



PICES Contracting Parties:
Canada, People's Republic of China
Japan, Republic of Korea, Russian
Federation, United States of America



Section on Climate Change Effects on Marine Ecosystems Joint Expert Group with ICES (International Council for the Exploration of the Seas)

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Climate Change Effects on Marine Ecosystems

S-CCME Goals

- Define, coordinate and integrate research activities to understand, assess and project climate change impacts on marine ecosystems;
- Plan strategies for sustaining the delivery of ecosystem goods and services, including quantifying estimates of uncertainty;
- Quantify the vulnerability and sustainability of marine ecosystems to climate change, including cumulative impacts and synergistic effects of climate and marine resource use;
- Develop global ocean prediction frameworks through international collaborations and research that build upon PICES and ICES monitoring.

Phase 1: 2012-2014

- Synthesis of existing knowledge
- Advancement of new science and methodology
 - Engage the global Earth system modelling community
 - Build response scenarios for human responses to climate change
- Communication and integration of science through international symposia

Phase 2: 2015-2017

- Hold workshops and topic sessions to advance climate change science effects on marine ecosystems
- Improve forecasts with IPCC AR5 scenarios
- Quantify uncertainty
- Develop regional synthesis reports
- Initiate training for projecting climate change impacts on marine ecosystems
- Foster collaboration with the global climate change community



Workshop on Modelling effects of climate change on fish and fisheries, Seattle, USA, 2015

Regions in the Northern Hemisphere where preliminary biophysical models could be applied.

