



Perception of small-scale fishers on ocean acidification impacts: A case study of small-scale fisheries communities at Ko Chang, Thailand

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BACKGROUND

- Increased atmospheric carbon dioxide, mainly generated from human activities, causes a reduction in pH of seawater known as 'ocean acidification' which is currently a growing concern among scientists worldwide.
- It is projected using system models that decreases in surface ocean pH by the end of 21st century is in the range of 0.30 - 0.32 for RCP8.5 scenarios (IPCC, 2013).
- The 5th assessment report of the IPCC reported with medium to high confidence that ocean acidification might be risky to marine life and ecosystems especially the primary production that relates to fisheries resources (IPCC, 2014)
- Public perception on the impacts of ocean acidification on coastal and marine systems are necessary for establishing effective policies for local adaptation and impact mitigation (Corner et al., 2014.; Frisch et al., 2015).
- At least 50,000 small-scale fishing households are anchored along the coastlines of both the Gulf of Thailand and Andaman Sea. They are depending on fishing that ocean acidification could possibly cause impacts on their livelihoods. Hence, knowing their perceptions on the impacts of ocean acidification is necessary for build up their adaptive capacity and resilience.

SMALL-SCALE FISHERIES IN KO CHANG, THAILAND

- About 90% of fishing households in Ko Chang were small-scale distributing around the island and are predominant in the east and south of the island.
- The fishing is usually operated within 3 nautical miles from the shores using simple fishing gears and small fishing boats, while squid traps and trolling lines fisheries are usually operated offshore.
- Crab traps, crab nets, shrimp trammel nets, and fish gillnets are the main fishing gears generally found in every fishing communities in Ko Chang.
- A number of tourists visiting Ko Chang each year also causes higher demand of seafood products in Ko Chang.
- Most fisheries products are sold as fresh seafood to local restaurants, guesthouses, hotels in Ko Chang, while some are distributed to mainland by local vendors and middle men who are from the mainland. Krill or Acetes is processed as shrimp paste and sold to tourists or local vendors around the island.



Crab gillnets



Crab traps



Trammel nets



Fish gillnets

Fig 3: Major gears used in Ko Chang

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OBJECTIVE AND RESEARCH METHOD

In this study, public perception of ocean acidification and its impacts on their livelihoods were investigated using focus group discussion in four fishing communities at Ko Chang: Ban Klongson, Ban Salakkhok, Ban Salakphet, and Ban Jekbae.

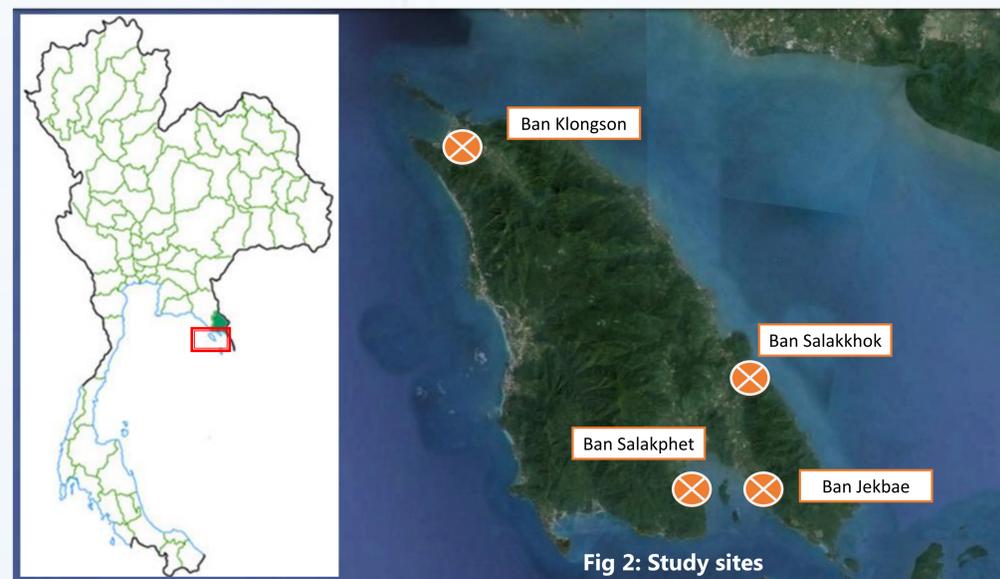


Fig 2: Study sites

MAIN FINDINGS

The main findings illustrated that:

- Most fishers had heard the concerns of global climate change through media; they also concerned that the global climate change could affect their fishing and livelihoods, and agreed that the climate change was resulted from human activities.
- However, only a few fishers have heard the term 'ocean acidification' but they did not clearly know about the impacts of ocean acidification on fisheries resources and their livelihoods. After the meaning of ocean acidification had been explained to them, some fishers expressed their opinion that it could cause impacts on some fish.
- Interestingly, all of them mentioned that ocean acidification or even the global climate change could generate very little impact on fisheries resources compared with those impacts caused by pollution and destructive fishing practices that are still being happened in this area.
- This study reflects the general perception of small-scale fishers on ocean acidification impacts. Relevant agencies should pay more attention on this finding and the proper adaptive strategies should be developed for enhancing their resilience to cope with those impacts and to sustain their livelihoods.

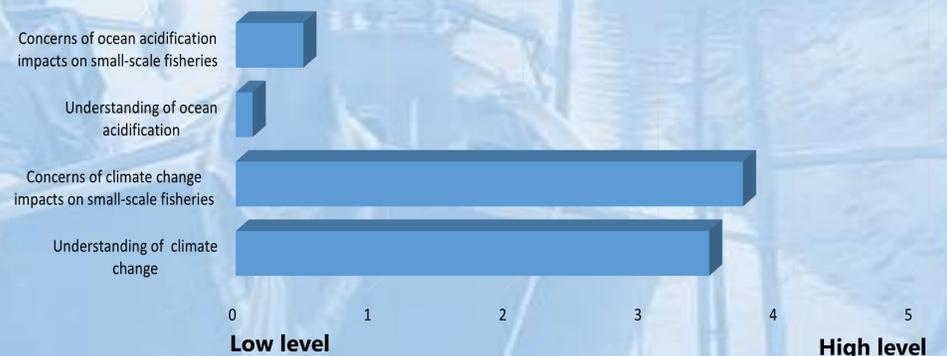


Fig 4: Fisher's perception on the impacts of climate change and ocean acidification

References

- Corner, A., Capstick, S., and Pidgeon, N. 2014. Public perceptions of ocean acidification: Summary findings of two nationally representative surveys of the British public conducted during September 2013 and May 2014. Understanding Risk Research Group Working Paper 14-01, Cardiff University.
- Frisch, L.C., Mathis, J.T., Kettle, N.P., Trainor, S.F. 2015. Gauging perceptions of ocean acidification in Alaska. Marine Policy 53: 101-110.
- IPCC. 2013. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, 1535 pp.
- IPCC. 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, 1132 pp.