

# New Study Group

## Climate and Ecosystem Predictability

A PICES/CLIVAR Joint effort

1. Background
2. Developing Terms of Reference
3. Synergies with CLIVAR Upwelling FOCI
4. Synergies with ICES



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## Climate and Ecosystem Predictability

WG27

Mechanisms

WG28

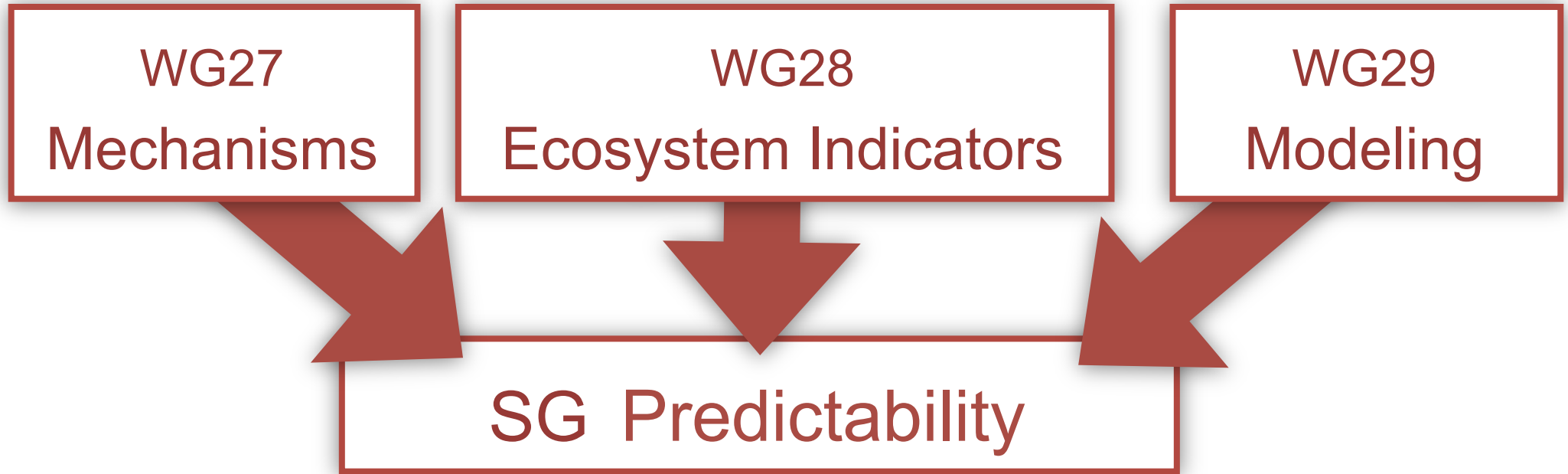
Ecosystem Indicators

WG29

Modeling

