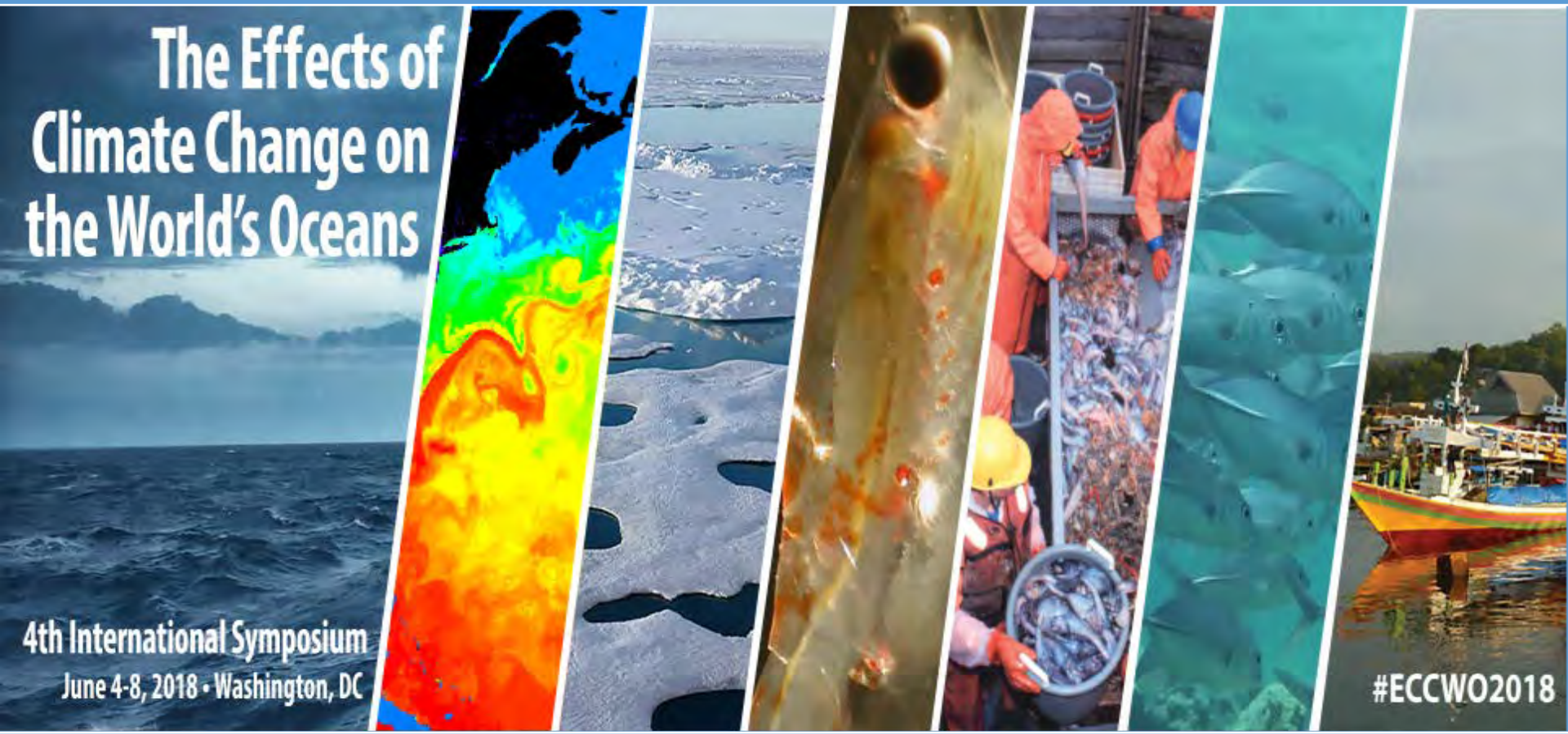

The Effects of Climate Change on the World's Oceans
4th International Symposium
June 4-8, 2018 • Washington, DC
#ECCWO2018

Index Card Questions

Side 1: What were <u>your</u> key highlights from the week?

Side 2: How has your thinking changed? What is different as you head home?

