

Contents

Strategic Initiative Resolutions	1
Strategic Initiative on the Human Dimension (SIHD)	2
Strategic Initiative on Climate Change Impacts on Marine Ecosystems (SICCME)6	
Strategic Initiative on Integration of Early Career Scientists (SIECS).....	10
Strategic Initiative on Graduate Education (SIGE).....	14

Strategic Initiative on the Human Dimension (SIHD)

2022/SI/ACOMSCICOM02

The ICES Strategic Initiative on the Human Dimension (SIHD), chaired by Katell Hamon (The Netherlands), will conduct activities from 2023 to 2025. SIHD will strengthen the human dimensions and interdisciplinary research community in ICES, conduct and communicate research and improve ICES's ability to provide advice with integrated social scientific data and analysis relevant to EBM implementation. SIHD will strive to expand the role and consideration of social science in ICES. This involves recognition of seas and oceans as socio-ecological systems and the interdisciplinary nature of scientific challenges. It also involves enhanced communication and engagement of both natural and social scientists with maritime stakeholders - resource users, policy makers, and other interest groups.

The SIHD Vision complements the ICES Vision and Strategic, Science, and Advisory Plans. The primary ICES strategic documents – ICES Strategic Plan (2019), ICES Advisory Plan (2019), and the ICES Science Plan (2019) – reflect a strong turn towards EBM and an enhanced recognition of the relevance of a broader set of scientific disciplines - including social sciences - required to provide the science and advice for informed decision-making. SIHD will centre its work around three areas of activity (detailed in the ToRs) which are complementary and interdependent:

1. **Coordination.** Lead on behalf of ACOM and SCICOM the integration of social science throughout ICES.
2. **Social Science Research.** SIHD, together with expert groups, will develop and synthesize i) data requirements and data gaps, and ii) research methods and procedures within and across ICES-related social science research (disciplinary), across ICES expert groups (social and natural sciences; interdisciplinary), and through stakeholder participatory processes, especially in Integrated Ecosystem Assessments (IEAs), ecosystem overviews, fisheries overviews and aquaculture overviews.
3. **Communication and outreach:** this field of activity addresses outreach activities (conferences, workshops, and webinars), networking, and knowledge (communicating SIHD work).

Year	Meeting dates	Venue	Reporting details	Comments (change in Chair, etc.)
2023	March	Copenhagen, Denmark /Online?	Update to SCICOM March meeting	
	September	Bilbao, Spain	Update to SCICOM September meeting	Side meeting in conjunction with ICES ASC
2024	March	Copenhagen, Denmark /Online	Update to SCICOM March meeting	
	September	ICES ASC	Update to SCICOM September meeting	Side meeting in conjunction with ICES ASC
2025	March	Copenhagen, Denmark /Online	Update to SCICOM March meeting	
	September	ICES ASC	Update to SCICOM	Side meeting in conjunction

