PICES

Working Group 40

Climate and Ecosystem Predictability

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Climate and Ecosystem Predictability

Goal

To identify, diagnose and quantify predictable response in North Pacific marine ecosystems that arise from regional- and large-scale climate processes.

Chairs

Mike Jacox (PICES)
Masami Nonaka (PICES)
Antonietta Capotondi (Clivar)
Ryan Rykaczewski (Clivar)

Working Group 40

Climate and Ecosystem Predictability

PICES FUTURE Research Themes

1. What determines an ecosystem's intrinsic resilience and vulnerability to natural and anthropogenic forcing?

2. **How do ecosystems respond to natural and anthropogenic forcing, and how might they change in the future?**

3. How do human activities affect coastal ecosystems and how are societies affected by changes in these ecosystems?

Working Group 40

Climate and Ecosystem Predictability

PICES FUTURE Research Themes

2. How do ecosystems respond to natural and anthropogenic forcing, and how might they change in the future?

2.3. How does physical forcing, including climate variability and climate change, affect the processes underlying ecosystem structure and function?

2.6. How can understanding of these ecosystem processes and relationships, as addressed in the preceding sub-questions, be used to forecast ecosystem response?

Working Group 40

Climate and Ecosystem Predictability

Terms of Reference:

1. Identify a set of North Pacific ecological indicators and/or marine ecosystem functional responses of fish and shellfish, which show predictable responses to large- and regional-scale climate forcing;
2. Quantify the predictability of the regional ecosystem drivers that are controlled by large-scale climate variability and change;
3. Identify dynamical and statistical modeling frameworks for climate and ecosystem predictability;
4. Identify how and which ecosystem predictions can be integrated in the management of ecosystem services;
5. Identify climate and ocean products that can be used to begin making predictions of North Pacific marine ecosystems;
6. Outcomes and synergies with international efforts.

Working Group 40

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Session PICES-ECCWO June 2018
"From Prediction to Projection:
The role of Seasonal to Decadal Forecasts in a Changing Climate"
Co-Convened with Mark Payne (ICES)

6. Outcomes and synergies with international efforts.

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3. Id… and e…
4. Id… the management of ecosystem services;
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PICES 2018 Annual Meeting Topic Session:
"Ecological responses to variable climate changes and their applicability to ecosystem predictions"

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4.
5.
6. Outcomes and synergies with international efforts.

Working Group Activity:

"A Census of Marine Ecosystem Forecasting Efforts in the North Pacific"

Working Group 40

Climate and Ecosystem Predictability

Plans for upcoming year

Working Group 40

CLIMATE AND ECOSYSTEM PREDICTABILITY

Intersessional Workshop in 2019:
"Toward an integrated approach to understanding ecosystem Predictability in the North Pacific "

2. Quantify the predictability of the regional ecosystem drivers that are controlled by large-scale climate variability and change;
3. Identify dynamical and statistical modeling frameworks for climate and ecosystem predictability;
4. Identify how and which ecosystem predictions can be integrated in the management of ecosystem services;
5. Identify climate and ocean products that can be used to begin making predictions of North Pacific marine ecosystems;
6. Outcomes and synergies with international efforts.

Working Group 40

Climate and Ecosystem Predictability

Terms of Reference:

1. Identify key North Pacific marine biological indicators and processes in ecosystem predictions;

Proposed Session for PICES Annual Meeting 2019:
"Advances in North Pacific Marine Ecosystem Predictions"

2. Quantify the predictability of the regional ecosystem drivers that are controlled by large-scale climate variability and change;
3. Identify dynamical and statistical modeling frameworks for climate and ecosystem predictability;
4. Identify how and which ecosystem predictions can be integrated in the management of ecosystem services;
5. Identify climate and ocean products that can be used to begin making predictions of North Pacific marine ecosystems;
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Working Group 40

CLIMATE AND ECOSYSTEM PREDICTABILITY

Activities planned for the coming year:

Intersessional Workshop (TORs 2-6)

Toward an integrated approach to understanding ecosystem predictability in the North Pacific

Goal is to understand the sources of predictability from large-scale climate in different region of the North Pacific, compare and contrast different parts of the basin, then examine the impact of regional processes on specific forecasting activities.

Possible venues: FIO, Qingdao, China (May or June 2019); Japan (Intersessional Science Board Meeting); Honolulu, HI (OceanObs'19 meeting)

Working Group 40

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Activities planned for the coming year:

Proposed session for PICES Annual Meeting 2019 (TORs 2-6):

"Advances in North Pacific Marine Ecosystem Predictions"

We will seek co-sponsorship of CLIVAR, involve ICES and NOAA/MAPP Marine Prediction Task Force