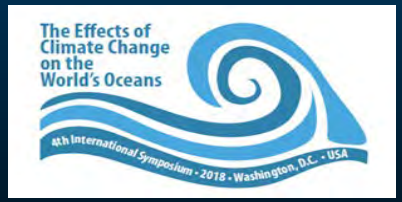
Announcements

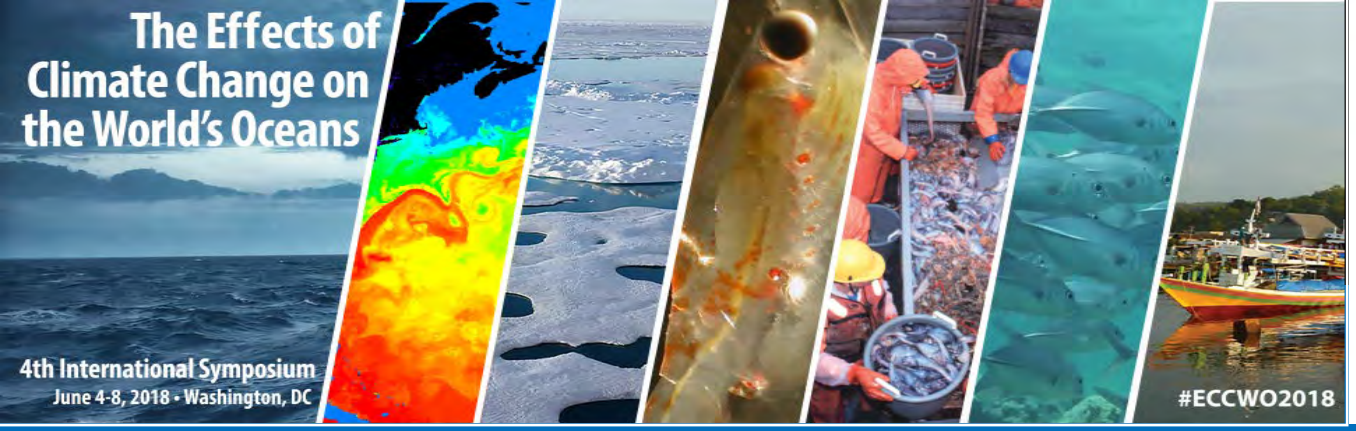
Share your work!

- NOAA is seeking presentations for their OneNOAA seminar series.
- Contact Tracy.Gill@noaa.gov to sign up today.

How was ECCWO 2018?

- On-line survey coming to you next week
- Your input will help shape ECCWO 5!





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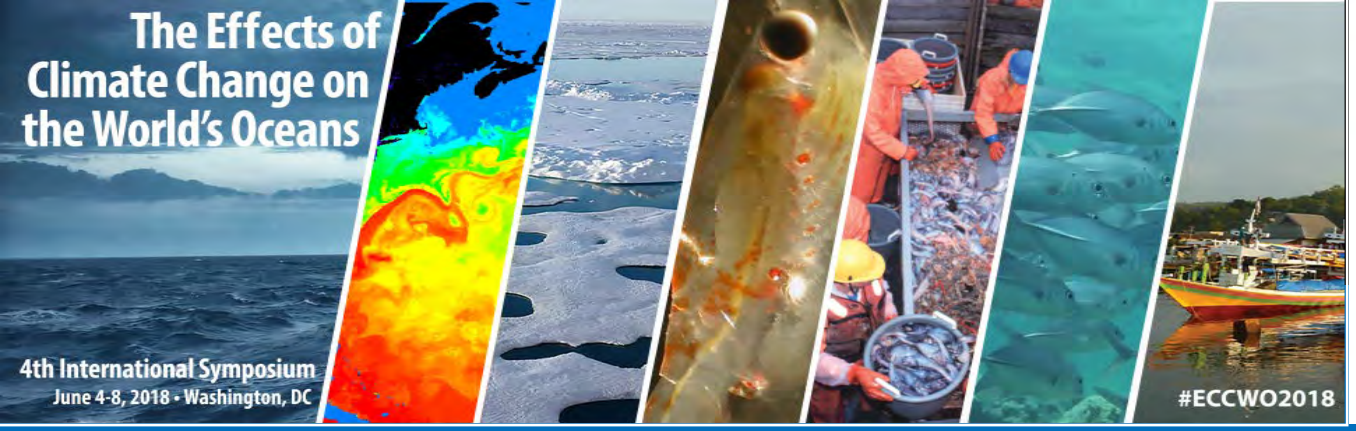
By the numbers:

669 Registrations
51 Countries
18 Sessions
11 Workshops
4 Town Halls
3 Receptions

14 Plenary Speakers from
12 Nations
350 Oral presentations
158 Posters
102 Students



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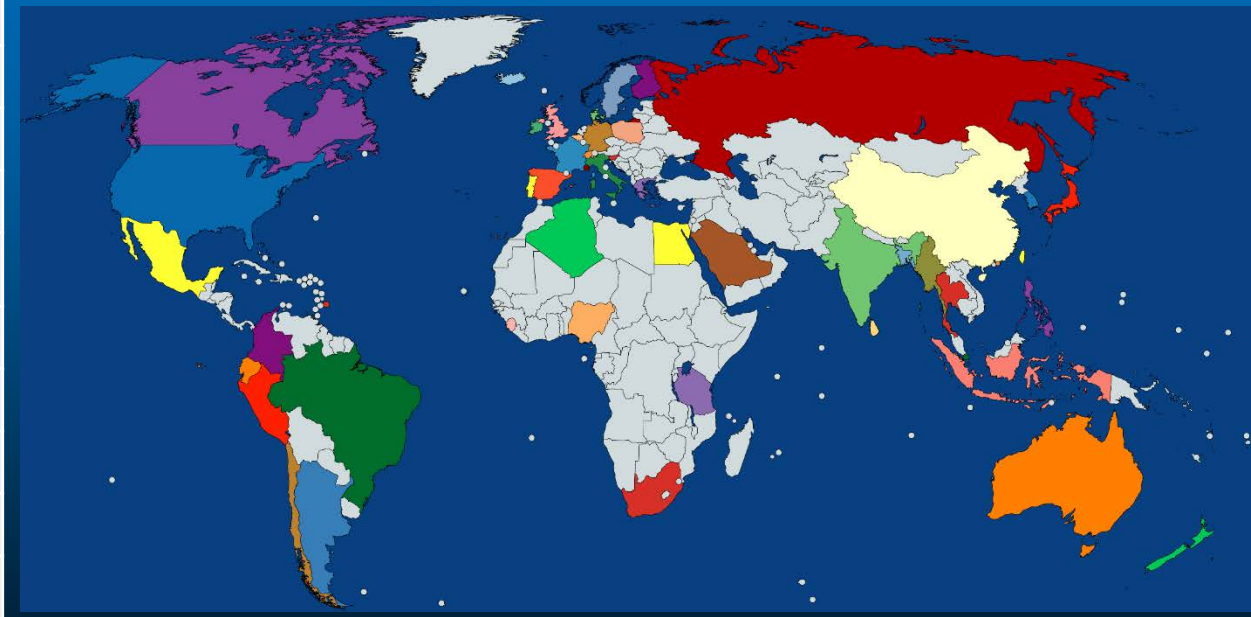
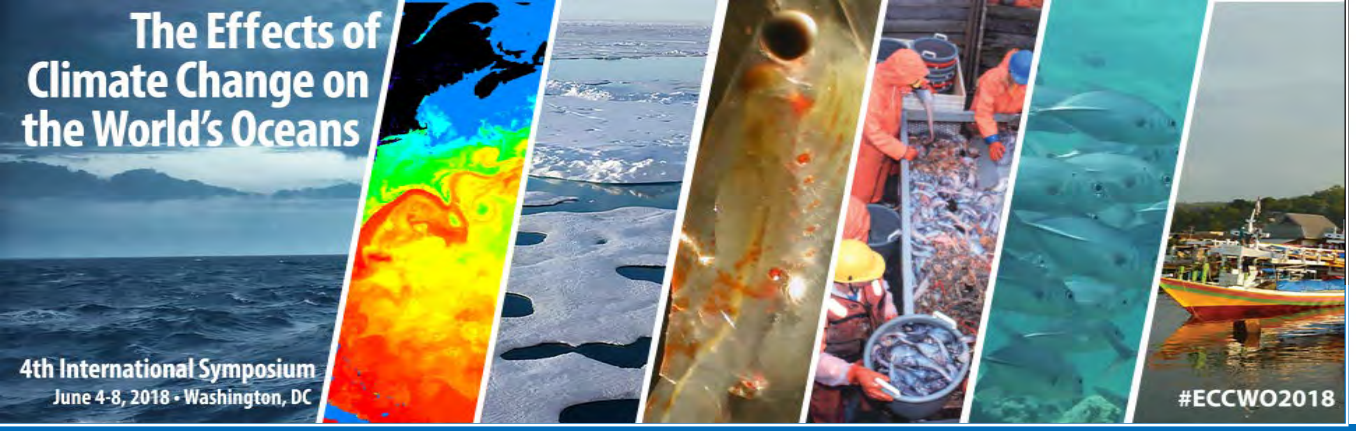
Region	2015	2018
Asia	32	81
Africa	5	12
Caribbean	0	2
Central America	4	2
Europe	96	160
Middle east	2	2
Oceania	26	17
South America	56	28
North America	62	365
Total	**283**	**669**





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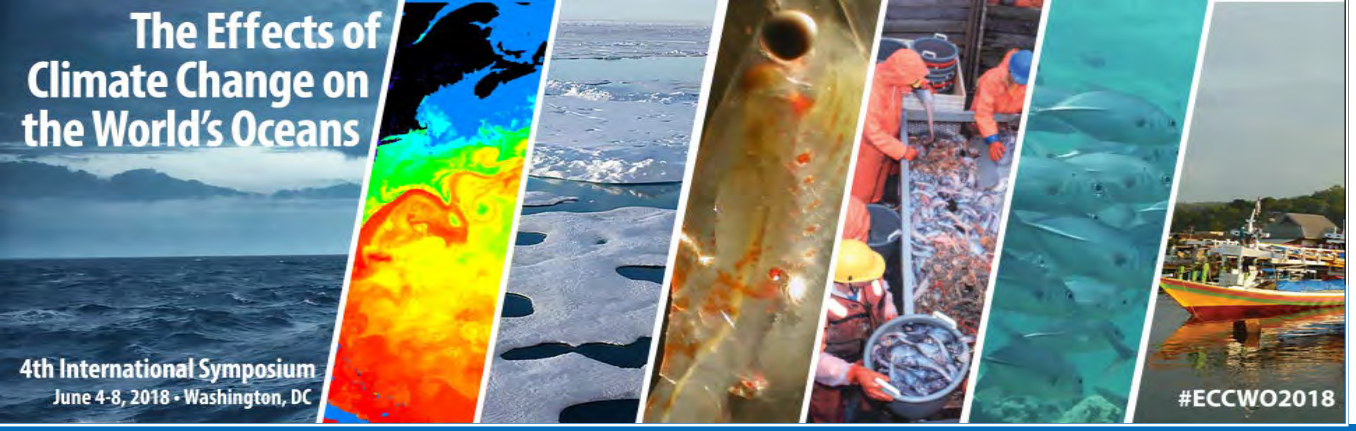
Thank you for sharing #ECCWO18 science!