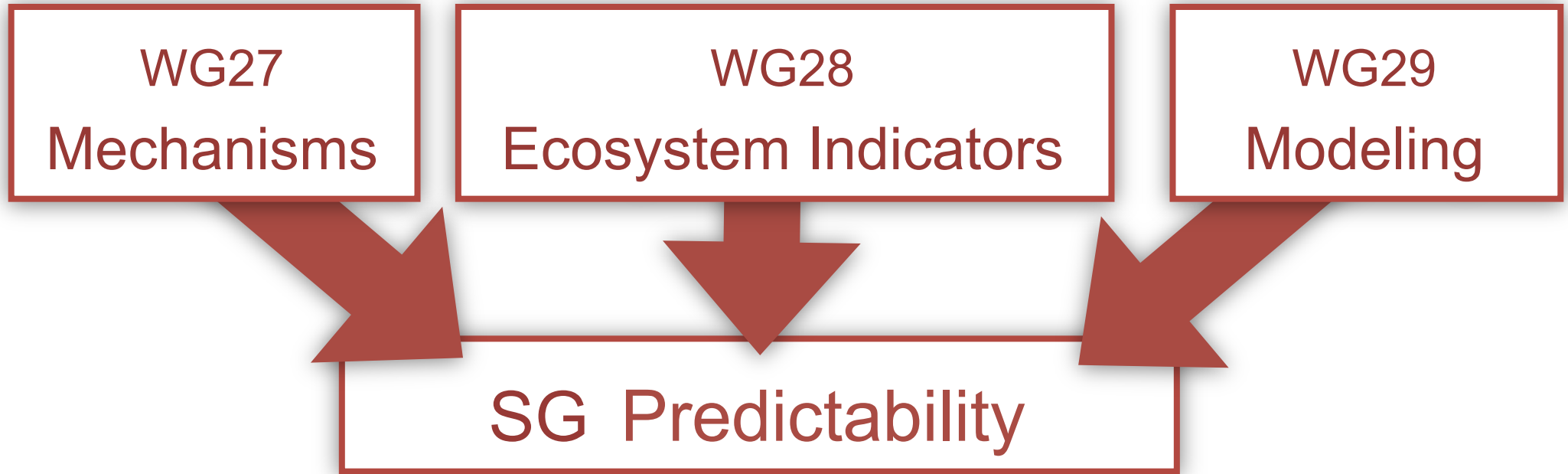
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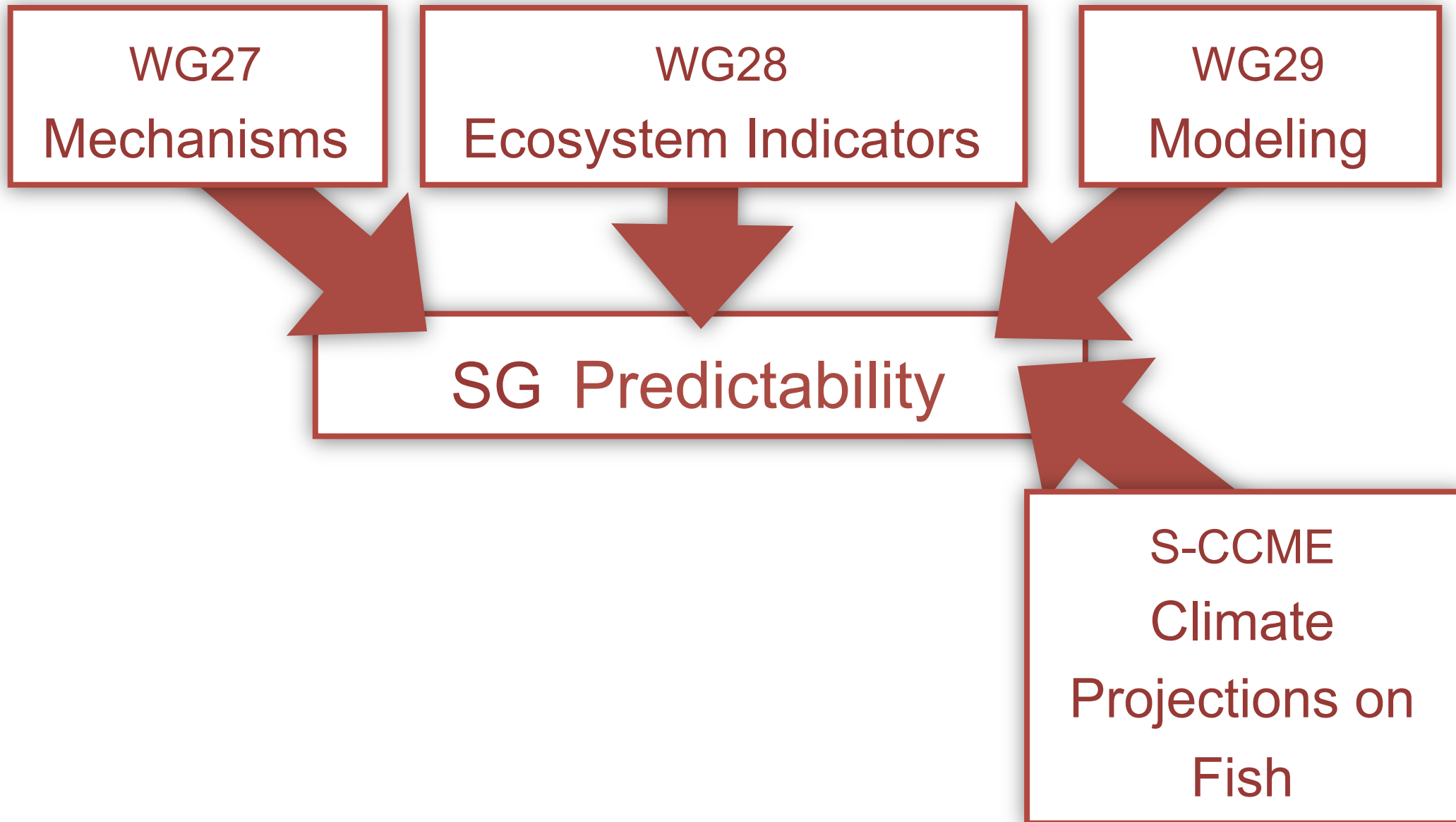
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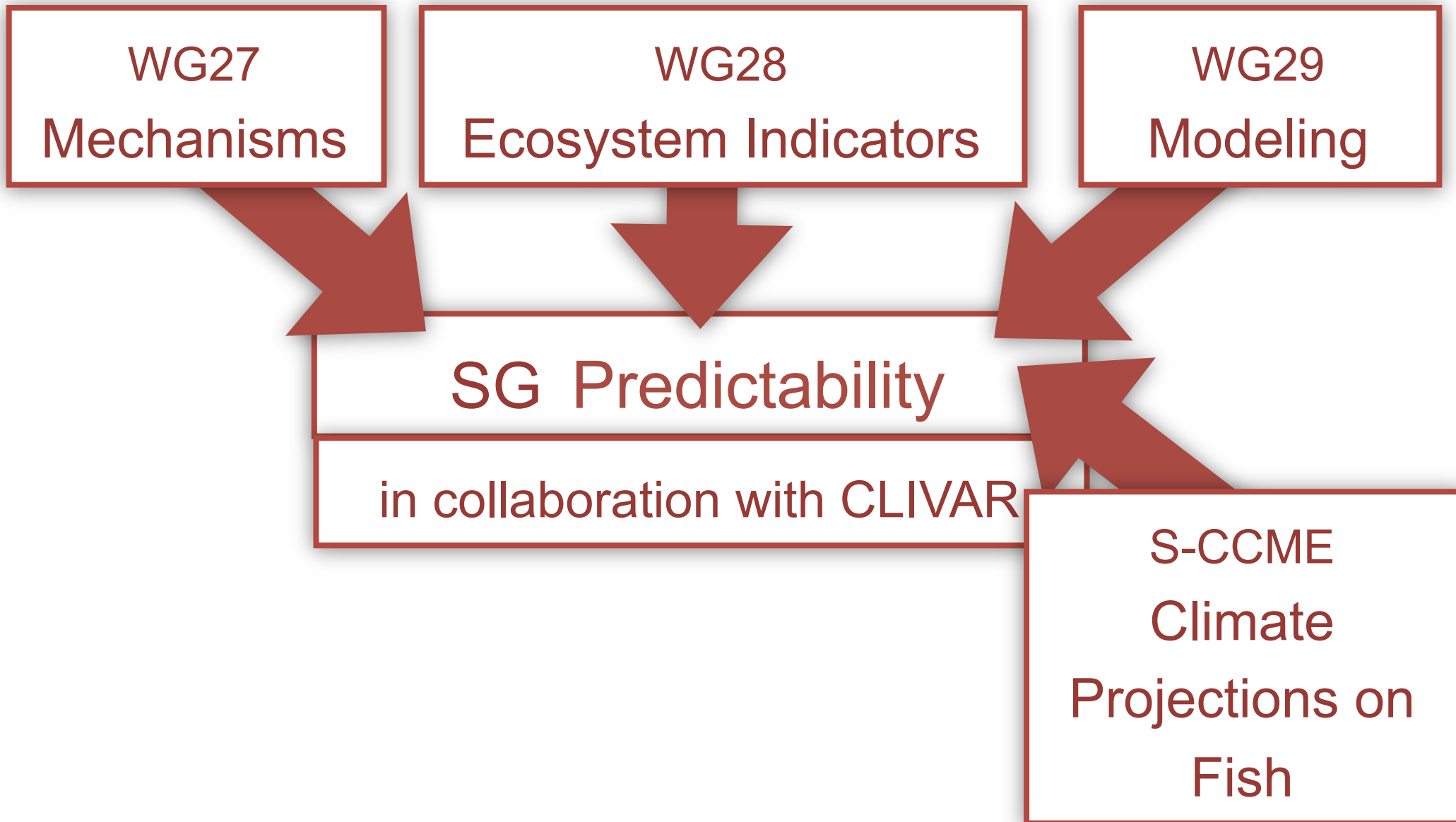