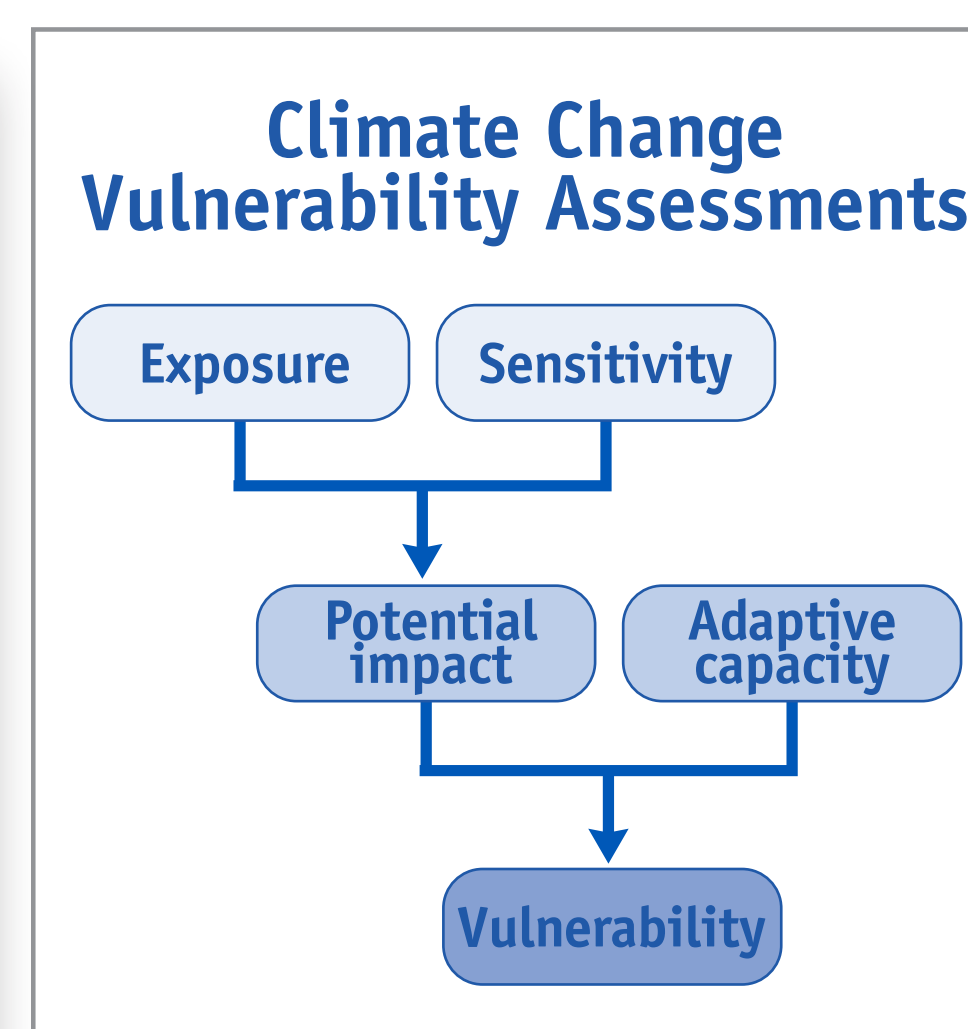
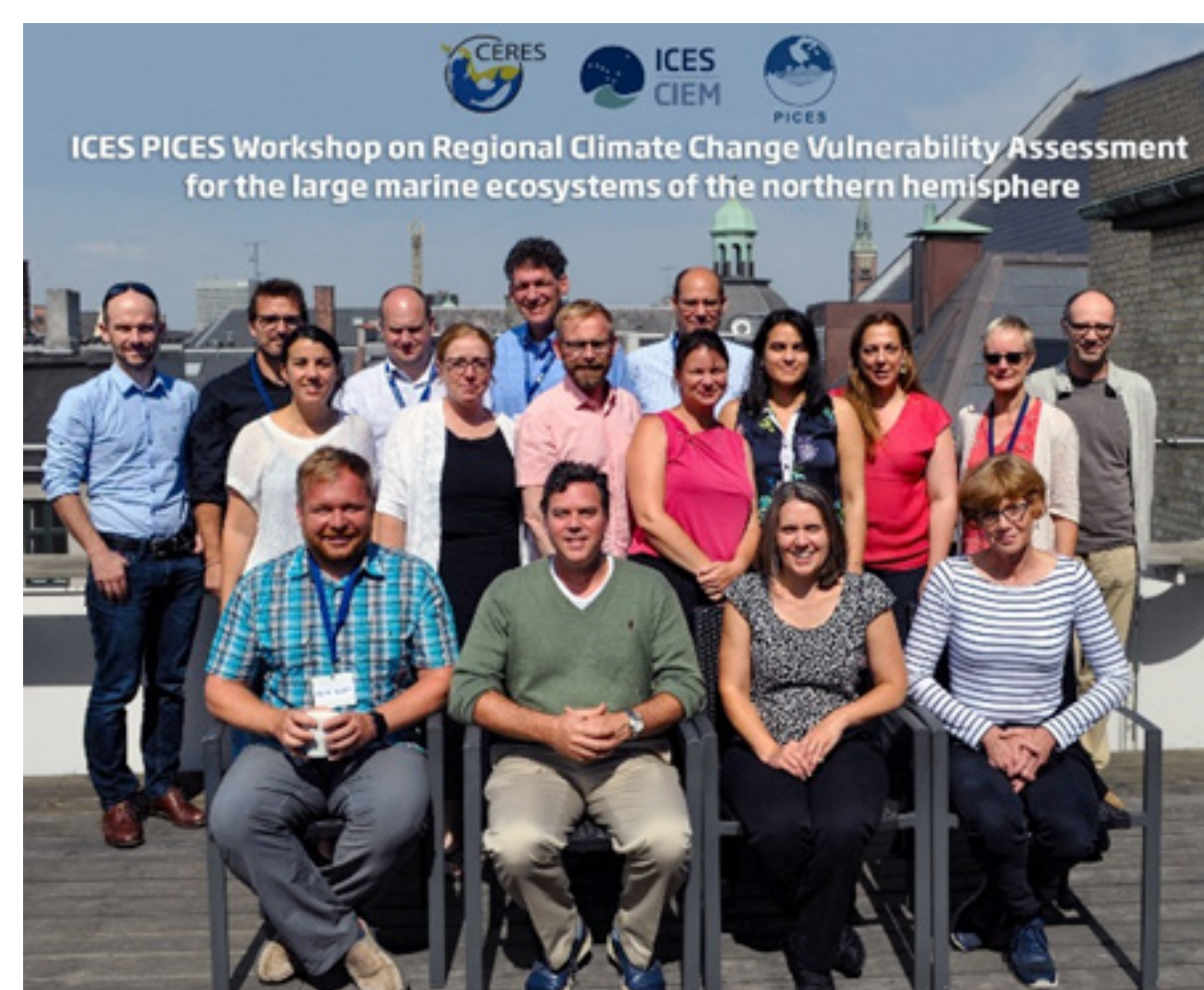
Region	Country(s)	Preliminary Suite of Models
East China Sea	China	EwE, Size Spectral
Korean coastal waters	Korea	SSCEM, IBM, EwE
Japanese coastal waters	Japan	SSCEM, IBM, Fish2Fishers
Sea of Okhotsk and Western Bering	Russia	SSCEM
Western Canadian shelf	Canada	OSMOSE (size-based IBM), Atlantis
Strait of Georgia (Western Canada)	Canada	EwE, OSMOSE
Scotian Shelf (Atlantic Canada)	Canada	EwE
Southeast Bering Sea	USA	SSCEM, MSCEM, EwE, Size Spectral, End-to-End
Chukchi Sea/Beaufort Sea	USA	to be determined
Gulf of Alaska	USA	SSCEM, MSCEM, EwE
California Current	USA	SSCEM, Atlantis, Fish2Fishers
Central Pacific	USA	EwE, Size Spectral
Gulf of Mexico	USA	SSCEM, Atlantis, IBM
Georges Bank/Gulf of Maine	USA	SSCEM, Atlantis
Barents Sea	Norway	Atlantis, IBM
Norwegian Sea	Norway	MSCESM, Size Spectral, IBM
North Sea	UK, Ireland, France, Norway, Germany	SSCEM, MSCEM, Size Spectral, EwE, IBM, Atlantis
Baltic Sea	Denmark, Germany	MSCEM, IBM, Size Spectral

