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Reprint from Volume 28 Number 21

October 20, 2016

8,000 year old ancient relict sand under Petronas pilings - Elizabeth May

How corrupt is the environmental review process? Or how is it that DFO, CEAA and NRCan decided that Petronas LNG was not a threat to the Skeena salmon?

I do not use the word 'corrupt' lightly. If not for a fairly random connection, I would merely be heart-broken at the environmental and climate atrocity wrapped up in the approval of Pacific NorthWest LNG. Instead, I am angry and deeply concerned that the Cabinet ministers who made the decision were denied key scientific evidence by the very civil servants who are mandated to provide them with the facts.

The random event was the Saanich Inlet Round Table on May 26, 2016. The immediate local issue is, of course, the proposed Steelhead floating LNG facility for Saanich Inlet. Organizers decided a local scientist who had done extensive work for the Lax Kw'alaams First Nation on the proposed Pacific NorthWest LNG would be of interest. Dr McLaren's presentation, 'Lessons to be learnt from the Petronas Affair—Prince Rupert', had no scientific parallels for Steelhead. The ecological and scientific issues are unique to Lelu Island. But the political lessons are chilling.

What Dr McLaren shared made the hair on the back of my neck stand up. I have worked for the last forty years with various branches of government and regulators. It is not that they were always perfect. DFO's blind stupidity cost us one of the world's most abundant fisheries, the North Atlantic cod, to name one example. But overall, I have come to expect professionalism and a dispassionate willingness to examine the evidence.

That is what Patrick McLaren expected. Back in the 1970s and '80s he had worked as a government scientist with the Canadian Geological Survey. He specialized in coastal geology, left Canada for a while as a visiting scholar at Cambridge, and returned with his own consulting firm. He was the first scientist to scuba dive under the North Pole to study the ice. In other words, he's no slouch when it comes to science. So when he presented his findings to the Canadian Environmental Assessment Agency, the Department of Fisheries and Oceans, and Natural Resources Canada, he thought they would be interested. Instead, they were hostile. His findings were

inconvenient. They did not accord with the numerical modelling by Petronas that said everything would be fine.

Lelu Island in Prince Rupert Sound is the now-approved site for a massive LNG development. In addition to the acknowledged increase in GHG and threat to local porpoises, a huge issue is whether the project will endanger the second largest salmon run in BC—the Skeena salmon fishery. The Skeena salmon depend on the rich eelgrass habitat found almost exclusively on a huge extent of sand called Flora Bank.

Up until Dr McLaren was hired by the Lax Kw'alaams to check out the sediments and how they were transported, everyone assumed that all the sediments came from the Skeena River. Instead, Dr McLaren found, using his technique known as Sediment Trend Analysis (STA), that the sands of Flora Bank were not from the Skeena at all—nor from anywhere else on the British Columbian coast.

In fact, they were from a glacial dump of sediments occurring between 15,000 to 8,000 years ago. The sands of Flora Bank are 8,000 years old. Dr McLaren describes them as 'ancient, relict sands'.

So the question for science is not 'will building a giant terminal, pounding 500 pilings, more than a metre each in diameter, into the sand banks hurt the eel grass?' The question is 'what is keeping this unique geological feature in place?'

And that raises other troubling questions. If the waves and currents hold the sands in place, what impact will the pilings and huge LNG tankers parked along more than a quarter of Flora Bank's perimeter have on the ancient formation? Dr McLaren predicts that they will reduce the energy of the processes impinging the bank, enabling the sand to 'escape' to the surrounding deep water. The eel grass and its fish habitat will be removed with the sand, effectively destroying Flora Bank.

Not only Petronas, but CEAA, DFO and NRCan did not like this prediction. At first they dismissed Dr McLaren's work. Then he made it stickier for them by getting the research published in a peer-reviewed journal. (Journal of Coastal Research 'The environmental implications of sediment transport in the waters of Prince Rupert, BC, Canada: A comparison between kinematic

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'This article was published (October 20, 2016) in 'Island Tides', an independent, regional newspaper distributing on the Canadian Gulf Islands, on Vancouver Island and, via the internet, worldwide.'

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and dynamic approaches.)

Once published, CEAA made Petronas re-do their numeric model to at least acknowledge the troublesome prediction made from the STA. Petronas produced new versions until CEAA accepted their incredible claim that the wave action and currents along Flora Bank would not be sufficient to impact the sands and that the STA actually supported the findings of their numeric model. Incredible because in order to produce that result, Petronas had to suppress their own findings that currents were actually up to three times more intense than their model had predicted. And NRCan and DFO and CEAA all knew that the information was being suppressed.

In questioning Petronas about their model, Dr McLaren was interrupted and told to stop by CEAA officials. He felt it was because the Petronas modellers were becoming uncomfortable. As he recalled, 'It was the most important point in that meeting to get straight. And I was told to 'move on,' and stop asking about numbers that made no sense. It made me believe the modellers had not looked at their own numbers.'

His conclusions are personal and powerful:

'If you cannot explain the present, and the Petronas model certainly cannot, why would you use it to predict the future?

'We know that this model is not science. You cannot use a

model to prove a preconceived notion: that building on Flora Bank will not hurt the salmon. That's not science. And we know that the claim that STA supports the numerical model is just simply not true.

The currents mean everything. The way Petronas presented the lie was to show that the currents on Flora Bank are too small to move the sediments... but they themselves (Petronas) had taken current data three times higher than what they used and they kept that secret with the collusion of CEAA, NRCan and DFO.

'And we know the model doesn't work. My conclusion is that the science and the model are fraudulent.'

He presented that conclusion, including using the word 'fraudulent' at a meeting with First Nations and representatives from the three federal agencies. No one challenged him. No one said a word.

Collusion. Fraudulent. Corrupt. These are not words I associate with the federal approvals process. We need to be raising hell before similar 'science' is used to approve Kinder Morgan. ✍

This article was written with the assistance of Patrick McLaren, PhD, PGeo, President of SedTrend Analysis Limited in Brentwood Bay.