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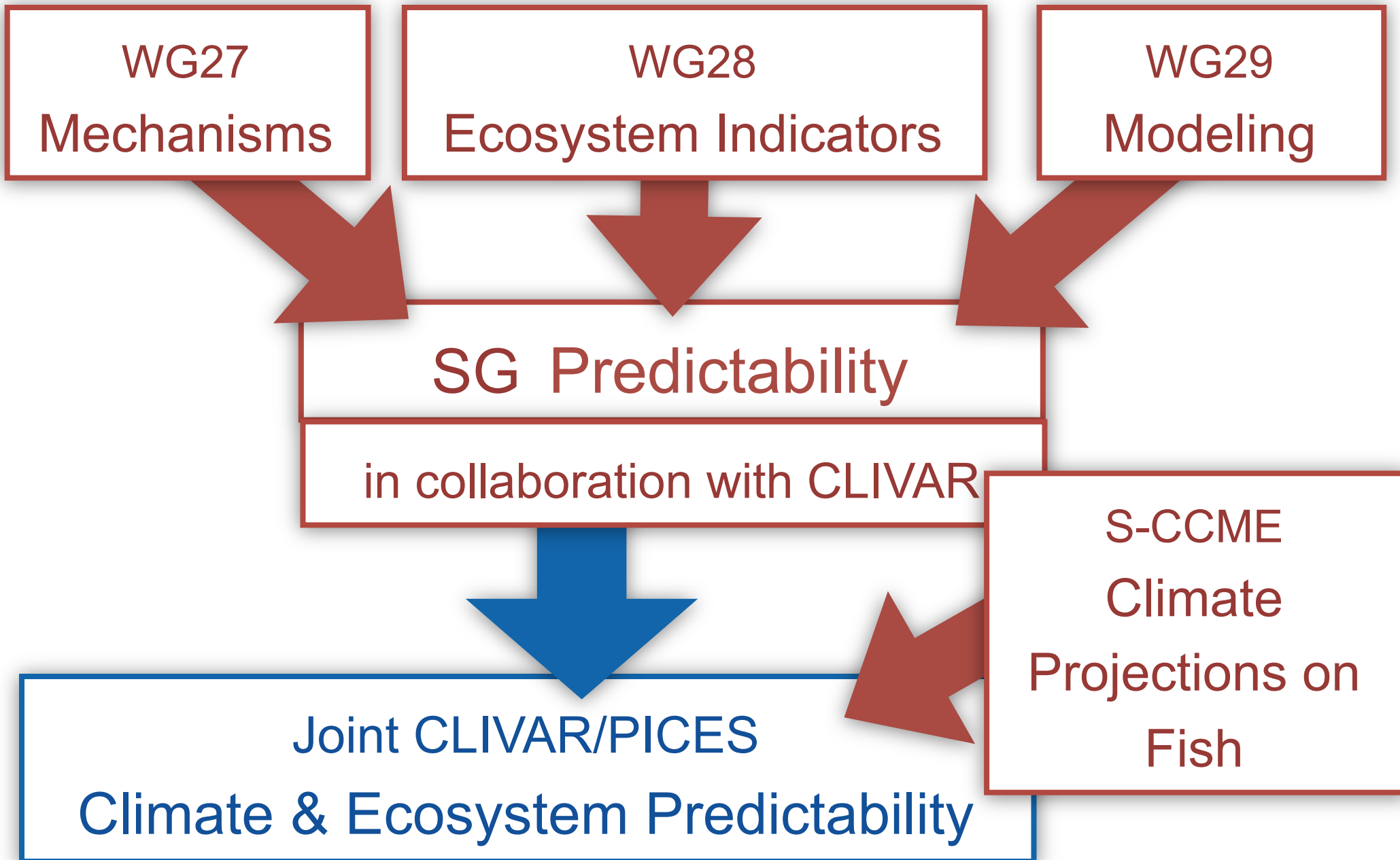
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## Climate and Ecosystem Predictability



