

# Shelburne Harbour salmon sites "dead zones" says scientist

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## **Biodiversity gone**

Based on data collected from the sea bottom beneath the former "Sandy Point" salmon farm site in Shelburne's inner harbour, marine scientist Inka Milewski told an audience Tuesday in Shelburne that the bottom resembled a virtual "dead zone". Compared to 100 or more samples of 20 different aquatic species at a control site nearby, the biodiversity of the sea bottom beneath the former site has been reduced to one sample each of only two species.



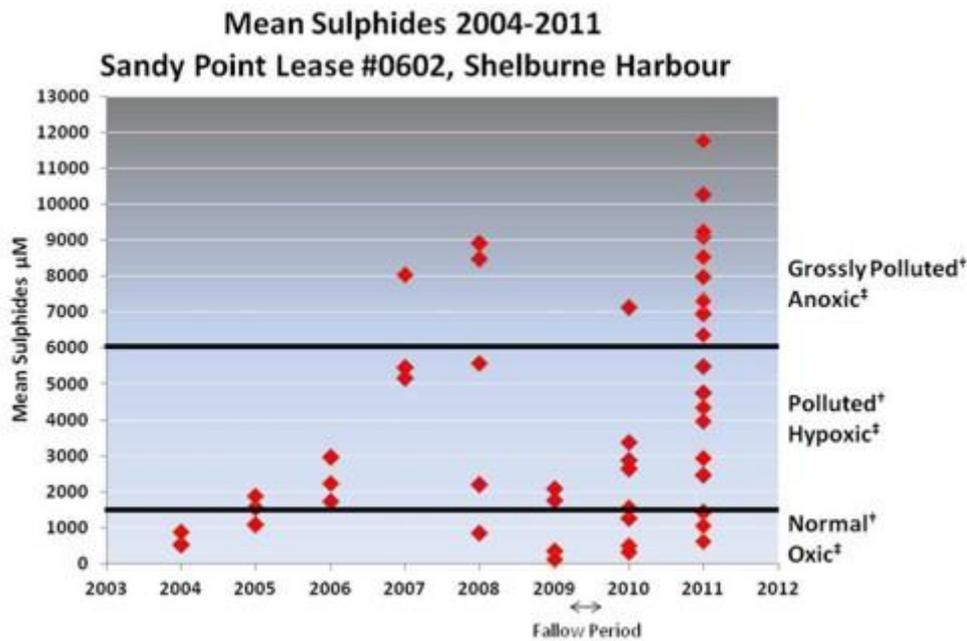
Biggiatoa mats

## **Bacterial mats**

Milewski and her colleagues also found abnormally high concentrations of copper, zinc and organic matter, thought to result from a combination of salmon feces and uneaten fish food. A farm containing 400,000 salmon produces 100 metric tonnes of waste per year, Milewski noted. The bottom beneath the site was virtually covered with beggiatoa bacterial "mats", which were not found in any of the sample sites outside the farm footprint.

## **High sulphides**

One measurement of the effect of finfish aquaculture on marine habitat accepted as a worldwide standard is the sulphide level in waters in and surrounding the fish cages. Milewski showed a graph during the evening created using sulphide monitoring data from the Nova Scotia Department of Fisheries and Aquaculture which showed alarming levels of sulphides in fish farm sites throughout the province in years 2004 through 2011. The number of polluted and grossly polluted sites appear to rise steadily in those years, with 2011 figures showing five sites as "normal" (oxic), six sites as "polluted" (hypoxic) and nine site "grossly polluted" (anoxic).



### Poor location

One of Milewski's conclusions from the two-year study is that Shelburne Harbour appears to be a poor location for intensive salmon farming as has been practiced by Cooke Aquaculture and others. "This could be a result of the shallow water in which the cages are placed, the lack of "flushing", the too-heavy loading of nutrients in and surrounding the pens or toher factors relating to the half-million to one million often housed in the open pens used for growing salmon. She said that she expected similar dire marine consequences from the two huge fish farms being installed and stocked in Jordan Bay.

According to Milewski, copper levels in the sediments exceed levels known to have negative effects on marine organisms and are at levels that prevent biological recovery from occurring. "Federal and provincial regulators are under the mistaken assumption that it takes just a few months to a year for the sea bottom to recover from the effects of massive waste loading, said Milewski. "As these results demonstrate, this is simply not true."

Milewski says that the high levels of copper around fish farms are the result of the anti-foulants used in nets, excretion of more concentrated copper in the fish feces and the accumulation and breakdown of uneaten feed. "The Canadian Council of Ministers of the Environment have set guidelines for copper levels in marine sediments but there is no enforcement of these guidelines," said Milewski. According to the study's results, sediment copper levels around the former fish farm are up to 10 times higher than other areas within inner Shelburne Harbour and up to 40 times higher than areas in outer Shelburne Harbour.

The Nova Scotia Department of Fisheries and Aquaculture granted three new leases to Kelly Cove Salmon, a division of Cooke Aquaculture, in the inner Shelburne Harbour area. All new leases are approximately 100 metres from former farm sites that had poor environmental performance records. Stocking of all salmon farm sites in Shelburne Harbour was put on hold because a highly contagious virus ISA (infectious salmon anemia) was found on a farm site in outer Shelburne Harbour in February 2012.

### Disturbed and alarmed

Milewski says she is disturbed and alarmed that the provincial government has granted a license for the massive fish farm next door in Jordan Bay. "Why would federal and provincial regulators allow such a large fish farms to operate in such shallow waters when they know what the experience has been in Shelburne Harbour, also a shallow-water site" she asked. "It will be the local fisherman and taxpayers that will be on the hook when, not if, environmental quality begins to deteriorate."

**No word from Belliveau**

After her study in 2011, Milewski submitted her report to Aquaculture minister Sterling Belliveau with the offer to meet with him to discuss her findings. His staff responded that someone "would get back to you." A year later, the scientist has heard nothing from Belliveau's office.

**Recommendations**

As was the case in 2012, Milewski made several recommendations based on her findings. They include; Permanently remove all salmon farms from Inner Shelburne Harbour to allow the Harbour to recover; immediately order the expansion of environmental monitoring on existing and new farm sites to include benthic biodiversity, occurrence of bacterial mats, occurrence of pollutant tolerant species, copper and zinc in sediments and percent organic content; publicly release all environmental monitoring data for all existing and currently operating salmon farm sites.

Milewski intends to make her finding available to the current Aquaculture Regulation Review Panel and to the new federal panel convened to study the effects of aquaculture on a federal level.

See full report here

<http://www.friendsofshelburneharbour.org/uploads/McGregorMilewskiSandyPointFeb2013.pdf>