Some @eccwo stats from this week:

- 328 followers
- Top 5 countries our followers come from: USA, United Kingdom, Canada, France, Germany
- 44K+ impressions: the number of times @eccwo tweets & retweets have been seen on Twitter

How many #ECCWO18 tweets…?! Numerous – and counting!



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5 Key Messages before conference:

- Oceans matter
- Oceans are changing
- There's much at stake
- Advance understanding of changes/risk
- Finding solutions

1. The oceans and the social-ecological systems that depend on them are changing.

Sundet (S5) – "Borealization taking place in the Barents Sea, with similar signals shown for the Bering Sea and signals indicating the same is in progress for the Antarctica".

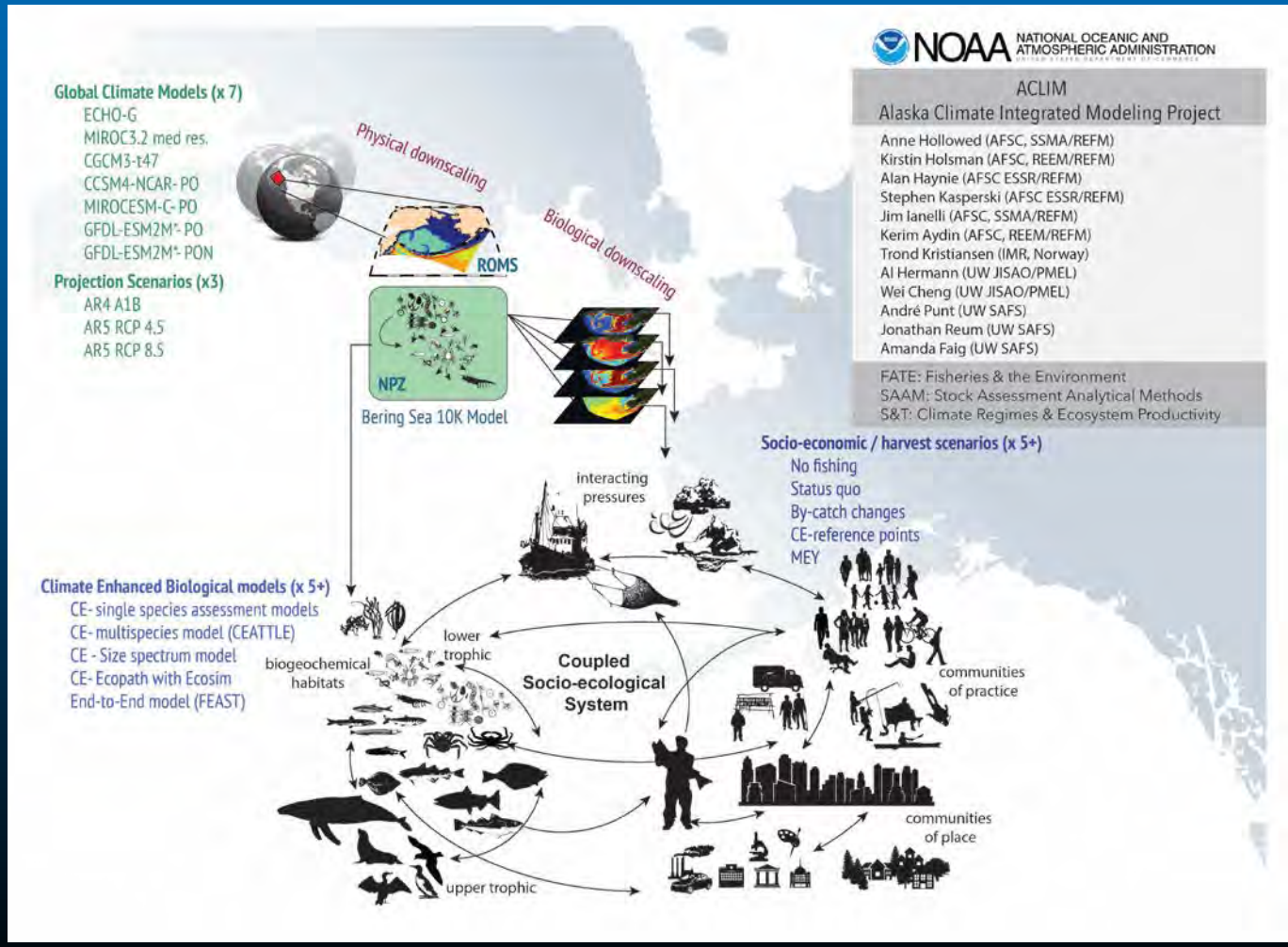
G. Pecl (S10) – "Some things can't be adapted to"