# Section: Climate Change Effects on Marine Ecosystems (S-CCME)

Chairs: Shin-ichi Ito & Anne Hollowed

## Goals

Coordinate research activities on how climate change will impact marine ecosystems

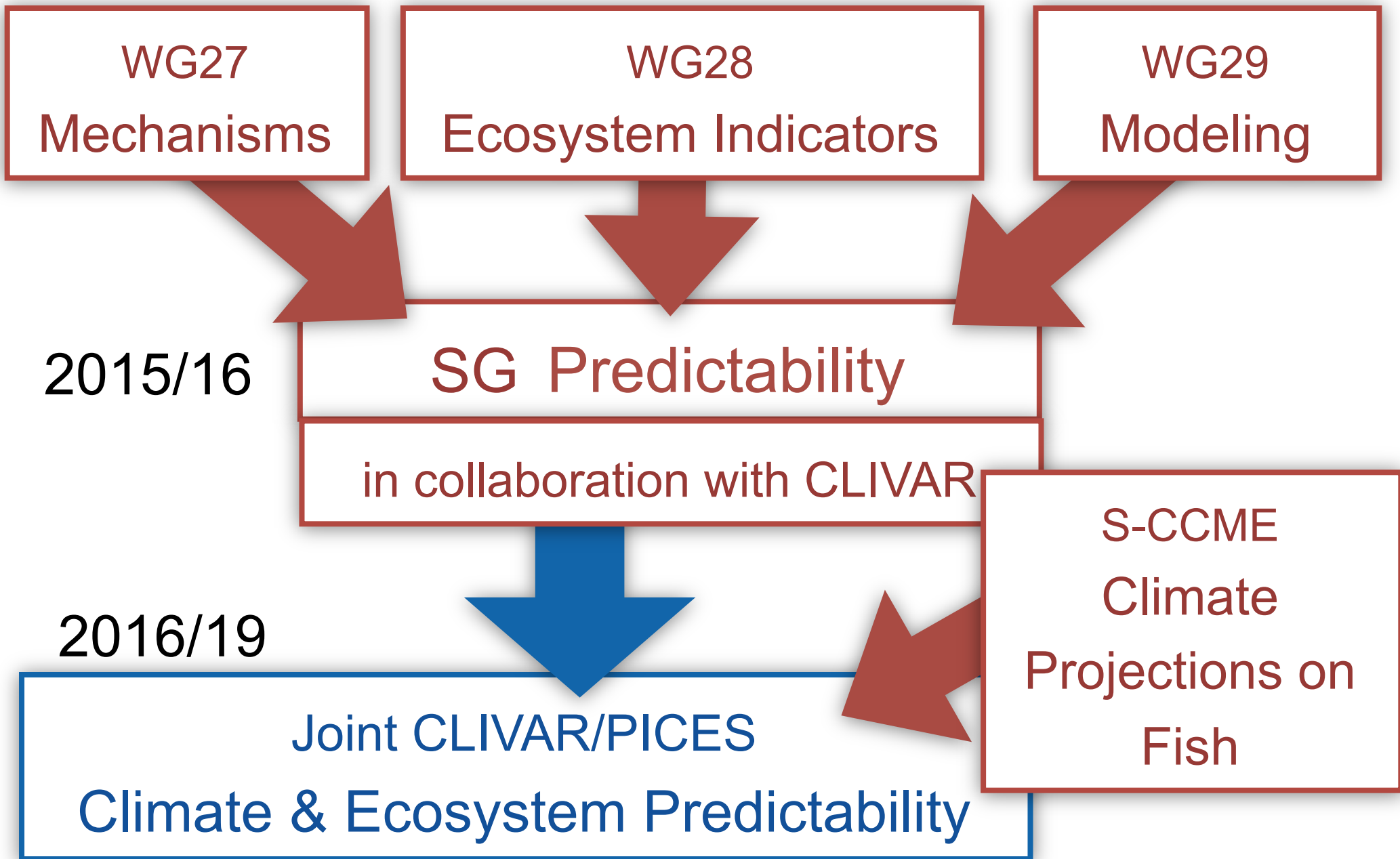
Plan strategies for sustaining delivery of ecosystem goods and services

