

Developing Future Scenarios for Climate Change in the California Current Ecosystem

*Follow up from a Workshop Co-Sponsored by The Nature
Conservancy and Pacific Fishery Management Council
in Support of the Fishery Ecosystem Plan Climate and
Communities Initiative*

Pacific Fishery Management Council, March 7, 2020

Points to Discuss

1. Review meeting report and meeting output
2. Validation of high-level scenarios
3. Feedback / input on focal group process
4. Deepening of high-level scenarios

Detailed Steps

ESTABLISH

Council decides to undertake a scenario exercise

Determine the focus and goals of the investigation

Train a core team in the essentials of scenario planning

RESEARCH

Review existing materials on forces driving change

Interview a selection of stakeholders / experts

Discussions with Advisory Bodies and Council to gather additional views

CREATE

Synthesize ideas to create initial 'building blocks' for scenarios

Design and prepare for a scenario creation workshop

Conduct workshop (January 2020)

VALIDATE

Construct first draft scenarios

Present to Council (March 2020)

Edit and enhance scenarios as required (March 2020)

APPLY

Use refined scenarios to inform a series of 'implications conversations' with various stakeholders (April-June 2020)

Create final report for Council (September 2020):

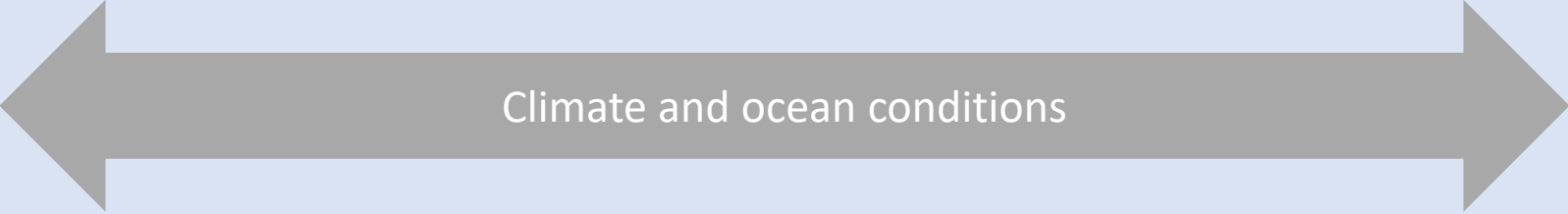
- **Scenarios:** *what futures should we prepare for?*
- **Insights:** *what do these futures mean for us, other stakeholders?*
- **Process tools:** *(how) should we use this approach more regularly?*

Scenario Summaries

- I. *A world of changing ocean conditions, moderate unpredictability, and relatively few extreme events coupled with high and/or increasing stock abundance. Alongside these biophysical effects, this is a world where west coast fishing is supported through trade policies, a shift in societal values, and increasing consumer demand for wild caught fish.*
- II. *A world of rapidly changing ocean conditions, high unpredictability, and frequent and intense extreme events (e.g., storms, marine heatwaves,) coupled with high and/or increasing stock abundance for some species. Alongside this surprising combination of circumstances there is greater investment in, and use of, data monitoring technologies, helping fishing communities prepare for surprises.*
- III. *A world of rapidly changing ocean conditions, high unpredictability, and frequent and intense extreme events coupled with low and declining stock abundance. This difficult set of circumstances is compounded by market conditions (consolidation, aging of the fleet, and demand declines) that leads to a hollowing out of the commercial fishing industry.*
- IV. *A world of changing ocean conditions, a moderate level of unpredictability, and relatively few extreme events coupled with low and declining stock abundance. Alongside these biophysical effects, this is a world where aquaculture and other commercial ocean uses become more popular, changing the dynamic and make-up of fishing communities.*