Terms of Reference (ToR) Descriptors 2020–2022

ToR	DESCRIPTION	BACKGROUND	DURATION	SCIENCE PLAN CODES	POTENTIAL DELIVERABLES AND ACTIVITIES
a	Coordinate social science activities across ICES; represent social science in the Science Committee and other ICES bodies	Supporting SIHD-related expert groups and support delivering Science Plan tasks	3 years	6.1-6.6, 7.1-7.7	Attend EG meetings; organize workshops with SIHD expert groups; quarterly communication with expert group chairs; summarize social science activities to diverse ICES groups
b	Further develop trans- and interdisciplinary discourse and methods across ICES	Support of effective communication between ICES social and natural sciences	3 years	1.9, 2.1, 2.7, 3.1, 4.1, 5.7,6.5, 6.6, 7.1, 7.2	Develop and communicate best practices for interdisciplinary research and integrated advice; SIHD annual meeting at the ASC
c	Expand social science research, methods, and data in the ICES advisory process and products and wider marine decision-making venues	Support and highlight the needs to include more economic, social, and cultural information in its advisory products and support coherent and evidence-based policy	3 years	1.9, 2.1, 2.7, 3.1, 4.1, 5.7, 6.2, 6.3, 6.5, 6.6, 7.2, 7.4, 7.6	Specify key components of ICES IEAs, ecosystem, aquaculture, and fisheries overviews which can benefit from the involvement of social scientists; WKCONSERVE2
d	Support implementation of the ICES Strategic Plan, Science Plan and Advisory Plan through the SIHD Roadmap	Reflect and share the evolving priorities and work of the ICES SIHD community and support implementation of ICES priorities	3 years	2.1, 2.7, 3.1, 3.2, 3.5, 4.1, 4.3, 4.4, 5.1, 5.3, 5.4, 5.8, 6.1-6.6, 7.1-7.7	Revised and ongoing development of SIHD Roadmap; SIHD related Expert Group chairs meetings
e	Develop methods and procedures to integrate social scientific knowledge, evidence, and research	Support and highlight the needs to better include economic, social, and cultural information in inter- and transdisciplinary approaches to allow the assessment and valuation of state and changes in the human dimensions of EBM	3 years	2.1, 2.7, 3.1, 3.2, 3.5, 4.1, 4.3, 4.4, 5.1, 5.3, 5.4, 5.8, 6.2, 6.5, 6.6, 7.1, 7.2, 7.5	Develop and use social, governance-related, cultural and economic indicators; expert group papers (e.g. on best practices for social sciences inclusion in interdisciplinary work; comparative research)

f	Strengthen and develop links with existing organizations and initiatives outside ICES dealing with social science in the marine realm.	Expand the ICES human dimensions network Strengthening social sciences partnerships, including with PICES	3 years	6.1, 6.2, 6.3, 6.6, 7.7	Present research in conferences and workshops (e.g. MSEAS 2021, 2024); provide a point of entry for social scientists to participate in ICES work; engage in dialogue with human dimensions networks outside the ICES community
g	Extend SIHD outreach through academic papers, presentations and other communication channels	Structuring and synthesizing SIHD knowledge and evidence for outreach	3 years	3.6, 6.1, 6.2, 6.3, 6.6, 7.7	Present research in conferences (e.g. MSEAS 2024); initiation of a SIHD-related theme session at ASCs, and other conferences

Summary of the Work Plan

The work plan is centered around the delivery of regular outputs as listed in the ToRs, in the three focus areas outlined above. In addition, the initiative will contribute to new workshops, expert groups, webinars, and other outputs as appropriate. Annual meetings are planned as part of the 2023, 2024 and 2025 ICES ASC. Additional, intersessional communication will occur via email, expert group gatherings, online meetings, etc. While the ToRs note a number of specific Science Plan codes, it should be recognized that there are human dimensions elements to most of the Science Plan and the codes listed in the ToRs are not all-inclusive.

Human Dimensions includes all social sciences and humanities research that is focused on the role of humans in the marine environment. Throughout these ToR, we use 'human dimensions' and 'social science' interchangeably, recognizing that some researchers may consider their field to be part of the humanities or may identify primarily with a particular social science discipline such as economics.

Supporting Information

Priority	High. ICES has placed human dimensions activities, research, and advice at the core of its Strategic, Advisory, and Science Plans.
Scientific justification	<p>The ICES 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." Clearly, people, institutions, and markets are central to this Mission. The Science Plan similarly places understanding human behaviour, impacts, management, and experience as central to ICES scientific priorities. The Advisory Plan also recognizes the importance of social scientific understanding, data, and analysis and its focus on incorporating innovation and evolving advice beckons more human dimensions contributions.</p> <p>The SIHD was created in 2015 with reference to a number of questions that defined human activities and outlined the needs for human dimensions work in ICES with a strong focus on IEAs. The Strategic, Advisory, and Science Plans and the SIHD Roadmap have laid out a range of goals and priorities for SIHD in coming years. Over recent years, three new SIHD-related expert groups have been created: WGECON, WGSOCIAL, and WGBESEO. These groups complement a number of human dimensions expert groups,</p>

including WGMARS and WGSEDA. A large number of other expert groups have some level of human dimensions involvement, and a significant challenge for ICES in coming years is how to effectively expand and coordinate participation across groups, which reinforces the need for SIHD leadership and coordination.