Define and quantify vulnerability of marine ecosystems to climate change

Build global ocean prediction frameworks through international collaborations

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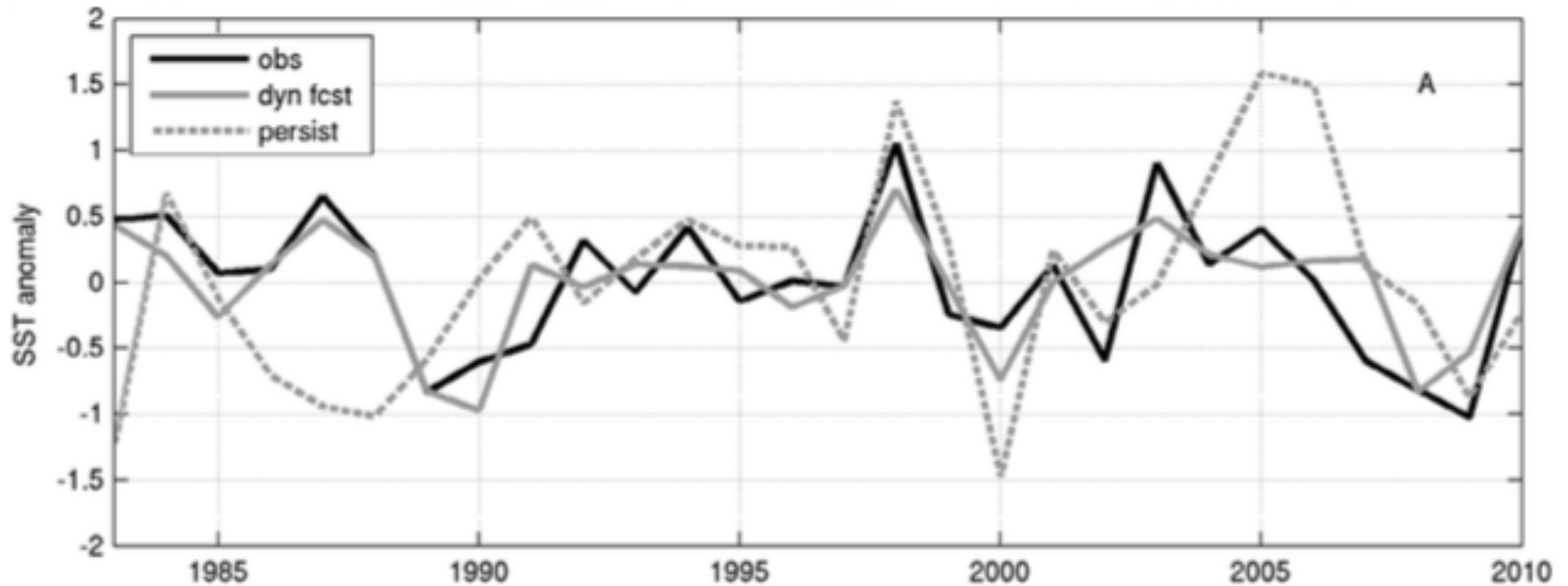
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Stock, C.A., and Co-Authors (2015): Seasonal sea surface temperature prediction for coastal ecosystems. Prog. Oceanogr.



Predictions of Feb-Mar SST in Gulf of Alaska LME from 1 August initializations using CM2.5 FLOR model

Skill attributable to advection of offshore SST anomalies into coastal zone and winter surface heat flux anomalies

# CLIVAR Research FOCI

## Eastern Boundary Upwelling Systems

Present models of upwelling systems show large biases, impacting climate simulations.

There is a need to identify the key physical processes that are responsible for upwelling and improving their representation in models.

# Terms of Reference of ICES Working Group on Seasonal-to-Decadal Prediction of Marine Ecosystems (WGS2D)

Chair: Mark Payne (Denmark)

1. Identify case studies of *predictable* biological variables
2. Review methods for assessing predictability
3. Assess predictability for selected studies based on 1 & 2
4. Develop protocols for delivery of operational forecasts
5. Deliver forecast products
6. Coordinate with PICES SG-CEP

# WGS2D Additional Specifics

Case Studies (1) – Survey current needs within the ICES community for products that can be used directly; review state of the knowledge on linkages between physics and biology.

Protocols for Forecast Delivery (4) – Open-source code for processing data and generating predictions; standardized formats for communicating basis, skill and uncertainties in prediction

Delivery of Forecasts (5) – Operational products developed and delivered to endusers

# Terms of Reference for PICES Study Group on Climate & Ecosystem Predictability

1. Identify a set of North Pacific climate mechanisms that can be used for predicting physical, chemical and biological processes that impact the marine ecosystem and its food web dynamics.
2. Identify a set of North Pacific ecological indicators and/or marine ecosystem functional responses of fish and shellfish, which are impacted by the forcing processes identified in (1).
3. Identify modeling frameworks for climate and ecosystem predictability
4. Develop terms of reference for a Joint PICES/CLIVAR working group on Climate & Ecosystem Predictability

# PICES Study Group - Brass Tacks

1. Conduct conference calls and other exchanges to identify specifics of elements in previous list.
2. Develop a more complete set of terms of reference based on deliberations of the study group.
3. Provide report at PICES Annual Meeting in November 2016.

Participants – Manu DiLorenzo, Fang Li

Antonietta Capotondi, Kyung-Il Chang, Enrique Curchitser,  
Anne Hollowed, Chan-Joo Jang, Hyoun-Woo Kang, Xiaopei Lin,  
Shoshiro Minobe, Ian Perry, Ryan Rykaczewski, Charles Stock