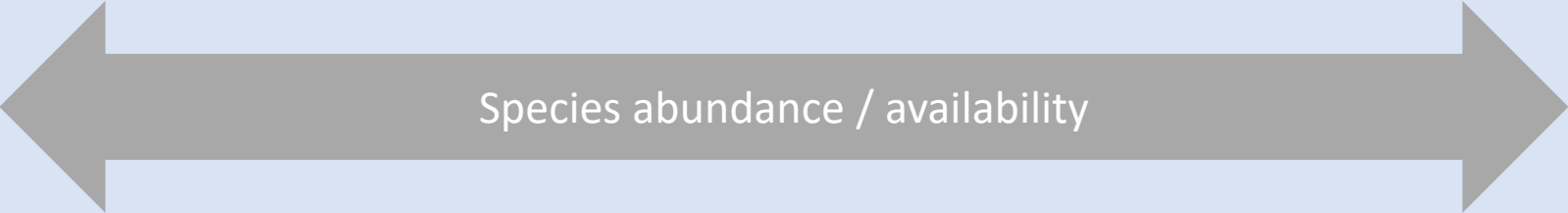
Climate and Stock Uncertainties

Mostly steady changes,
Few extreme events

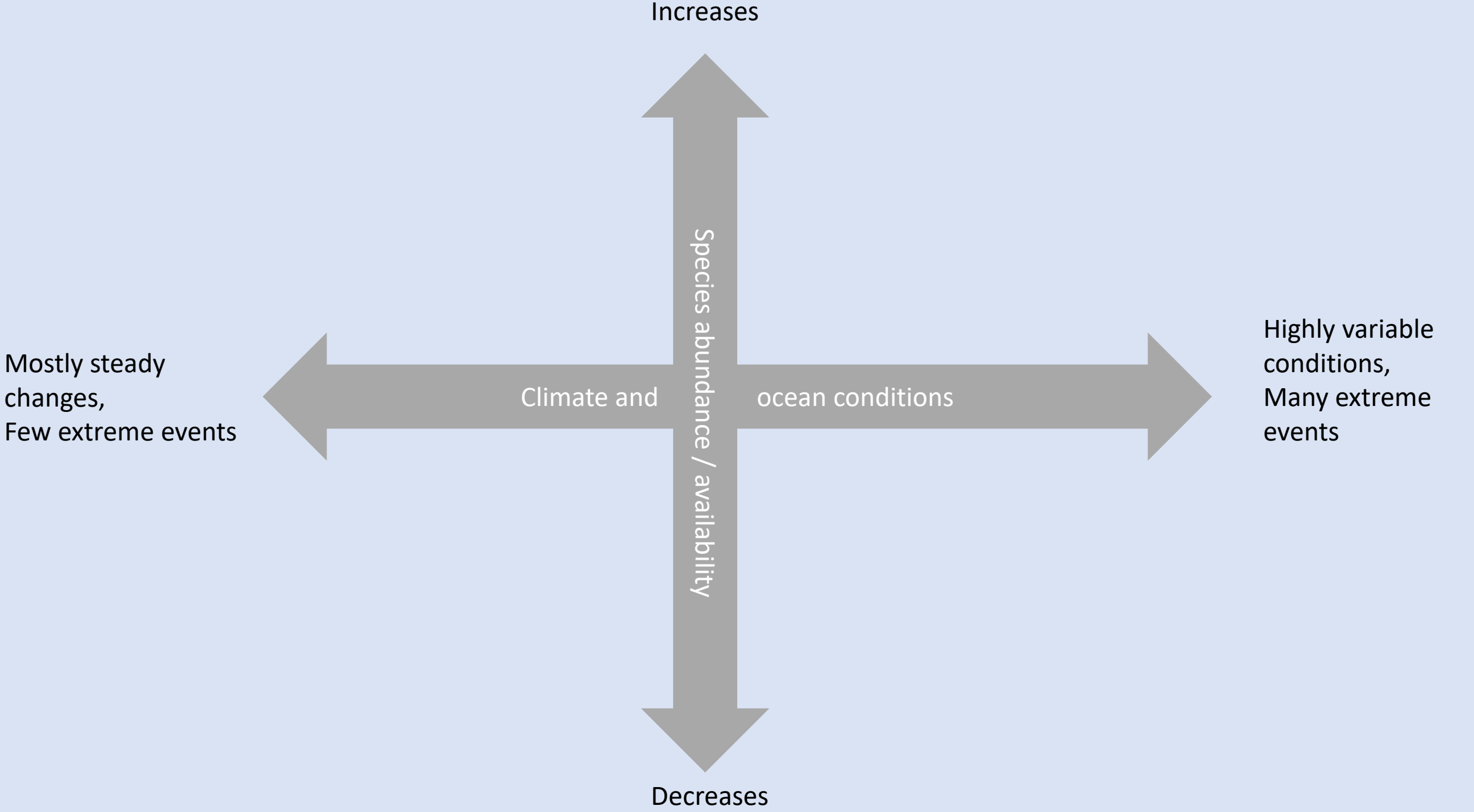


Highly variable conditions,
Many extreme events

Decreases



Increases



Important Social / Economic / Market Developments

Policy environment to support local and sustainable fishing?

Increased availability / use of data and monitoring technology?

Consolidation, consumer demand and demographic changes that challenge the industry?

Growth in competing ocean uses (e.g. aquaculture, energy)?