The SIHD Roadmap developed in 2018 by SIHD Co-chairs with input from ICES scientific leaders and SIHD members provided concrete steps and aspirational goals for SIHD. The Roadmap is being revised and will be presented to SCICOM. Over the coming years, the Roadmap will be revised as priorities, needs, and activities for human dimensions in ICES change.

An ongoing challenge for human dimensions work in ICES is how to effectively communicate with stakeholders to meet research and policy analysis priorities. Working with SCICOM and ACOM, SIHD will improve stakeholder involvement in ICES through the WKSHOES workshop and other means to help ensure that ICES human dimensions activities are as responsive to stakeholder needs as possible.

Resource requirements

Secretariat support for running theme sessions, workshops, and conferences.

Participants

20–25 core members help to lead human dimensions activities in ICES, embedded in a large network of researchers active in SIHD workgroups, workshops, and ICES ASC theme and network sessions.

Secretariat facilities

Assistance with organising workshops and symposia (the latter being dependent on successful symposium resolutions)

Financial

ICES Council has allocated a limited equity budget to support Strategic Initiatives to help SI chairs engage more actively and widely with the scientific community. SI Chairs are requested to seek reimbursement approval in advance with the ICES Head of Science Department.

Linkages to advisory committees

ACOM

Linkages to other committees or groups

IEASG, EPDSG, HAPISG, FRSG, WGMARS, WGSEDA, WGRMES, WGMPCZM, WGECON, WGSOCIAL, WGBESEO.

Linkages to other organizations

PICES, EC, EEA, Regional Seas Conventions, FAO, World Bank, IMBER, International Institute of Fisheries Economics and Trade (IIFET), EAFE, IPBES, STECF, JRC, IASC (International Association of the Study of the Commons), MARE.

Strategic Initiative on Climate Change Impacts on Marine Ecosystems (SICCME)

2022/2/ACOMSCICOM03 The ICES-PICES Strategic Initiative on Climate Change Impacts on Marine Ecosystems (SICCME), chaired by Kirstin Holsman (USA, PICES), Shan Xiujuan (China, PICES), Kathy Mills (USA, ICES) and Alan Baudron (United Kingdom, ICES) will work on ToRs and generate deliverables as listed in the Table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
2023	March		Update to SCICOM March meeting	
	Sept	ICES ASC	Update to SCICOM Sept. meeting	Side meeting in conjunction with ICES ASC
2024	March		Update to SCICOM March meeting	
	Sept	ICES ASC	Update to SCICOM Sept. meeting	Side meeting in conjunction with ICES ASC
2025	March	-	Update to SCICOM March meeting	Change in chairs
	Sept	ICES ASC	Update to SCICOM Sept. meeting	Side meeting in conjunction with ICES ASC

ToR descriptors

TO R	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Identify key scientific priorities and knowledge gaps relating to the impact of climate change on marine social-ecological systems by fostering collaborative research activities, including data collection, comparative analyses, and topical syntheses under the ICES/PICES strategic framework for cooperation.	Strategic collaboration between ICES and PICES; Support to achieve Science Plan goals	1.1, 1.3, 2.2, 2.5, 5.2, 6.1, 7.6	3 years	Strong and ongoing interactions between ICES and PICES; Provision of ongoing support for expert groups in delivering Science Plan tasks; collate a list of ongoing climate-related research projects in ICES/PICES regions; liaise with groups such as IPCC, IPBES, OSPAR, HELCOM, Ocean Decade programmes, and others to identify shared interests and needs