IBM-Individual Based Model; EwE-Ecopath with Ecosim; OSMOSE-Object-oriented Simulator of Marine eoSystEm Exploitation; SSCEM-Single Species Climate Enhanced projection Models; MSCEM-MultiSpecies Climate Enhanced projection Models; Fish2Fishers-full life cycle IBM

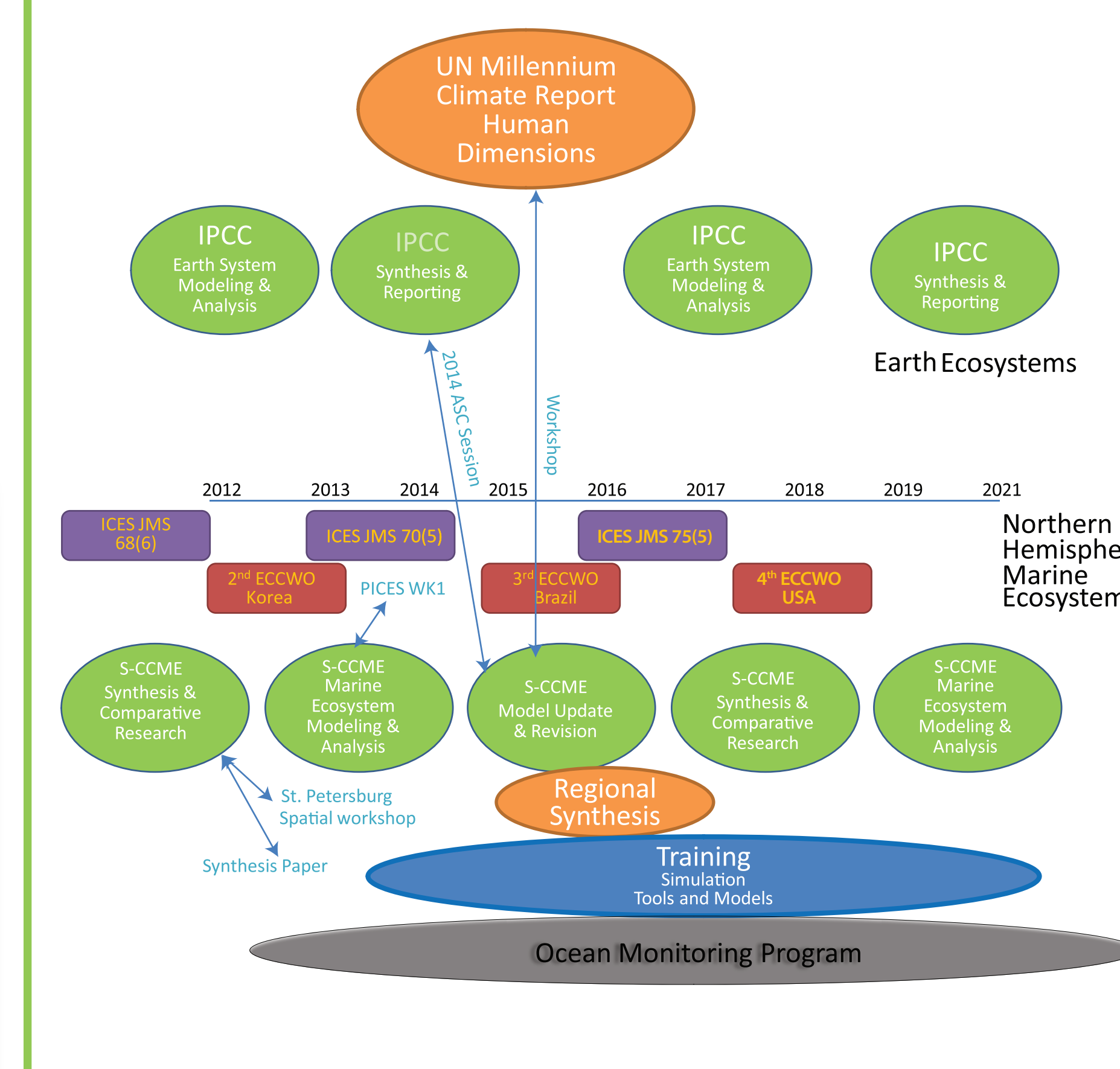
S-CCME has organized 25 workshops or topic sessions at PICES/ICES Annual Meetings or Symposia since 2012.

Phase 3: 2018-2020

- Will add training
- Considerations of data storage and exchange
- Emphasize comparative analysis and synthesis
- Focus more on communication and outreach
- Continue projection modeling of ecosystems throughout the North Atlantic and North Pacific
- Improve communication innovations and analytical approaches
- Convene an international symposium (ECCW04) in 2018



S-CCME'S Contributions to International Climate Impact Assessments



Committee membership and various reports and information are available at the following sites:
<http://meetings.pices.int/members/sections/S-CCME>
<http://www.ices.dk/community/groups/Pages/SICCME.aspx>