F. Ulmer (S16) – "What happens in the Arctic doesn't stay in the Arctic".

2. Our understanding of social-ecological systems has improved allowing us to contrast the ecological and human impacts of different future scenarios. Opportunities for adaptation are more limited if society remains on a high emission scenario.

Manuel Barange:
"Inaction is maladaption"

Pecl (S10) – "Adapting to species redistribution requires all hands on deck".



3. Tactical and strategic opportunities for adaptation to climate change have been revealed through engagement.

P. Nayak (S15) – "The narrative dictates how you see change".

A. Hobday – "Applications and discussions with managers first, science papers second".

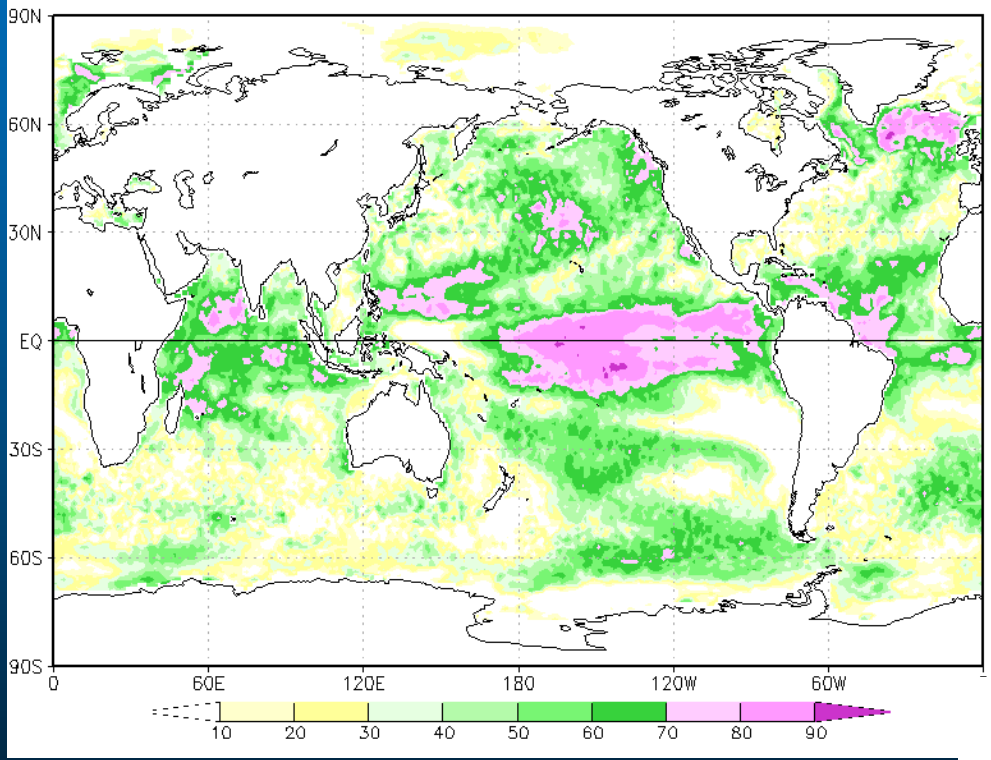
Adaptation Strategies and Actions

What strategies are working/ could work	*What support do you need?*	*Support from whom?*
Local level organisations (fisher co-ops, associations)	Improve financial skills, improve networking, collaboration between co-ops for marketing	NGOs and researchers for skills training, DAFF, DTI
Access to internet for weather forecasts - sharing information	Need early warning system radios for ship to shore comms , Local centre for fishers	Fisheries Dept, IPA Barro do Dande
Supplementary livelihoods (eg tourism)	Explore/develop fish farming (guidelines for abalone, mussels) access markets, whale watching	Fisheries Dept, fishers, Dept Tourism, local gov, tertiary institutions, Dept EA, DEADP

Strategies - Immediate – Medium term – Long term
Phase 1 – implemented some "immediate" adaptation actions
Skills training, exchange visits to co-ops, **Abalobi app**