b	Communicate and advance our understanding of climate change in marine social-ecological systems by creating information-sharing networks, convening conference theme sessions, developing workshops, and supporting similar activities.	Help coordinate climate-change science within ICES and PICES	2.1 2.5, 5.2, 6.1	3 years	Convening an ICES-PICES Theme Session at the 2023 ICES ASC, and initiation of at least one explicitly SICCME-related theme session in subsequent ICES ASC and PICES Annual Meeting. Hosting a workshop during the 5 th ECCWO (2023). Contribution to organisation of subsequent ECCWO conferences.
---	---	--	-------------------	---------	---

c	Synthesize and share knowledge, scientific advances, and science priorities related to climate change and marine social-ecological systems to the ICES and PICES communities, as well as regional and global advisory bodies on climate impacts and adaptation, including IPCC, IPBES, national or regional climate or ecosystem assessments, and other relevant bodies.	Help coordinate climate-change science within ICES and PICES; Support Science Plan goals and activities of advisory bodies	1.1, 2.1, 2.5, 5.2, 6.4, 6.5, 6.6, 7.6	3 years	Provision of ongoing support for expert groups in delivering Science Plan tasks with providing overviews of climate assessments for ICES working groups and incorporating climate change information into ICES advice products; Input and exchange of knowledge among science and advisory bodies, including reporting on approaches for incorporating climate information into fisheries management based on an ICES ASC (2023) session and PICES ASC workshop; Elicit and synthesize input from other WGs on climate impacts; Propose a standardized approach for incorporating climate change into Ecosystem Overviews; Annual update to Sept. SCICOM meeting on scientific priorities and relevant developments
---	--	--	--	---------	---

Summary of the Work Plan

SICCME will centre its activities on (1) fostering awareness and strengthening coordination among activities related to understanding climate change impacts on marine social-ecological systems; (2) advancing new scientific activities to contribute to this understanding; and (3) synthesizing and sharing information with ICES, PICES, and other relevant bodies, and as appropriate, integrating information into relevant products. The work plan will deliver regular outputs from collaborative research activities and syntheses (e.g., ToR a, research and synthesis products; ToR b, contributions to conferences;

ToR c, reporting to ICES, PICES, and other bodies). In addition, SICCMME will contribute to new initiatives as appropriate and as needs or opportunities are realized. In this activity period (2022-2025), some specific planned activities include: (1) reporting on approaches for incorporating climate information into fisheries management based on an ICES ASC (2023) session and PICES ASC workshop; (2) providing overviews of climate assessments for ICES working groups and incorporating climate change information into ICES advice products, such as ecosystem overviews and integrated ecosystem assessments; (3) building an understanding of climate change tipping points in marine ecosystems and fisheries; and (4) advancing a synthesis of climate adaptation in marine fisheries, as adaptation exerts a strong influence on realized impacts. Broadly, SICCMME will also liaise with groups such as IPCC, IPBES, OSPAR, HELCOM, Ocean Decade programmes, and others to identify shared interests and needs, and to determine potential roles for SICCMME in addressing these needs. As such, SICCMME's specific activities will be adapted to address emerging priorities and interests. Annual meetings are key to SICCMME's continuity and the development of new initiatives; regular meetings are planned as part of the 2023, 2024 and 2025 ICES ASC. Additional meetings and workshops will be held opportunistically, and as possible in association with (as side events) ICES-PICES sponsored symposia, such as the 5th Effects of Climate Change on the World's Ocean Symposium (April 2023 in Bergen, Norway). Additionally, intersessional communication will occur via email and online meetings.