Increases

Policies to support local and sustainable fishing

*Increased use of data and monitoring technology
Consolidation, consumer demand and demographic changes that hollow out the industry
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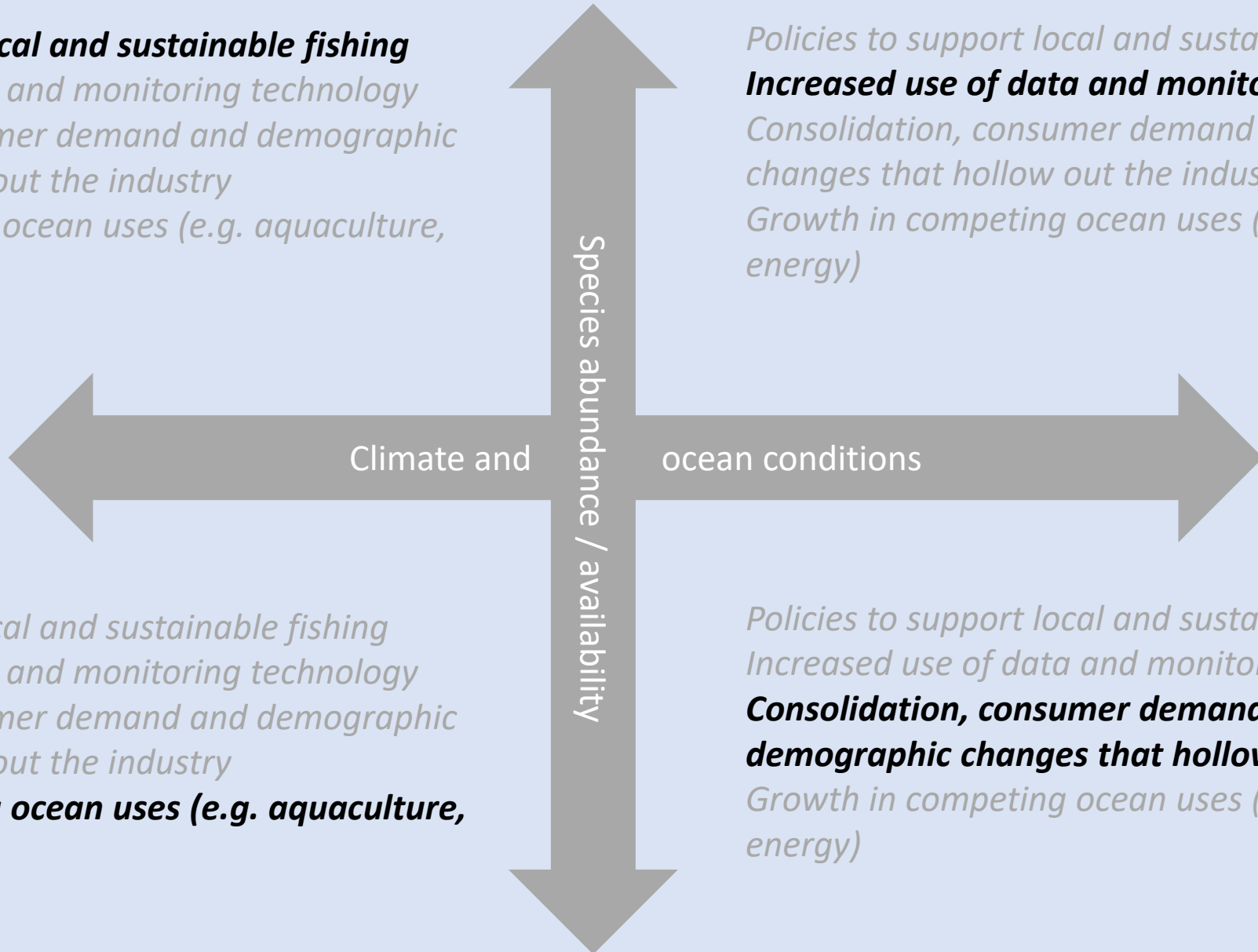
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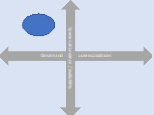
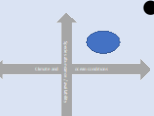
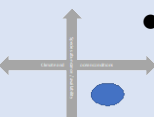
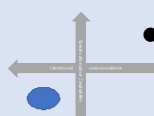


Climate and

ocean conditions

Species abundance / availability

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Initial Validation

- Are these scenarios plausible, challenging, relevant, memorable, and divergent?
- Are there important future possibilities that currently do not 'fit' into any of these scenarios?
- Is there a better way to frame the range of biophysical and societal uncertainties into 3-5 coherent stories?
- Are these scenarios a valuable way to structure discussions with specific focal groups?

Feedback / Input on Focal Group Process





- Which groups / constituencies and communities should be asked to participate in the focal groups?
- Where should any meetings be held, recognizing that resources could constrain the number of meetings and locations?

Scenario Deepening





Depending on the audience and purpose of the next phase of scenario conversations, we have choices over how to enhance/deepen the scenarios:

- Adding details to each scenario to make the narratives more plausible, challenging, relevant, memorable, and divergent
- Adding data / quantitative assessments or metrics that can describe important aspects of each scenario
- Imagining emblematic events (or 'what-if' contingencies) to provide powerful illustrations of each scenario

Describing the Scenario: Key Elements Table

	Fortune and Favor	Box of Chocolates	Hollowed Out	Blue Revolution
				
Key climate conditions?				
Key ocean conditions?				
Stock productivity / abundance?				
Examples of ecological shocks?				
Coastal infrastructure?				
Fishing industry structure?				
Use of technology?				
Policy environment?				
Market conditions?				
Suggestions for Alternative Titles?				

Generating Ideas: Key Actions Table

	Fortune and Favor	Box of Chocolates	Hollowed Out	Blue Revolution
				
Investment in technology?				
Investment in infrastructure?				
Decision-making processes?				
Support for fishermen?				
Relationships?				
Role and scope?				