

# ClimEco7

## Virtual Summer School

9-13 August 2021

### Interdisciplinary ocean science for sustainable development

IMBeR supports the Sustainable Development Goals

Spanning more than 70% of the Earth's surface, the ocean is home to some of the most critical ecosystems on the planet. The ocean also supports the livelihoods, food security and cultural wellbeing of hundreds of millions of people. Yet, our oceans are under threat. Oceans are becoming hotter, more acidic, less biodiverse and losing oxygen. Given these challenges, interdisciplinary ocean science is needed to generate rigorous data, conclusions and projections that can inform effective ocean governance, shape 'blue' sustainable development initiatives, and support social-ecological sustainability. Indeed, the upcoming UN Decade of Ocean Science for Sustainable Development (2021-2030) aims to provide "the science we need, for the ocean we want". To this end, the ClimEco7 Summer School aims to foster excellence in interdisciplinary ocean science. Drawing on the expertise of lecturers from the natural, social and economic sciences, participants will develop a strong theoretical and applied understanding of interdisciplinary ocean science. To complement the theoretical content, participants will also gain practical skills through a variety of interactive workshops.

#### Lecturers

Jessica Blythe (Convener) – Brock University, Canada  
 Laurent Bopp – LSCE, France  
 Stephanie Brodie – NOAA, USA  
 John Claydon – IMBeR, Canada  
 Chris Cvitanovic – ANU, Australia  
 Beth Fulton – CSIRO, Australia  
 Rashid Sumaila – University of British Columbia, Canada  
 Ingrid van Putten – CSIRO and University of Tasmania, Australia

#### Participants

Post-graduate students (Masters and PhD) and early-career scientists with an interest in a broad range of topics such as oceanography, marine ecology, fisheries, climate change and social and economic aspects of marine ecosystems are encouraged to apply. Those with an interest in finding out more about practical ways to deal with the challenges arising from working across social and natural science disciplines are especially encouraged to participate in the summer school. Due to the hands-on nature of the summer school and to ensure good interactions and discussions, only 60 participants will be accepted.



ClimEco7 is an endorsed United Nations Decade of Ocean Science for Sustainable Development activity.

#### Topics to be covered

##### *Interdisciplinary ocean science for sustainable development*

- Introduction to the UN's Ocean Decade and SDGs
- Transdisciplinary ecology and social science approaches to ocean science
- Transdisciplinary knowledge production for sustainable oceans
- Connections of SDGs – how they work together or against each other

##### *Climate change and the world's oceans*

- Introduction to the IPCC and SDG 13 – Climate Action
- Delineating the issues of climate change and impacts to marine ecosystems
- Biogeochemical impacts of climate change on the world's oceans
- Ecological/biodiversity impacts of climate change
- Economic impacts of climate change in marine ecosystems
- Social impacts of climate change in marine ecosystems
- Communicating climate change, behavioural economics

##### *Introduction to modelling*

- Modelling basics
- Overview of ecological modelling types (including coupling models)
- Economic and bio-economic modelling
- Network Modelling, Qualitative modelling
- Species distribution models
- Climate modelling, predictions and uncertainty

##### *Managing marine resources*

- Key concepts in marine policy and governance, and improving knowledge exchange
- Unexpected management outcomes (and how to avoid them)
- Using models/projections to support decision-making processes
- Blue Justice (exploring social justice) and marine management
- Managing the high seas
- Connecting marine science with policy and practice.

##### *Workshops interspersed between lectures*

- How to write successful research grants
- Science communication, including infographics
- How to write a good scientific paper
- Citizen science
- Designing surveys and questionnaires
- Academic writing

#### Free Registration