

High Risk of Environmental Degradation on Roberts Bank if Port Metro Vancouver's Roberts Bank Container Terminal 2 (T2) Development Goes Ahead

Introduction

Scientists have established the crucial nature of biofilm on Roberts Bank as a food source for Western Sandpipers, as noted on the BC Government's websites and backed by the published, peer-reviewed scientific literature. What we now know - from academic and government biologists - is that T2 presents significant risks to, and could destroy, the biofilm on Roberts Bank. The nightmare scenario is that **No biofilm Equals No Shorebirds.**

1. Roberts Bank and its Environmental Importance

Here are the facts about Roberts Bank and its importance:

- Recognized both in Canada and internationally as a critical ecosystem and one of the richest and most important areas in terms of biodiversity and abundant wildlife on the West Coast.
- Identified by Bird Life International as one of the top sites under the Global Important Bird Area designation.
- Recognized internationally under the Western Hemisphere Shorebird Reserve Network as a site of Hemispheric importance.
- Designated by the British Columbia Government as a Wildlife Management Area (WMA), wherein they state : “ Roberts Bank WMA provides crucial wintering grounds for the highest number of waterfowl and shorebirds found anywhere in Canada”
- A vital stop on the Pacific Flyway for Migratory Birds

2. Roberts Bank – Critically Important to the Western Sandpiper Population

Here is what we know about Roberts Bank and its unique importance to the Western Sandpiper:

- The entire world population of Western Sandpipers (the most numerous shorebird on the Pacific Coast of North America) numbers in the millions and migrates along the coast of North America through the Fraser River Delta, enroute to their Arctic breeding grounds. The Fraser River Delta and Roberts Bank is one of only six major stopover sites for refuelling during this breeding migration.
- On Roberts Bank a small area of the mud surface contains biofilm, produced by diatoms and bacteria that settle out of the seawater and binds to the mud, providing extraordinary amounts of nutrient rich forage for huge flocks of migrating sandpipers.
- The “Science and the Environment Bulletin, April/May 2001” revealed that Western Sandpipers are dependent on the unique conditions of the mudflats at Roberts Bank. Due to tidal currents and nutrients flushing out of the Fraser River, the mudflats at Roberts Bank are unusually rich in a biofilm coating which the sandpipers suck up with specialized beaks. As surface feeders, the sandpipers are particularly susceptible to heavy metals and other pollutants from industrial sources. The migratory stopover at Roberts Bank is crucial to the survival and sustainability of this tiny shorebird.

- Virtually the entire Western Sandpiper species (as high as 80 percent of the species) stop to feed on Roberts Bank during their migration. Together with Dunlin as many as 500,000 appear on a single day. The majority of their diet – 80 percent plus – is biofilm and they feed on little else during their northbound migration.
- There are only six principal stopover sites – including the breeding site in Alaska - where the species can feed. The biofilm is essential to their ability to breed when they reach the breeding grounds. If even one stopover site is compromised then the whole species may be put at risk.
- The rarity of such large estuarine muddy stop-over sites, hosting extensive biofilm fields such as the one at Roberts Bank, may explain why these birds take such long "hops" between each site.
- Published research shows that Roberts Bank provides a superior type of biofilm for shorebirds that is not found in Boundary Bay, Sturgeon Bank or Sidney Spit, areas, hence the reason that there are more shorebirds on Roberts bank than the other sites.
- There is no other alternative food source for the Western Sandpiper. Biofilm is essential for these small creatures to successfully get to the right place at the right time and in good enough condition to breed. They can imbibe massive amounts of this superabundant high energy food in a short time and fly to the next stop-over.
- Roberts Bank is a critical stop on the Pacific flyway. Destroy or reduce the biofilm and we will see population level declines in the Western Sandpiper as well as severe negative impact on other shorebirds.

3. Port Metro Vancouver is risking the Very Survival of the Western Sandpipers

Despite all this Port Metro Vancouver refuses to recognize the environmental importance of Roberts Bank and its significance to millions of Western Sandpipers and other shorebird species. Effective mitigation is not possible. If T2 goes ahead then millions of shorebirds are impacted and populations destroyed or severely compromised.

From the published Port Metro Vancouver Technical Advisory Groups (TAG) reports and presentations it is apparent that Port Metro Vancouver has set out to try and “prove” that no damage will be done to critical feeding areas on Roberts Bank. The messaging and content of these TAG reports are controlled by Port Metro Vancouver. This is not independent and credible science. Their reports indicate that they are not tackling the key issues – being how Roberts Bank biofilm is maintained. Their reports indicate that they are avoiding the real issues:

- The T2 man-made island will alter the predominant tidal current in Georgia Strait, causing it to move closer inshore and scour out the biofilm
- The Fraser River plume – the source of the biofilm - will be blocked.

They have been told that their approach is not a satisfactory method of understanding the potential for biofilm destruction. Studies which Port Metro Vancouver conducted in the early 2000s, when T2 was first advanced (and then withdrawn), showed that changes in tidal currents and flows would indeed have a negative impact on the Roberts Bank biofilm.

Port Metro Vancouver is also trying to dismiss the importance of Roberts Bank by stating that the Sandpipers can go elsewhere to alternate feeding areas and alternative food sources. The Roberts Bank biofilm is a different composition from other biofilm found in lesser abundance nearby; it is scientifically preposterous to suggest that the Sandpipers could switch to alternative food sources.

Port Metro Vancouver – in its research reports – downplays the importance of biofilm, implying that it is peripheral and that there are other food sources. Their reports suggest that the environmental focus should be on the overall productivity of Roberts Bank. This is a false assumption. Biofilm makes up only 10 percent of the area on Roberts Bank; therefore looking at overall productivity is an invalid approach. The biofilm is close in to shore. On a falling tide the Western Sandpipers feed out to the edge of the biofilm – about 300 metres – but no further. They do not feed on the invertebrates that exist further out and this is proven by the fact that 80 percent of their stomach content is made up of biofilm. The Port Metro Vancouver experts state that “ Biofilm can be compared to the salad that accompanies the meat and potatoes”. This is untrue. **For Western Sandpipers biofilm is the whole meal.**

4. Conclusion

We know that the Western Sandpiper population has been in decline. It is ranked as ‘High Concern’ in the U.S. Shorebird Conservation Plan and of ‘Moderate Concern’ in the Canadian Shorebird Conservation Plan. If biofilm on Roberts Bank is compromised by T2 then either the birds will not be able to complete their migration to breed or their fitness to breed will be reduced ...thus, we will see less eggs and so the population will continue to decline perhaps to the point of extinction.

We simply cannot afford to risk the destruction of migratory and shorebird feeding grounds on Roberts Bank by development of a second container port.

If biofilm goes then the birds go. We cannot let this nightmare scenario play out. The Port Metro Vancouver Terminal 2 project must be stopped.

Roger Emsley
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Reference Material:

1. Biofilm

<http://www.sfu.ca/biology/wildberg/papers/KuwaetalEcolLet12.pdf>

2. Pacific Wetlands

<http://wetlandslive.pwnet.org/wetlands/pacific.php>

3. Western Sandpiper

<http://birds.audubon.org/species/wessan>