ILLUSTRATIVE CLIMATE AND COMMUNITIES SCENARIO NARRATIVES

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Introduction and Purpose of Document

The January 2020 CCI scenario workshop resulted in a set of four 'high-level' scenarios. In order to use these in the next stage of the process, it is often advisable to deepen the scenarios, providing additional details to stakeholders. The following provides an illustration of how we might provide such details, by developing the high-level scenarios into a series of narratives. This should encourage more creative thinking and option generation as stakeholders discuss the challenges, opportunities and actions needed in each of the scenarios.

Scenario I. Possible Title: Fortune and Favor

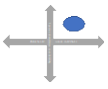
This is close to a best-case scenario. Climate and ocean conditions clearly change (warmer oceans, more acidity), but conditions are not as extreme and unstable as feared. Fish stocks are resilient to the changes that happen, and high productivity leads to a stable catch.

Fish becomes seen as the primary source of high quality 'natural' protein as many consumers move away from meat consumption. Plant-based proteins become more popular, but fish sits in that happy medium where seafood is seen as the natural and sustainable source of protein.

There are a series of policy changes that favor local fishing. States support infrastructure projects in local communities. New cooperative arrangements bring young ideas into the industry. Fishing becomes a flagship national industry, and US fishermen become emblems of national pride.

As the fishing industry prospers, new investment occurs in nature-based solutions to address climate and pollution concerns. Ecosystem based thinking is valued, dams are removed, natural wetlands restored. A storm of beneficial conditions creates a new era for fishing on the West Coast.

Scenario II. Possible Title: Box of Chocolates



This is a future of surprises and extremes – but where, on balance, outcomes are favorable. We continue to see ocean warming, acidification, coupled with a high frequency of shocks such as marine heatwaves and hypoxia events. However, despite this turbulence, fish stocks maintain or even improve their productivity for sporadic amounts of time. A turbulent ocean delivers positive effects on upwelling and increases in plankton, alongside decreases in predators.

Fishermen are taken aback as new species enter established waters, providing an opportunity to catch new sources of value. There are high variabilities from year to year. Seasons vary, and there are extreme temporary range shifts. Successful fishing occurs only when fishermen are able to innovate and use flexible infrastructure.

Technology plays a prominent role in this world. Broadly robust stocks provide confidence to the fishing industry, resulting in operators investing in tracking and sensing devices to monitor stock location and movement. There are other advances: fishing methods and gear evolve. This gives an advantage to younger fisherman who are, on average, more adept and willing to use new technology.

Marketing this variability is a difficult task. Consumers (and hence buyers) want a degree of predictability, and yet this is a world where nothing stays the same for long. Markets are stressed and volatile. Coastal infrastructure suffers from storm damages, so many communities cope with damage on a regular basis. With existing infrastructure in peril, new ways of landing and processing seafood are pioneered.

Scenario III. Possible Title: Hollowed-Out.

This is close to a worst-case scenario. Oceans are warming and becoming more acidified. But the main damage comes from frequent and intense ecological surprises that lead to species decline in all or most stocks of interest. And nothing moves in to take their place.

As species become vulnerable, predators are more powerful. Productive areas become extremely compressed. The overall impact culminates in some thresholds changes that eliminates some species from existing fishing waters.

The effects of climate change and marine pollution become more and more apparent. People worry about species extinction, and they put more emphasis on protected species. Wild caught fishing is seen as an unsustainable way of obtaining protein.

Existing fishermen cannot see the benefits of staying in the game. Most cannot cope with shocks and storms. They are aging and decide to quit. Only those with the deepest pockets and the deepest convictions survive. With supply lacking, wild caught fish becomes a high-priced delicacy that only a few rich people can stomach.

Coastal infrastructure suffers, thanks to sea level rise, coastal inundations and storms. Even aquaculture suffers in this world. The ocean is seen as too polluted. Land-based aquaculture survives, but demand for any kind of seafood falls way down. It becomes a game for recreational fishermen, and some with deep, deep pockets who can ride out the storms.

Scenario IV. Possible Title: Blue Revolution

This is a world of ocean warming, acidification and a gentle, gradual decline in stocks as most shift northwards. Intense shocks and surprises happen only occasionally. From a climate and ocean conditions point of view, this is the 'boiling frog' scenario. Those closely tied to the fishing industry have a narrow viewpoint and see changes happening slowly. Those in the broader ocean business see things very differently.

In this world, the disruption happens commercially. As more coastal infrastructure ebbs away from supporting wild-caught fishing, it gets replaced by new ocean use: aquaculture and offshore energy. This creates a whole new set of challenges for management. Ranges get compressed, protected species move their ranges because of the new uses.

Fish is still valued in this world, but the growing global economy is looking for market-based approaches, inexpensive ways to supply protein. New cell-based meats are on the rise, but aquaculture grows most quickly.

Coastal infrastructure does not get swept away by storms in this scenario. It either atrophies slowly, or it just gets bought up and knocked down. Fishermen don't suddenly go bankrupt – they just decide to retire, with few to replace them. Communities are generally resilient to big natural shocks. Nothing collapses immediately. But over time, the changes take their toll.