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## Tundi's Take: Monitoring for Thinking and Acting Globally

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We cannot monitor everything in the marine management realm. That is a budgetary and practical reality. So we need to prioritize. As the world increasingly looks to the sea for drinking water, energy, food, and strategic minerals, all management interventions – local regulations as well as national/international policies - will have to be placed into the broader context of increasing and ultimately conflicting demands for resources. While it is true that EBM needs to consider human uses of the oceans beyond extractive industries, extractive industries have such tremendous potential to undermine ecosystem functioning and productivity that they should be priorities for management.

By the time the global population reaches 9 billion in 2050, attendant demands for food and energy will be nearly double what they are today. Intense conflicts over scarce surface water and aquifer water resources have already started, and the spectacular growth of energy-demanding desalination in response to water scarcity threatens access to and availability of seafood resources. At the same time, offshore energy development displaces fishers from productive fishing grounds, and catastrophic oil spills harm or even shut down fisheries. To date, siloed thinking about how to manage marine resources – the absence of true EBM - has resulted in uncoordinated fisheries, energy, mining, and marine use policies that do not allow the consideration of trade-offs and do not capitalize on the synergies that an integrated approach would provide.

One might argue that in certain kinds of marine management, such silos have begun to be broken down. Ecosystem-based approaches to fisheries management (EAF) adopted by many fisheries management agencies in developed countries have forced them to look at the broader consequences of extraction, for instance predicting how the removal of forage fish in industrial fishing has the potential to undermine target food fisheries. However, such still-single-use management can only go so far since it cannot possibly consider impacts on other sectors through new uses or expansion of existing uses. This is why we invoke the need for EBM, and for both governance arrangements and policies that support an integrated approach that considers possible trade-offs and constraints to sustainability.

### Needed: Tailored monitoring that can yield local and global insights

So what do we need to know to ensure that not only the local situation is well-managed and understood, but that the broader situation is considered? We need monitoring that is highly tailored to the circumstances and objectives of management. This sort of monitoring allows us to assess the condition of ecosystems and their ability to deliver the goods and services that support them.

Given the trajectories of global population, demand for growth, and increasing rates of change, we will also need knowledge to be able to predict levels and kinds of future use – especially extractive uses - and anticipate conflicts or trade-offs. Research and monitoring will need to inform us whether use of one kind is undermining use of another kind (or the system itself). Importantly, research will also need to identify the thresholds in the ecosystem so that monitoring can warn us how close we are to approaching points of no return. The latter is a minimum requirement of monitoring protocols – if monitoring resources are limited, at the very least we should be avoiding management missteps from which there is no recovery.

This will prove challenging – ever more so given the global wave of isolationism, the push for growth at any cost, and the unpredictability introduced by the political movements sweeping the globe. But we would be wrong to retrench and focus only on the local and the near term, without committing to international cooperation and solidly sustainable policies that consider winners and losers across sectors and societies. In the end there is only one ecosystem that we need to safeguard, and that is the global one – we'll need to think globally and act globally if we want to succeed.

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