



# AV Terrace Bay - Effluent Update

Improvements since 2014



[avterracebay.com](http://avterracebay.com)

# AVTB – Effluent Treatment

Primary treatment:

- 2 clarifiers to remove solids (mostly fiber)
- Recovered clarifier sludge is mixed with hog fuel & burned in the Power Boiler



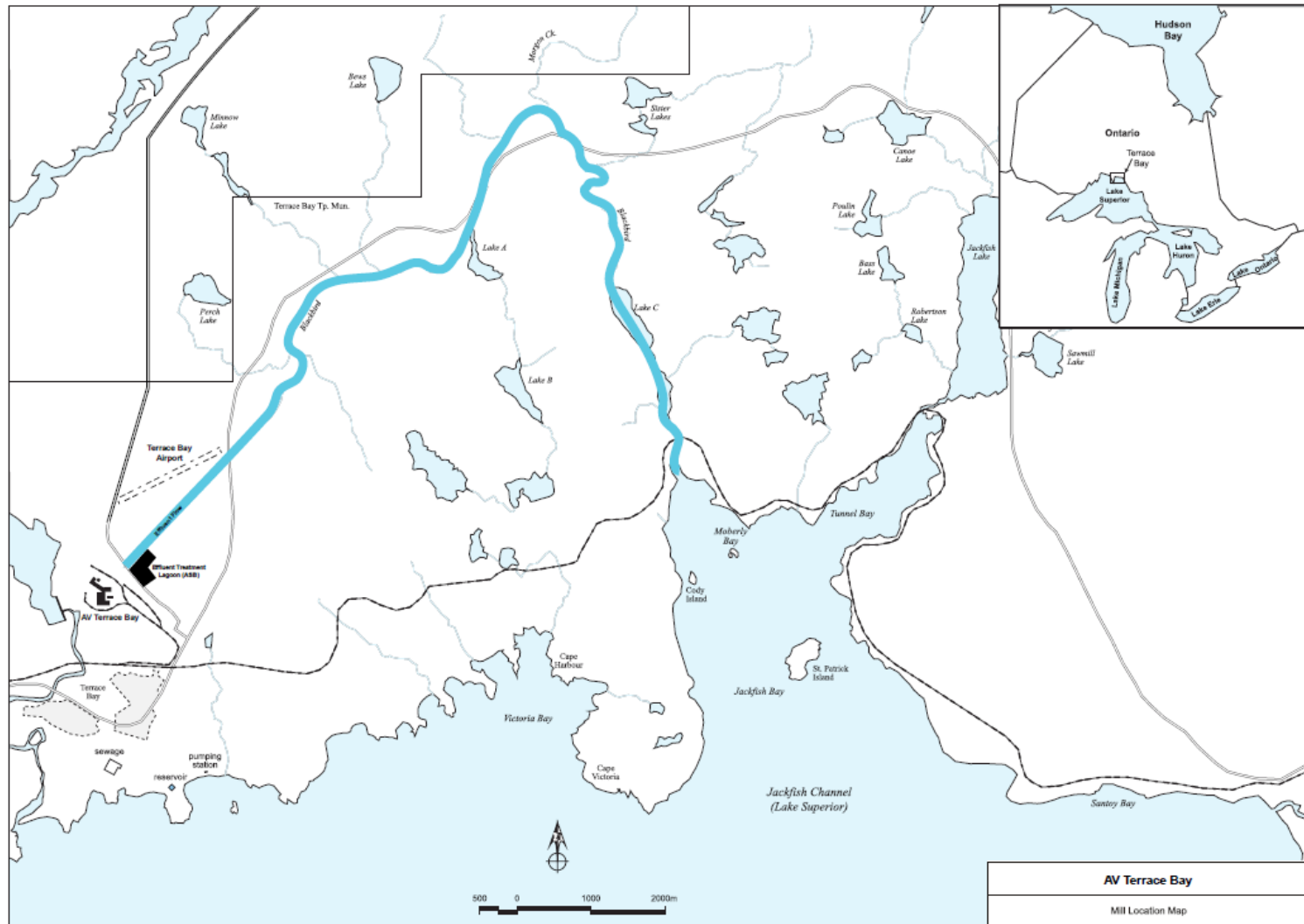
# AVTB – Effluent Treatment

Secondary treatment:

64 acre ASB (aerated stabilization basin) where filamentous bacteria consume pollutants

