

Climate change & ocean acidification impacts on the socio-economics of fisheries

Rashid Sumaila

Fisheries Economics Research Unit

UBC Fisheries Centre

(r.sumaila@fisheries.ubc.ca)

Co-authors: ***William W.L. Cheung*** and ***Vicky WY Lam***

UBC Fisheries Centre



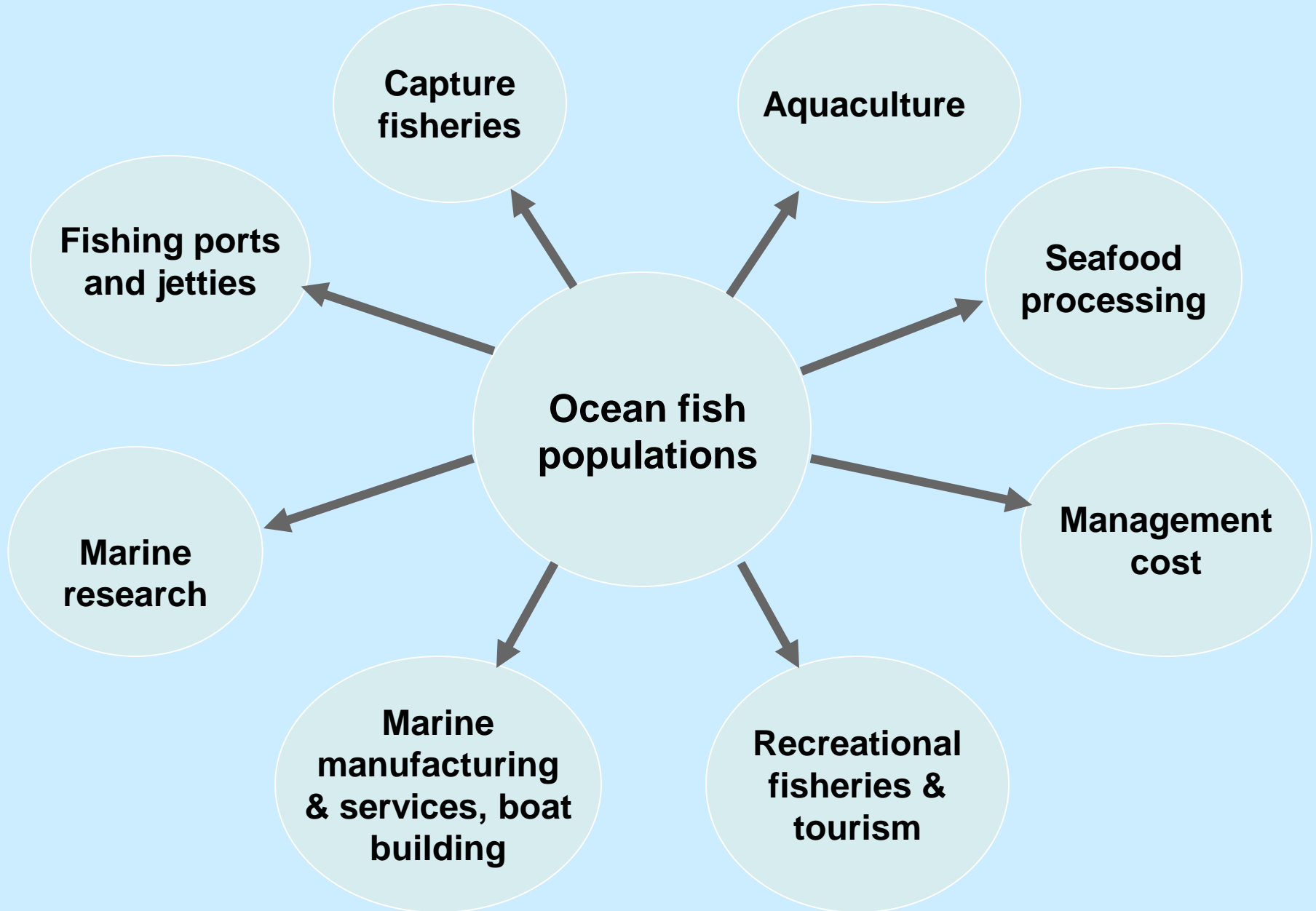
IAEA Scientific Forum, 17-18 September 2013



Key messages/outline of talk

- Fisheries are important to people;
- Climate change and ocean acidification are affecting the biophysics of the ocean;
- They are therefore impacting fisheries economics and food security;
- We need to double our efforts at mitigation and adaptation of fisheries to the changes.

Fish as base for many activities



Climate change biophysical impacts

Physical change in the ocean

- ↑ SST;
- retreat of sea ice;
- ↑ acidification;
- ↑ coastal hypoxic & oxygen min. zone;
- ↑ sea surface level.



Biological / ecological change in the ocean

INDIVIDUAL

- Physiology;
- Growth; &
- Body size.

POPULATION

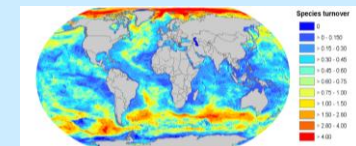
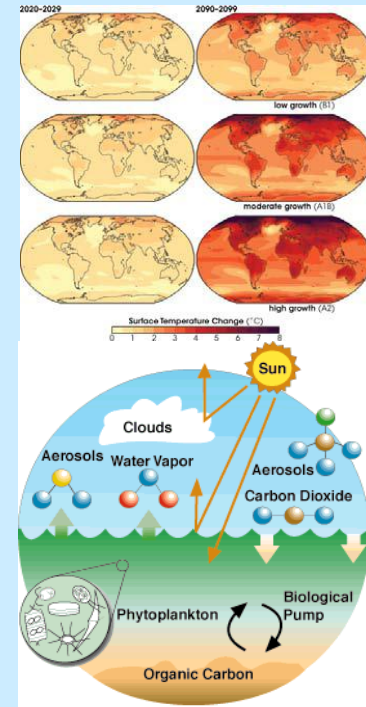
- Distribution;
- Abundance; &
- Recruitment.