Supporting information

Priority	High. ICES has several strategic research plans and documents related to understanding and investigating the impacts of climate change on marine ecosystems and wants to strengthen collaborative ties with PICES. This initiative will address both issues. It will also contribute to ICES capacity to provide a joint ICES-PICES goal of becoming the leading international organization providing science and advice related to the effects of climate change and variability on marine resources and ecosystems. It will also contribute to PICES capacity to provide joint ICES-PICES international collaborations and research which relates to projecting climate change impacts on marine ecosystems and developing strategies for sustaining the delivery of ecosystem goods and services.
Resource requirements	Secretariat support for running theme sessions, workshops, and conferences
Participants	8–10 core members . Up to 75 participants at SICCMME events.
Secretariat facilities	Assistance with organising workshops and with website (increased functionality)
Financial	ICES Council has allocated a limited equity budget to support Strategic Initiatives to help SI chairs engage more actively and widely with the scientific community. SI Chairs are requested to seek reimbursement approval in advance with the ICES Head of Science Department.
Linkages to ACOM and groups under ACOM	ACOM
Linkages to other committee: or groups	Ecosystem Processes and Dynamics Steering Group (EPDSG) Human Activities, Pressures and Impacts Steering Group (HAPISG) Integrated Ecosystem Assessment Steering Group (IEASG) Strategic Initiative on Human Dimensions (SIHD) Strategic Initiative on the Integration of Early Career Scientists (SII ECS) Working Group on Integrative, Physical-biological and Ecosystem Modelling (WGIPEM) Working Group on Impacts of Warming on Growth Rates and Fisheries Yields (WGGRAFY)
Linkages to other organizations	EC, EEA, Regional Seas Conventions, IPCC, IPBES, FAO, IOC, World Bank, large marine science programs (e. g., IMBER, Future Earth, UN Ocean Decade programs)

Strategic Initiative on Integration of Early Career Scientists (SII ECS)

2022/SI/ACOMSCICOM01 The ICES Strategic Initiative on Integration of Early Career Scientists (SII ECS), chaired by Amanda Schadeberg (Netherlands), Alina Wieczorek (Ireland) and Côme Denechaud* (Norway), will work on ToR and generate deliverables as listed in the Table below. The SII ECS will strive to engage early career scientists (ECS) in the activities of ICES in a mutually beneficial way.

The activities of SII ECS (detailed in the ToR below) can be loosely divided into two domains: outward facing (i.e. aiming to raise the profile and accessibility of ICES for marine ECS) and inward facing (i.e. aiming to improve the inclusion of ECS in ICES and helping ECS contribute to the overall goals of the organisation). The activities can be summarised as follows:

Outward-facing

- a. Promote ICES amongst ECS from the global marine science community
- b. Connect with other marine ECS groups

Inward-facing

- c. Participate in ICES discussion and action on equity, diversity and inclusion
- d. Encourage inclusion of ECS in ICES WGs and other activities
- e. Foster interdisciplinary work by connecting ECS from ICES WGs
- f. Contribute to basic statistics on the number of ECSs per ICES country or WG

Meeting dates

SII ECS aims to have a monthly general assembly meeting of 1–2 hours with all core members. Beyond that, SII ECS will meet according to the following schedule.

YEAR	MEETING DATES	VENUE*	REPORTING DETAILS	COMMENTS
2021	September	Online	One-day progress meeting	On Sunday before ASC and Friday after ASC. Launch of SI and promotion of activities to potential participants.
2022	January	Online	Multi-day annual meeting of SI	Back to back with WGCHAIRS
	September	Same location as ASC, hybrid	Multi-day annual meeting of SI	
2023	January	Online	One-day progress meeting	
	September	Same location as ASC, hybrid	Multi-day annual meeting of SI	Change in chairs
2024	January	Online	One-day progress meeting	
	September	Same location as ASC, hybrid	Multi-day annual meeting of SI	

* Physical meetings will be offered as hybrid meetings (allowing online participation) to ensure those ECSs unable to travel (e.g., limited funding, travel restrictions, etc.) will still be able to join.