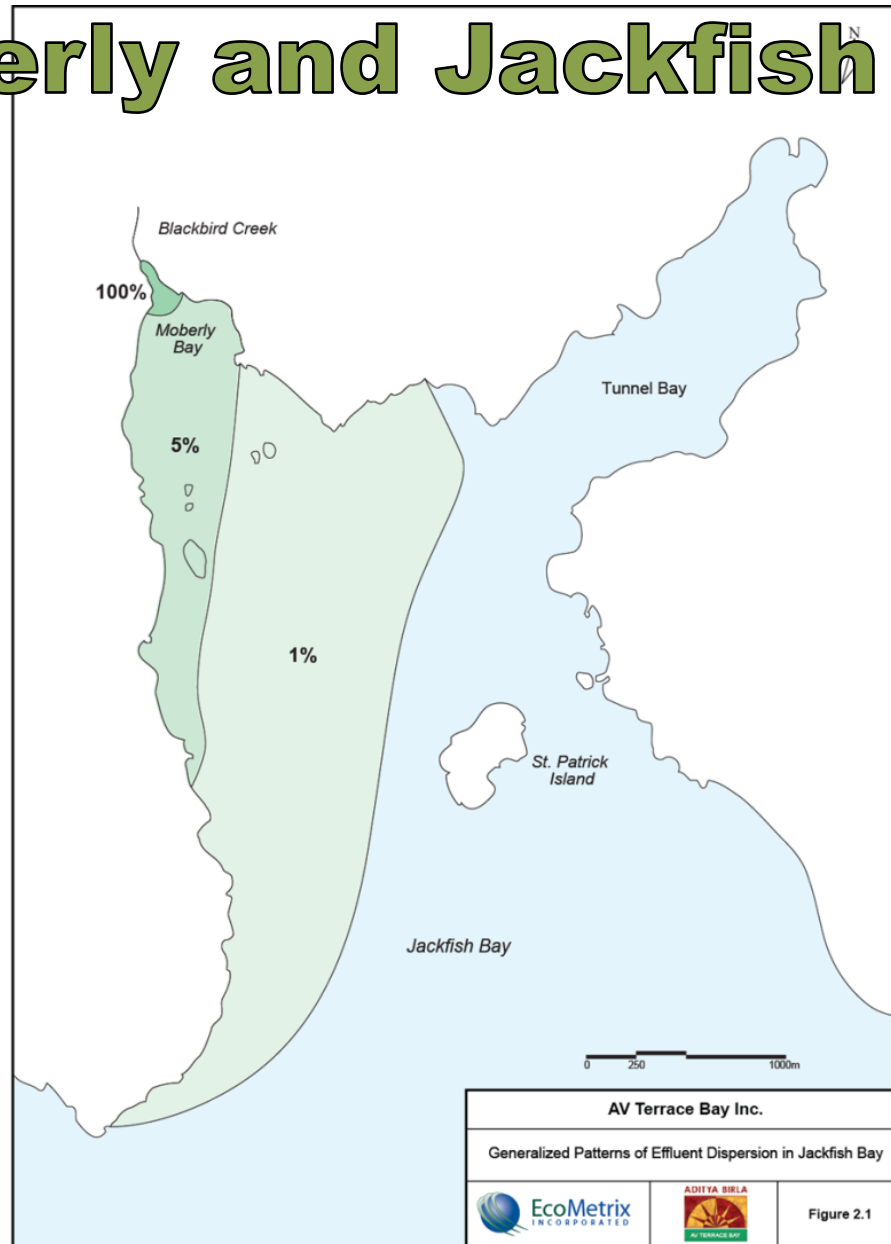


# Effluent flows to Lake Superior via Blackbird Cr.





# Effluent Plume in Moberly and Jackfish Bays



# Mill Effluent in Moberly Bay



Pictures  
from 2014



# Preventative Action

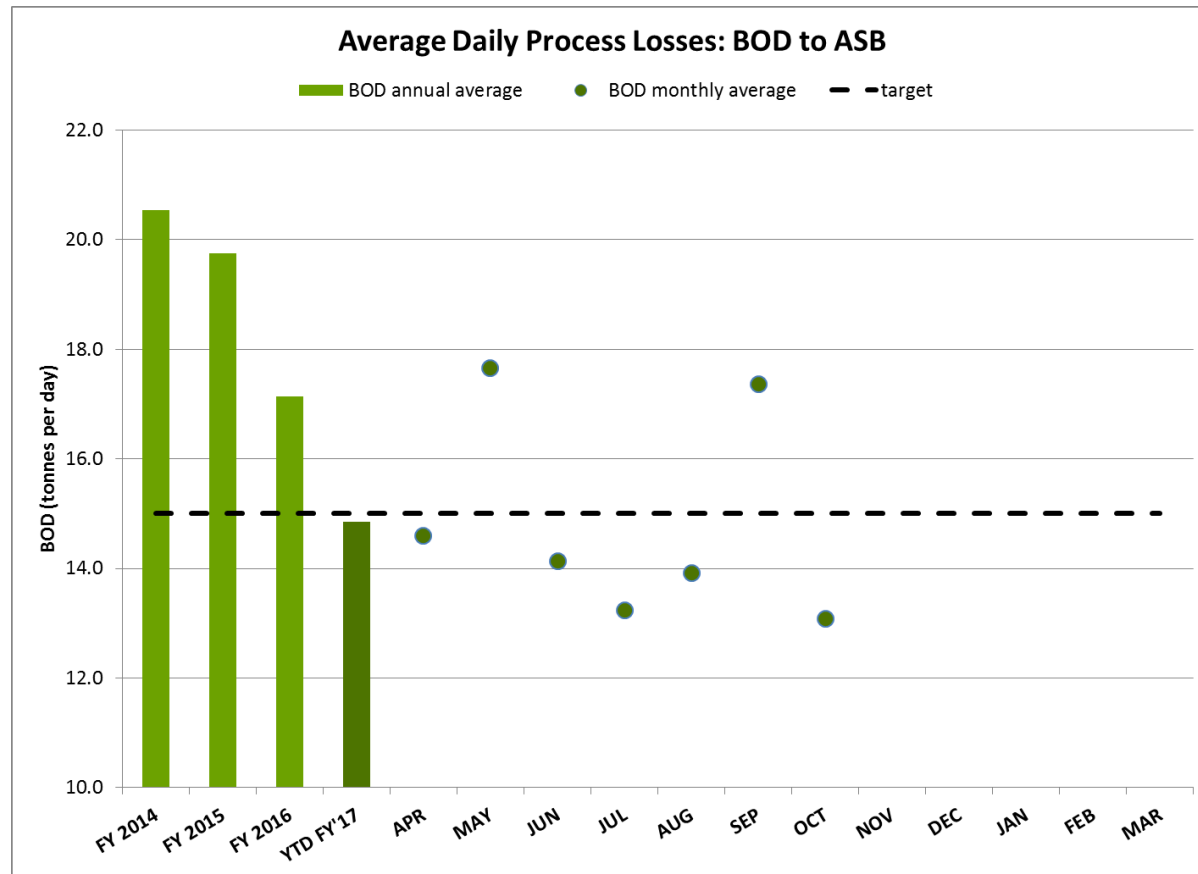
**2016:** New floating “Tuffboom” barrier installed near the mouth of Blackbird Creek to reduce the amount of foam entering Moberly Bay. Barriers in place prior to 2016 were suspended, allowing foam to bypass barrier when water levels in the creek were low.





