Ocean Health is Human Health

Contributed by Gail Lethbridge

When the ocean gets sick, humans will suffer.

Ocean health and human health are interlocked and both are at risk as the world faces the challenges of climate change and environmental degradation on land and at sea.

This was the theme of a panel discussion during the 17th annual Crossroads Interdisciplinary Health Research Conference at the Halifax Regional Library on March 15.

Crossroads is a student-led event, planned and hosted by the Graduate Student Society of Health and Human Performance, that brings together student researchers from across Canada and the US to discuss innovative health and wellness research that crosses multiple disciplines.

Moderated by **Dr. Wendy Watson-Wright**, CEO of the Ocean Frontier Institute, this panel explored the connections between human and ocean health by bringing together the two research disciplines.

“When you say health, it means human health,” Watson-Wright told panelists and student researchers. “And when I say health, I mean the ocean health.”

She rejects the use of the plural - “oceans” - because the ocean is really just one body of water.

And when it is not healthy, the human impacts are global, panelists said.

The panel included **San Patten**, Dalhousie College of Sustainability, **Dr. Megan Bailey**, Canada Research Chair in Integrated Ocean and Coastal Governance, **Dr. Fabrice Berrue**, Research Officer/ Team Lead at the National Research Council in Aquatic and Crop Research Development and **Dr. Stefanie Colombo**, Canada Research Chair in Aquaculture and Nutrition.

In their presentations, panelists pointed out that human health is impacted by rising sea levels and coastal erosion, the collapse of fisheries and algae populations which provide food and nutrition, severe weather events and pollution such as nanoparticles of plastic and chemicals.

As an obvious example, when ocean health declines, it hurts fish stocks which provide an important source of protein and food supply. This impacts human health because it leads to malnutrition and food insecurity.

But there are other consequences that are not so obvious. Ocean health also impacts algae populations which are the source of important Omega 3 fatty acids consumed by fish and then by humans. It also affects the potential for ocean pharmacological solutions.

None of this is good for human health. But poor ocean health also has a cascading affect in social arenas with job loss, destruction of coastal communities, family disruption and migrations to urban areas. This can result in mental illness such as anxiety and depression.

In other words, human well-being is not just "the absence of disease" or access to physicians and hospital care, as traditionally defined in health disciplines. Human health is the product of other factors captured by the social and ecological determinants of health.

And the ocean is one of those.

Panelist Patten used the example of the Pacific Island nation of Kiribati to demonstrate how ocean health can affect the health of human populations. Kiribati is facing destruction from rising sea levels which are consuming the land on which its residents live and work.

"Small island states like Kiribati are the canary in a coal mine," she told the audience. The "cruel irony" is that many countries and communities facing the worst consequences of climate change and ocean damage do not have a strong voice.

Like Patten, Columbo sees ocean damage as a direct threat to human health.

She said climate change is putting pressure on algae populations which produce the Omega 3 fatty acids which are connected to human cardio vascular health, neurological functions and cell function.

"There is a direct link between nutrients produced in the ocean and our own health," she said.

In her presentation, Bailey showed a short video featuring people from countries all over the world talking about the important connections between the ocean and human health, well-being and livelihoods.

"Ocean health is human health," she said. "They are the same thing."

She links ocean health to food security and poverty.

A particularly worrying phenomenon for the sea is nanoparticles of plastic and plastic pollution, according to Berrue**.** These chemicals interact with marine life, accumulate in biological tissue and then enter the human food supply.

He said poor ocean health also has consequences for "pharma from the sea." There are many compounds from the ocean that can be used to treat human ailments. But if the sea is sick, that potential is reduced or lost and treatments may never be used or discovered.

The panelists encouraged students at the conference to think across the disciplines when they research human health and well-being.