ToR Descriptors 2021-2024

TO R	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	POTENTIAL DELIVERABLES AND ACTIVITIES
a	Promote ICES amongst ECS from global marine science community	At present ICES wishes to increase its visibility amongst ECS that are not already connected to ICES via supervision or other professional networks.	NA	2 years	<ul style="list-style-type: none"> i. Develop an attractive video or a document explaining the ICES structure and how ECS can become involved in ICES. Distribute this via social media and early career networks. ii. Contribute to FAQs for new members of ICES.
b	Connect with other marine ECS groups	Rather than operate in isolation, it would be useful to meet with various marine ECS groups to learn from their activities and better connect ICES to other marine networks	NA	4 years - ongoing	Once per year, represent ICES by distributing materials or showcasing activities at marine science conferences (e.g. UN Decade of Ocean Science) or other similar activities with other ECS groups (e.g. PICES ECS or OYSTER).
c	Participate in ICES discussion and action on diversity, Equity and Inclusion (DE&I)	Early career voices need to be represented in the development of a robust and fair DE&I strategy.	NA	2 years - ongoing	<ul style="list-style-type: none"> i. Contribute to network sessions on DE&I (e.g., ASC 2021). ii. Liaise with the DE&I leaders from ICES to represent ECS interests.
d	Encourage inclusion of ECS in ICES WGs and other activities	Many ICES WGs would benefit from the meaningful integration of ECS. The ECS can assist in the ToR of the WGs and in return gain valuable experience within the ICES structure.	NA	4 years - ongoing	<ul style="list-style-type: none"> i. Initiate at least one action annually, where ECS are being promoted to the wider ICES audience (e.g. at WGCHAIRS). ii. Encourage integration of ECS in WGs by creating and showcasing successful examples of ECS contributions to ICES WG ToR (e.g. at ICES ASC). iii. Develop a proposal for SCICOM to include a regular ECS keynote at ICES ASC
e	Foster interdisciplinary work by connecting ECS from various ICES WGs	There is a call for interdisciplinary networks to support innovation in marine science	NA	4 years - ongoing	Initiate joint ECS-led projects, publications, submissions arising from this SI network (e.g., Food for Thought article in ICES JMS, original empirical research, ECS theme session at ASC)

f	Contribute to the collection of the basic statistics on the number of ECSs per ICES country or WG, the stage of their career (e.g., number of years after the Ph.D.), main field of interests, etc.	To more effectively engage ECS, it would be useful to track the number of ECS involved in ICES and identify areas of opportunity for engagement. This will also help assess the effectiveness of the SII ECS.	NA	4 years - ongoing	<ul style="list-style-type: none"> i. Collaborate with the ICES Secretariat to collect data from relevant ECS and/or chairs to build a directory or summary of the ECS community in ICES ii. Interpret this data in a way that can be useful for ICES community
---	---	---	----	-------------------	---

Summary of Work Plan

The work plan aims to deliver regular outputs on the internal and external dimension as listed in the ToR. SII ECS aims to include ECS from all ICES-related disciplines and backgrounds. Activities run by the SII ECS will be open to all ECS as participants. As for membership, in keeping with ICES protocols, members can either be nominated by national delegates or invited by the chairs. Requests for membership coming from individuals are to be handled by the chairs. We aim for a group structure of roughly 20 members, of which 2-3 are chairs. All members are expected to actively contribute to the realisation of the ToR. Membership will be reviewed after each 3-year term.

On the definition of “early-career scientist”, we take a loose interpretation of the category. All activities run by SII ECS will be open to anyone who would identify themselves as an ECS. We would like to highlight that we welcome individuals from various backgrounds (e.g. industry, engineering, communication) and the term “scientist” can include everyone with a (scientific) interest in our seas. For the SII ECS core membership and chair positions, we welcome motivated members who are engaged with the ICES community and consider themselves to be at an early stage of their career. We offer a suggested guideline for ECS as anyone from bachelor students to ~10 years of post-PhD work, but we do not wish to place strict guidelines on participation because we are aware that career breaks and/or career changes can affect trajectories.¹