# Effluent improvements since 2014

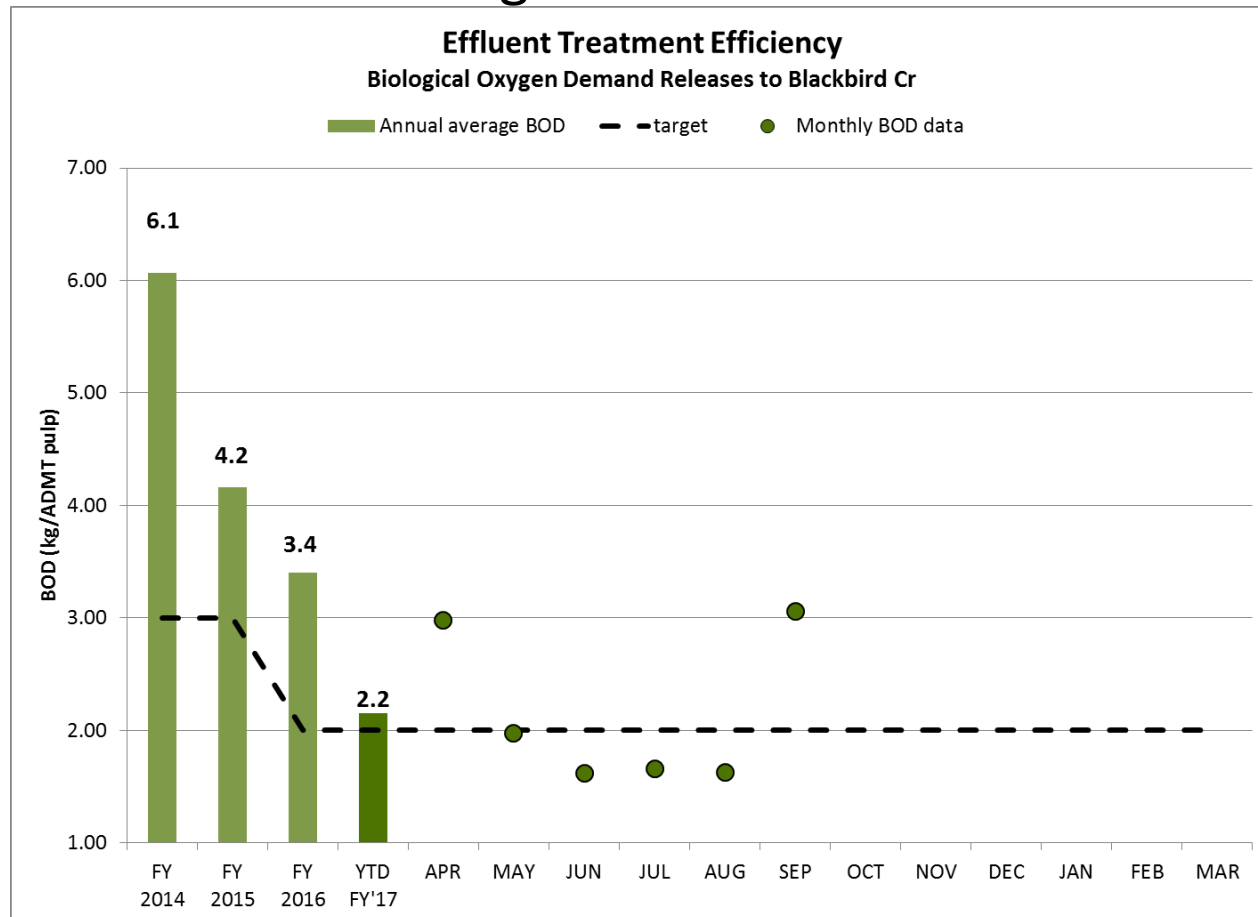
[1] Implemented process loss minimization program – reduced losses to mill sewer.





# Effluent improvements since 2014

[2] Reduced releases to Blackbird Creek – improved effluent treatment via nutrient management & maintenance on aerators



# Moberly Bay Environmental Effects Monitoring

## BENTHIC MACROINVERTEBRATE COMMUNITY SURVEY (2014)

- The sediments of Moberly Bay have been severely impacted from historic mill operations (fiber & oil deposits).

Parameter	Units	Reference			Near Field		
		2002	2006	2014	2002	2006	2014
Total Organic Carbon	%	2.35	2.2	1.52	5.32	8.8	4.40
<b>Grain Size</b>	<b>%</b>						
Medium Sand		1.6	4.0		1.8	8.3	3.2
Fine Sand		31.4	22.4		21.8	20.4	26.4
Silt and Clay		67.0	73.6		76.4	71.3	70.4

# Moberly Bay Environmental Effects Monitoring

## **BENTHIC MACROINVERTEBRATE COMMUNITY SURVEY (2014)**

- The erosional samples from the near field and far field benthic community exhibited higher invertebrate abundance and taxa richness suggestive of mild nutrient enrichment.
- The depositional benthic community has undergone significant improvements since 2006.
- Sedimentation rate is slow so it could take until 2039 for natural sedimentation to completely isolate the contaminated sediments.



# Moberly Bay Environmental Effects Monitoring

## **FISH SURVEY (2014): longnose & white suckers**

- Observed effects on fish are lower average age and higher condition (weight, length, etc.) compared to Mountain Bay reference site.
- Investigation of cause:
  - Effluent provides nutrient enrichment and high organic content in sediment support higher density of benthic invertebrates
  - More food available to suckers improves fish condition
- Corrective actions:
  - Manage nutrients in effluent treatment to minimize releases to Blackbird Creek without compromising effluent treatment
  - Reduce process losses to mill sewers

# Thank you

**ADITYA BIRLA**



**AV TERRACE BAY**

Air data if question



## Odour History in Terrace Bay (not including shutdown years)