COMMUNITY

- Species composition;
- Invasion/extinction.

ECOSYSTEM

- Productivity; &
- Species interaction.



Cheung *et al.* (2010); Hoegh-Guldberg and Bruno (2010); Brander (2010)

Distribution of fish protein under climate change



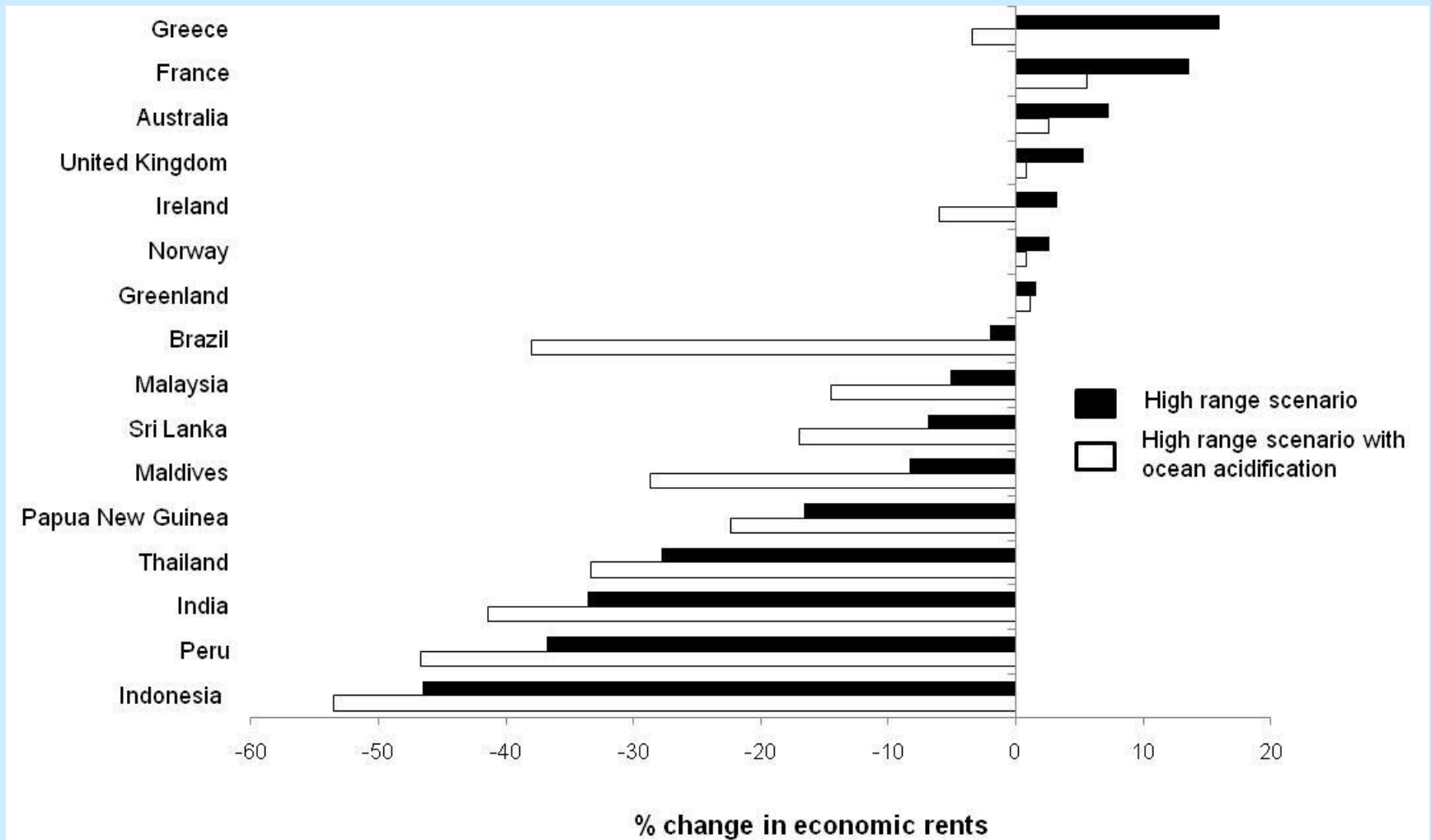
Sumaila *et al.* (in prep.)

Food security implications



Fish as a source of relatively healthier animal protein.

Predicted change in fishing profits under different climate change scenarios

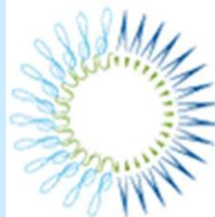


Key messages/outline of talk

- Fisheries are important to people;
- Climate change and ocean acidification are affecting the biophysics of the ocean;
- They are therefore impacting fisheries economics and food security;
- We need to double our efforts at mitigation and adaptation of fisheries to the changes.

Acknowledgements

- Global Ocean Economics & the *Sea Around Us* projects supported by the Pew Charitable Trusts (PCT);
- IAEA CRP Project on ocean acidification;
- Thanks for your attention!



THE
PEW
CHARITABLE TRUSTS



*Fisheries
Economics
Research
Unit*