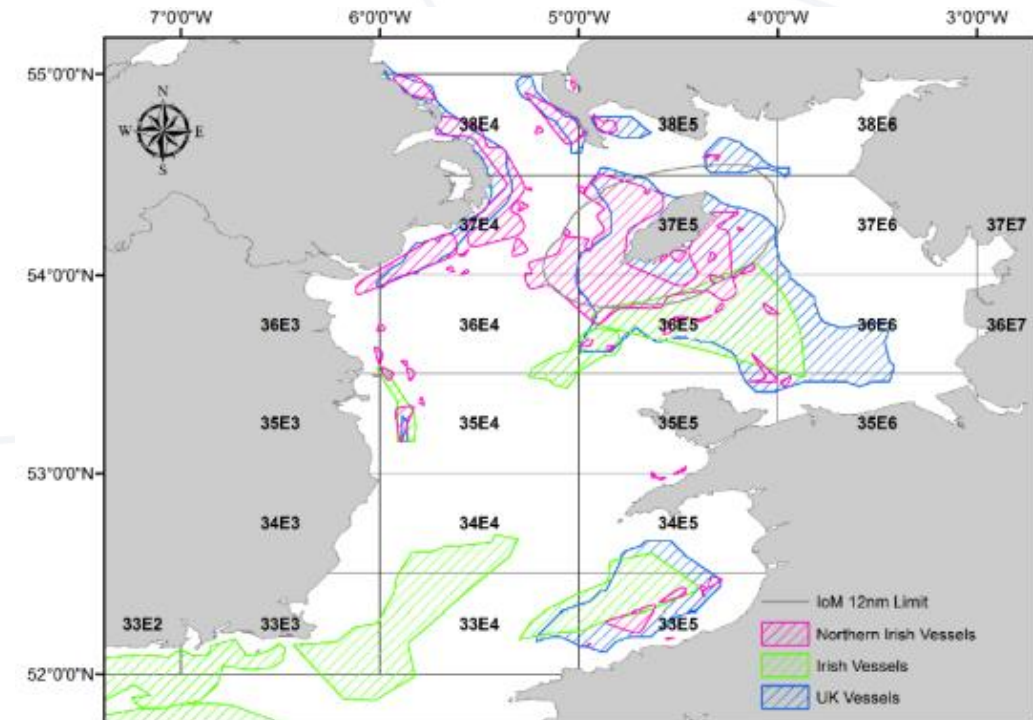
surveys are of high interest to fishers, fishery scientists and managers.

Understanding the impact of commercial fishing operations on exploited finfish or shellfish populations is a key component of sustainable management (Butterworth et al. 2014; Cadrin et al. 2016). In this context, catch efficiency represents the link between the amount of fishing effort expended and the target species returns. Fishing gear regulations are a key driver of the catch efficiency of commercial fishing, which determines how effectively fishing operations can remove target species and bycatch (Catchpole and Gray 2010). Changing catch efficiency can affect the probability of capture and therefore affect fishing mortality (Kennelly 2007; Cadrin et al. 2016). Catch efficiency often varies with target species size, often

Stock assessment

Review and identify stock assessment methods for scallop species. Consider available data (at stock level) for stock assessment input indices and/or for review of stock trends.

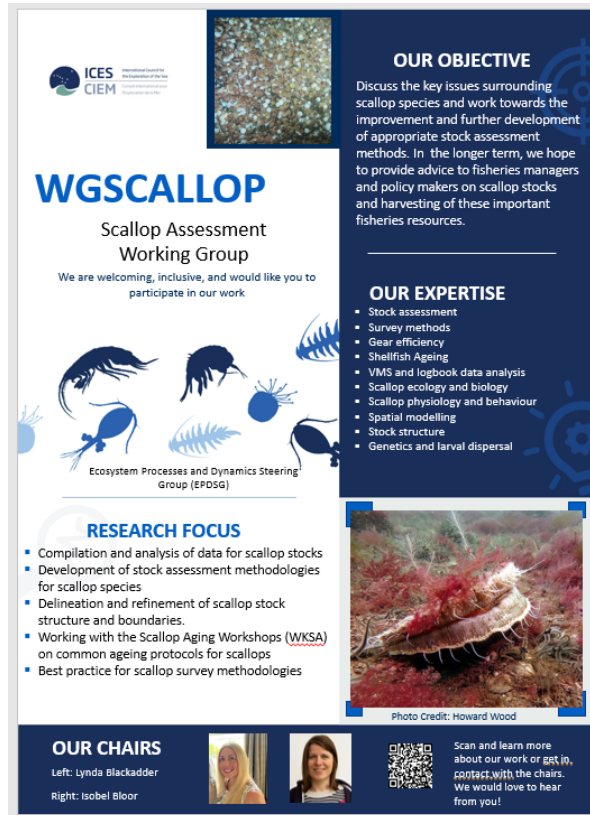
- Report on stock assessments methodologies and results for all stock areas and consider reference points. Formalise the checking process for stocks.
- Establish relationships with other ICES Working Groups.