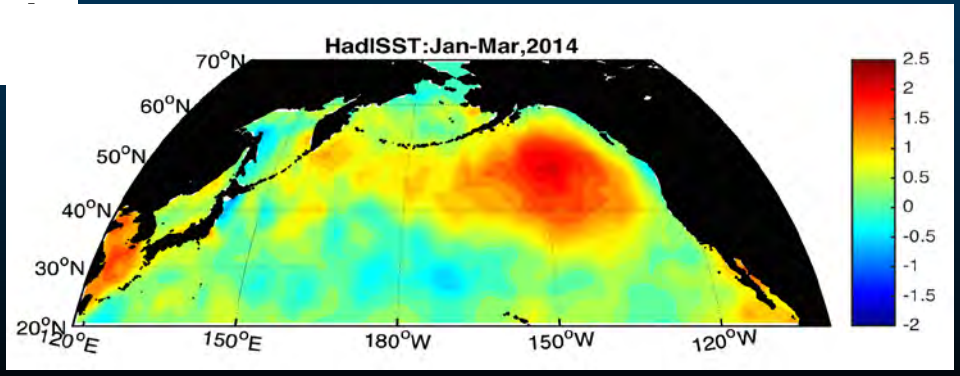
Sowman (S14) – "Adaptation planning is an ongoing and iterative process".

4. Extreme events provide an opportunity to assess human and ecological responses to climate change (i.e.,stress test). Our ability to predict anomalous ocean conditions on seasonal to decadal time scales is improving.

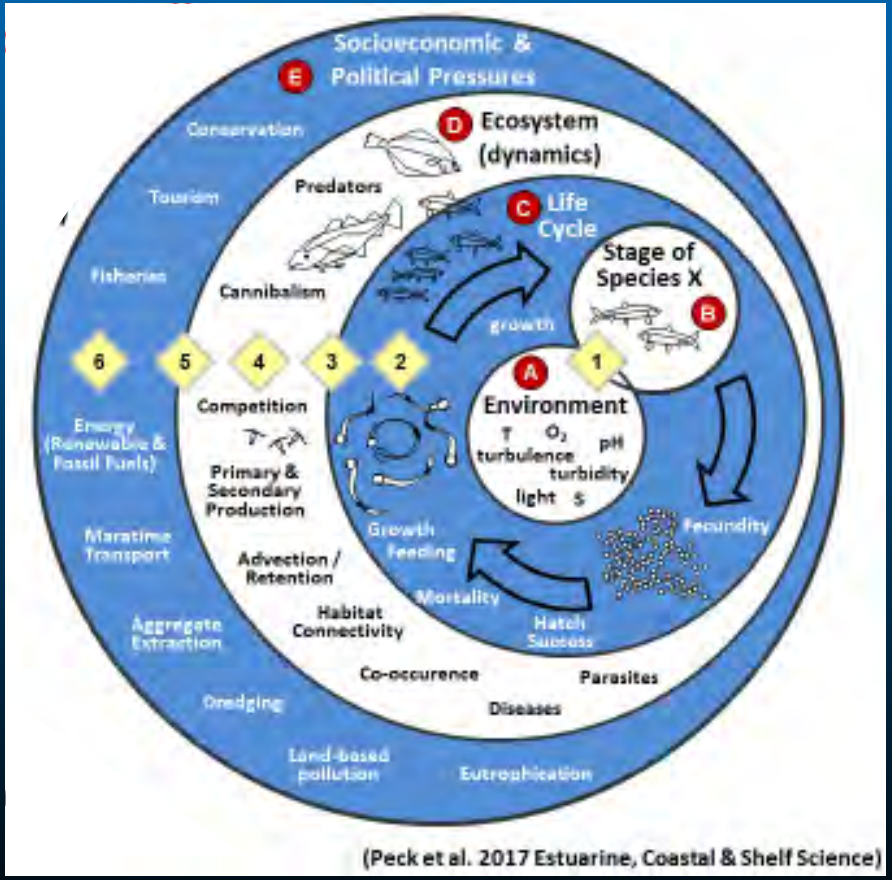


M. Payne - NMME Ensemble, SST Hindcast Correlation skill, 5 months lead

C. Werner - "Extreme events present a chance to rehearse for the future".



5. Research continues to reveal complex energetic and physiological trade-offs associated with adaptation to changing environmental conditions. There are energetic and physiological costs to adaptation that must be recognized.