Supporting Information

Priority	High. Early Career Scientists (ECS) are the next generation of researchers. In order for ICES to continue its mission, <i>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</i> , it is essential that ECS are central within ICES to promote networking, communication and education.
Resource requirements	Secretariat support for running theme sessions, workshops, and conferences.
Participants	<p>The activities of the Strategic Initiative are relevant for two groups: Core Members and Participants, defined below:</p> <ul style="list-style-type: none"> ● <u>Core Members</u> <p>The core member group consists of roughly 20 members (depending on number of ToR) who identify themselves as an ECS and who want to actively</p>

¹ Note that this definition of ‘early-career scientist’ may differ from the definition used in ICES formal administration. According to ICES, an applicant must be under 35 years of age and/or have finished a PhD within the past five years. This definition is used in situations such as administration of travel funds to the ASC.

participate in the organisation and activities of the group. Active participation involves the attendance of meetings, the drafting of documents and setting up events or activities. On application or invitation, core members will need to argue why they identify themselves as an ECS and how they wish to contribute to the goals of the group.

- Participants

Anyone who identifies themselves as an ECS can participate in activities or events organised by the group (e.g., ToR d and e).

Secretariat facilities

Assistance with data collection, organising workshops and with the website (increased functionality).

Financial

Financial and/or in-kind support for annual in-person meetings. Furthermore, many ECS are employed on short-term contracts and/or have stringent demands in terms of publication outputs, which means participation in this Strategic Initiative may come at the expense of other performance indicators for their employers. We therefore wish to incentivise active participation in this Strategic Initiative by offering free or discounted participation in ICES training programs for Members. All core members will have access to benefits (to be negotiated) as acknowledgement of their investment in the SI. We hope to grant chairs access to these benefits for up to one year after 'stepping down' from the position of chair (even if they are no longer a core member of the group) in recognition of leadership duties.

Linkages to ACOM and groups unde ACOM
ACOM

Linkages to other committees or groups

All ICES WGs

Linkages to other organizations

PICES Study Group on Early Career Ocean Professionals (ECOPs), Orienting Young ScienTists of EuromaRine (OYSTER) Network, IMBeR Interdisciplinary Marine Early Career Network (IMECAN), International Conference for YOUNG Marine Researchers (ICYMARE), UN Ocean Decade Early Career Ocean Professionals, Association of Polar Early Career Scientists (APECS), others

Strategic Initiative on Graduate Education (SIGE)

2022/SI/ACOMSCICOM04 A Strategic Initiative on Graduate Education (SIGE), chaired by Margarida Castro*, Portugal, and Gavin Fay*, USA, will work on ToRs and generate deliverables as listed in the table below.

	MEETING DATES	VENUE	REPORTING DETAILS	COMMENTS (CHANGE IN CHAIR, ETC.)
Year 2023	Fall	hybrid meeting – workshop around ICES annual science conference	Report to SCICOM September meeting	
Year 2024	Spring	Remote full-group meeting	Report to SCICOM March meeting	
Year 2024	Fall	hybrid meeting – workshop around ICES annual science conference	Report to SCICOM September meeting	
Year 2025	Spring	Remote full-group meeting	Report to SCICOM March meeting	
Year 2025	Fall	hybrid meeting – workshop around ICES annual science conference	Report to SCICOM September meeting	
Year 2026	Spring	Remote full-group meeting	Report to SCICOM March meeting	

ToR descriptors

ToR	DESCRIPTION	BACKGROUND	SCIENCE PLAN CODES	DURATION	EXPECTED DELIVERABLES
a	Evaluate opportunities for building interdisciplinary, multi-institutional, international graduate/post graduate programs and develop a curriculum which will build capacity to address future ICES advisory needs	Existing graduate programs can accommodate the ICES desired training. Initiatives should indicate the expected working hours to establish correspondence with European, US and Canada credit system.	5.1, 6.6.	3 years	<ul style="list-style-type: none"> a. Identify programs (post-graduate level) that can meet the desired training. b. Sharing courses across institutions (e.g. “open courses”, sharing of teaching materials) c. Create a platform to facilitate all the needs described in ToR across various programs.

