

Look into the crystal ball: the ocean

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Look into the crystal ball. Can you see your future?

Perhaps you will strike the lottery, be the next big rock star, win a Nobel Prize or be elected as President. But what if a glimpse into your future reveals that it will not be as promising as you originally thought. Would you change the way you live your life today? Break bad habits and make different decisions?

While I cannot predict your individual fortunes, my research can afford a similar opportunity for the oceans. Here is your chance to peer into the crystal ball and glimpse at the state of the oceans in the next 100 years – for better or for worse.

Would you like to take a look?

Imagine a future driven by climate change, where with each passing year, the ocean becomes increasingly warm. In a community of marine fishes, each species has a temperature preference and tolerance, such that they can only live in an environment where ocean condition meets their temperature window. In this warming future, fish species must seek thermal refuge by migrating to the poles, sinking to deeper waters or be faced with local extinction. Generally, as tropical fishes migrate to the poles and polar fishes become extinct, inevitably, there will be winners and losers in the fisheries that target these species.

My research seeks to understand these winners and losers in our future oceans.

Specifically, my interest lies with small-scale fisheries in the Pacific North America region (USA, Canada and Mexico). Small-scale fisheries, which account for over 90% of global fisheries employment, are crucial to the livelihoods, food security and cultural identity of many coastal communities.

However, not all small-scale fisheries are created equal. There is no global definition for small-scale fisheries because what is considered small-scale in one country could easily be large-scale in another. They have different capacities, use different boats and engine types, employ diverse fishing gear, target different species, travel varying distances and operate in different fishing seasons. With such high diversity among small-scale fisheries, are there certain characteristics that will enable some small-scale fisheries to be better able to cope with climate change than others?

My research is still currently underway. However historically, common ways that small-scale fisheries cope are by shifting target species or changing fishing grounds. Perhaps then, diversifying fishing gear to be opportunistic for newly available fish species or lowering fuel cost and fishing expenses to be more economically flexible will set our fisheries up for success.

My research offers this opportunity to look 100 years into the future at our small-scale fisheries along the Pacific coast. With our crystal ball knowledge, what can we do today to ensure the brightest future for our fisheries tomorrow?



Small-scale fishing vessels in Forks, WA
Photo taken by Melanie Ang

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