(Peck et al. 2017 Estuarine, Coastal & Shelf Science)

Consider the journey and not just the destination, account for legacy and lagged effects

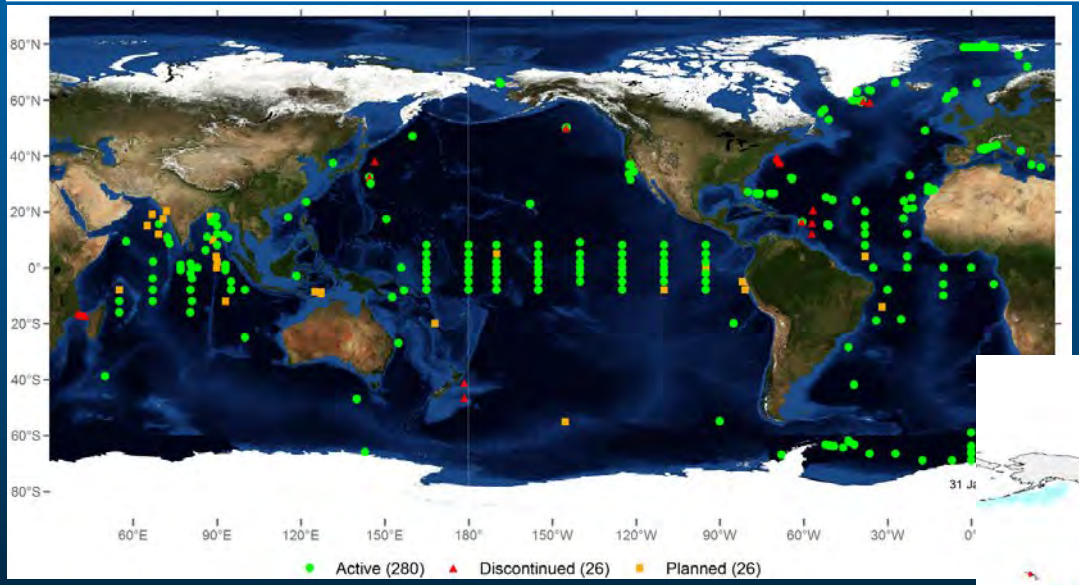
Innovations exist to help reveal mechanisms causing changes in growth and mortality, and energetic-based movement

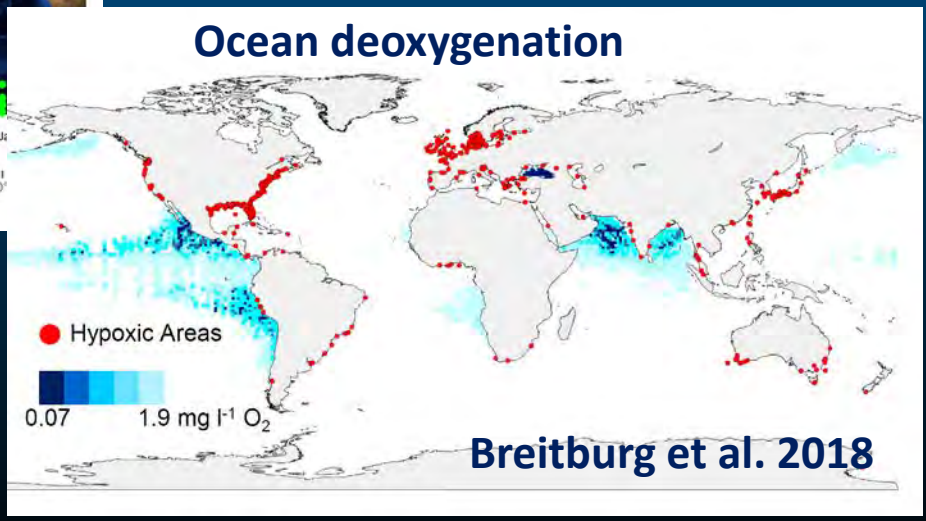
S. Widdicombe (S11) – "Rejoice in variability".

6. Coastal communities are turning to aquaculture, marine ranching and fish attraction technologies to fill critical needs for food security. Research is needed to identify appropriate adaptation actions and good governance through stakeholder engagement and representation.