Next steps

- Progress with work over the next few months
- ICES Annual Science Conference in September
[ASC 2024 \(ices.dk\)](https://www.ices.dk/asc2024)
- Annual meeting in October
- End of three year cycle
- New Terms of Reference
- Incoming chair to work with Isobel

Thank you for listening. Further information available on WGScallop:



WGSCALLOP
Scallop Assessment Working Group

We are welcoming, inclusive, and would like you to participate in our work

OUR OBJECTIVE
Discuss the key issues surrounding scallop species and work towards the improvement and further development of appropriate stock assessment methods. In the longer term, we hope to provide advice to fisheries managers and policy makers on scallop stocks and harvesting of these important fisheries resources.

OUR EXPERTISE

- Stock assessment
- Survey methods
- Gear efficiency
- Shellfish Ageing
- VMS and logbook data analysis
- Scallop ecology and biology
- Scallop physiology and behaviour
- Spatial modelling
- Stock structure
- Genetics and larval dispersal

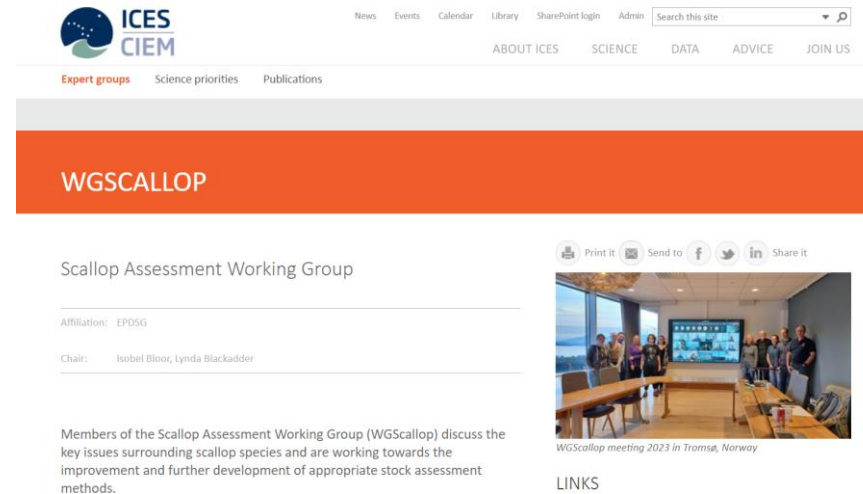
RESEARCH FOCUS

- Compilation and analysis of data for scallop stocks
- Development of stock assessment methodologies for scallop species
- Delineation and refinement of scallop stock structure and boundaries.
- Working with the Scallop Ageing Workshops (WKSAs) on common ageing protocols for scallops
- Best practice for scallop survey methodologies

OUR CHAIRS
Left: Lynda Blackadder
Right: Isobel Bloor

Scan and learn more about our work or get in contact with the chairs. We would love to hear from you!

[WGScallop \(ices.dk\)](https://www.ices.dk)



ICES CIEM

News Events Calendar Library SharePoint login Admin Search this site

ABOUT ICES SCIENCE DATA ADVICE JOIN US

Expert groups Science priorities Publications

WGSCALLOP

Scallop Assessment Working Group

Affiliation: EPDSG

Chair: Isobel Bloor, Lynda Blackadder

Members of the Scallop Assessment Working Group (WGScallop) discuss the key issues surrounding scallop species and are working towards the improvement and further development of appropriate stock assessment methods.

WGScallop meeting 2023 in Trondheim, Norway

LINKS

SCALLOP ASSESSMENT WORKING GROUP (WGSCALLOP; outputs from 2023 meeting)

VOLUME 6 | ISSUE 17

ICES SCIENTIFIC REPORTS
RAPPORTS SCIENTIFIQUES DU CIEM



ICES INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA
CIEM CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Lynda Blackadder
Lynda.Blackadder@gov.scot

Isobel Bloor
i.bloor@bangor.ac.uk