<u>SCIENCE PLAN CODES</u>					
TO R	DESCRIPTION	BACKGROUND		DURATION	EXPECTED DELIVERABLES
b	In coordination with the ICES Training Group and ICES Early Career SI, develop resources and programs for short-term and informal learning opportunities	Specific training, for ICES training needs may involve actions that not integrated in formal degree programs.	5.1, 6.6	3 years	<ul style="list-style-type: none"> a. Identify existing opportunities for summer schools, internships, and short courses and map these to identified ICES core competencies. b. Create resources/platform to facilitate sharing courses across institutions c. Establish pathways for student roles within ICES expert groups d. Identify and apply to funding to support student internships e. Shared mentoring/advising of students (e.g. student exchanges, co-advising)
c	Incorporate approaches for broadening participation in training and education opportunities including historically marginalized and minoritized groups	Ensure access to and support for training and education across identities including recognizing intersectionality of identities.	5.1, 6.6	3 years	<ul style="list-style-type: none"> a. Develop resources and metrics to assist training developers to help make trainings open, flexible, and more accessible. b. Prioritize participation from marginalized and minoritized groups in financial support for training opportunities. c. Establish/extend peer-mentoring initiatives as part of SI training programs/opportunities.

Summary of the Work Plan

Cross-cutting activities across all three ToR will include consulting broadly with agencies, universities, early-career professionals, and others to ensure programs and opportunities will be inclusive and address current and future needs. Success of the SI will require coordination with other programs with similar objectives, this provides opportunity to seek synergies and identify linkages, with the overall goal of improving pathways for students to obtain graduate training in the core competencies required for scientists working to develop ICES advice. These partnerships will include institutions involved in scientific research linked to ICES, as well as training institutions, ICES itself, research institutes, government agencies, and eNGOs in the area of conservation and governance. Partnerships with the ability to provide or leverage funding for the SI activities will be developed – it is anticipated that the work of the SI could result in submission of one or more large proposals for funding education initiatives.

The implementation of the activities of the SI will involve coordination among North American and European Universities to develop multi- and trans-disciplinary, multi-institutional coursework, research opportunities and scientific personnel exchanges that will build capacity (through graduate- and post-graduate education) for meeting future ICES science-based advisory needs. The period of the initial ToR duration will last 3 years (2023 to 2026). It is expected that the formal training activities that are part of degree programs (ToR a) could start during the academic year 2025–2026, but this may be dependent on work resulting from subgroup workshops in years 1–2.

Supporting information

Priority	High. This initiative will support long-term capacity building issues in education involving coordination among North American and European Universities to develop multidisciplinary, multi-institutional coursework, research opportunities and scientific personnel exchanges that will build capacity (through graduate- and post-graduate education).
Resource requirements	Secretariat support for running theme sessions, workshops, and conferences.
Participants	SI participants could be drawn from: WKEDU participants. SII ECS steering committee, ICES Training Group, ICES Conference & Training Coordinator, as well as others Specific expertise will be recruited for ToR c).
Secretariat facilities	Assistance with organising workshops and symposia (the latter being dependent on successful symposium resolutions)
Financial	ICES Council has allocated a limited equity budget to support Strategic Initiatives to help SI chairs engage more actively and widely with the scientific community. SI Chairs are requested to seek reimbursement approval in advance with the ICES Head of Science Department.
Linkages to ACOM and groups under ACOM	ToR include developing/extending pathways for student participation in expert working groups, including assessment review groups. Coordination with SCICOM-ACOM Steering Committees such as IEASG, FRSG, and HAPISG would seem an initial first step
Linkages to other committee or groups	SII ECS, ICES Training Group, SICCME, SIHD, ICES-PICES Ocean Decade/IPOD-SC
Linkages to other organizations	PICES, IMBER, DG RTD