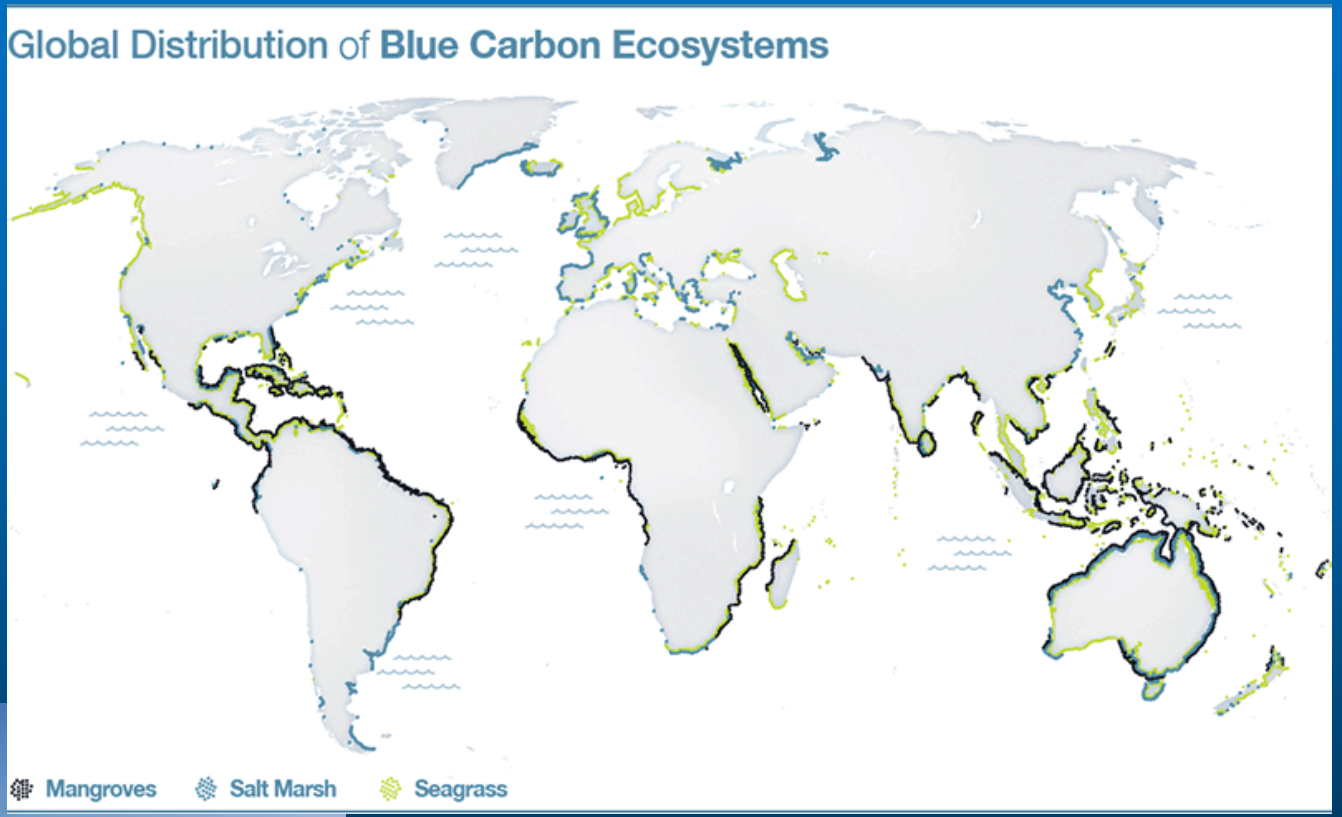
FAO has published guidelines for small scale fisheries which may help.

7. More targeted measurements are necessary to better understand the oceanic carbon cycle and minimize uncertainties for both short-term prediction and long-term projection of the carbon uptake, ocean acidification, and deoxygenation. Global Observation networks with technological advancements for data collection will improve our understanding of key processes.

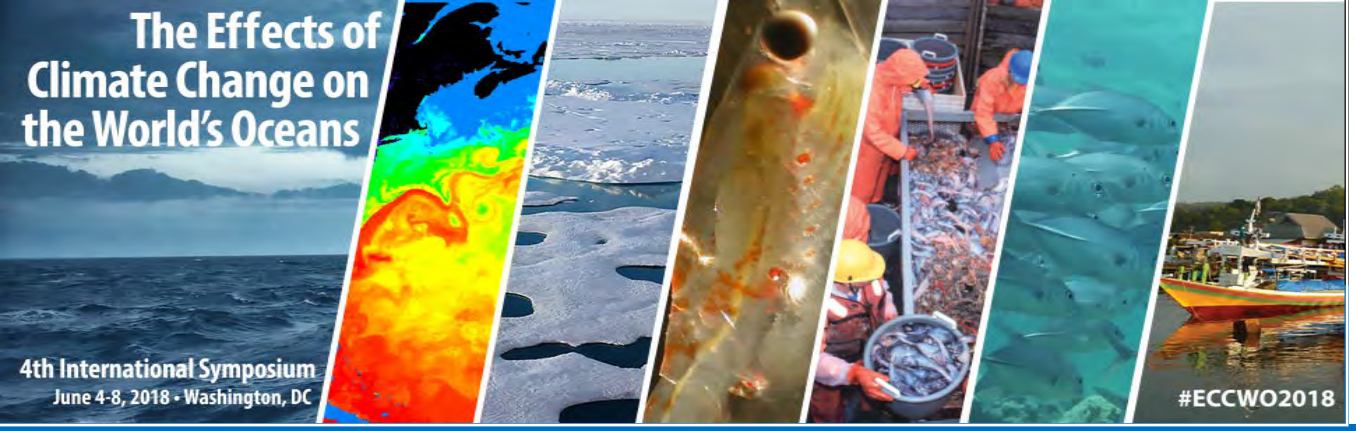




8. Blue carbon solutions are emerging.



9. International planning and assessment activities play a key role in guiding and informing our research.



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Where are we going?

- Genetics and scope for adaptation
- Advanced technology
- Big data
- Artificial intelligence
- Local community adaptation planning
- Skill assessment and communication


8th of June
Worlds oceans day!
Oceans matter! Oceans Matter!
oceans matter!
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