2013 Oil Sands Bird Monitoring Plan

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Cindy McCallum, and Rob Ronconi

With tablet and birding support by
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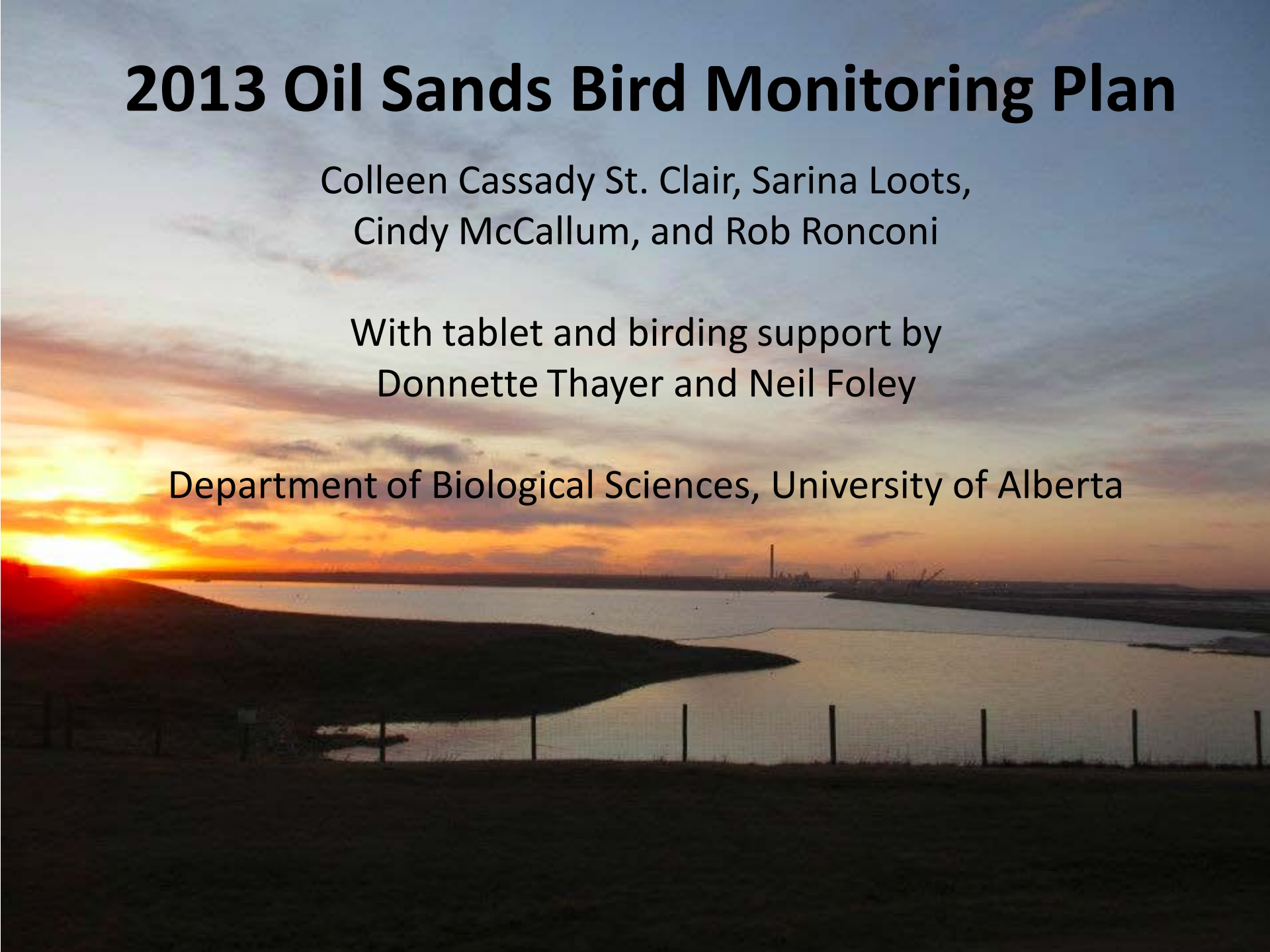


Outline for Today

Background

- Colleen
- Historical Context
- Purpose
- Objectives

30 min

Collecting the Data

- Sarina
- Using the protocol
- Using tablets
- Other monitoring equipment

60 min

Identifying Birds

- Neil
- Foraging behaviour
- Habitat associations
- ID tips

60 min

Managing the Data

- Cindy
- Questions and support
- Trouble-shooting
- QA / QC

Later

The OS BMP is a collaborative venture

World Class Monitoring

Industry

Government

University

Thanks for joining us!

University of Alberta	CNRL	Imperial
Colleen Cassady St. Clair	Joanne Hogg	Rachel Noble-Pattinson
Sarina Loots	Calvin Duane	Justin Krisko
Neil Foley	Sarah Robertson	Harold Funk
Cindy McCallum	Ken Foster	Jim Czirfusz
	Chris Godwin	Simon Hall
	Liz Lade	Kelly Giroux
	Gabrielle Coulombe	Dean Starblanket
Government of Alberta	Lucie Parker	Ian Buchwald
Joann Skilnik	Priscilla Lai	Rezeena Khan
Traci Morgan	Jillian Johnston	Kayla Willis
Sarah McLean		Serafina Dalla-longa
		Craig Ibbotson
		Olga Palomino
		Eden Harris
		Abdi Nur
Suncor	**Shell**	**Syncrude**
Christine Lambert	Paul Knaga	Courtney Drover
Diane Morrissey	Chelsie Hoff	Jamie Sullivan
James Stevenson	Laura Beaudoin	Kyle Lawson
Ali Ahmed	Felicia Juelfs	Liz Blum
Innocent Ndzieye		Taro Iwuru
Christopher Cruickshank		
Mohamed Mohamed		
Jessica Cogswell		
Maria Siruno		
Fiona Tse		
Stefar Spohr		

Just 150 km north of Ft. McKay: The Peace-Athabasca Delta, an internationally-important bird area

…that stages over a million birds annually

From all four waterfowl flyways

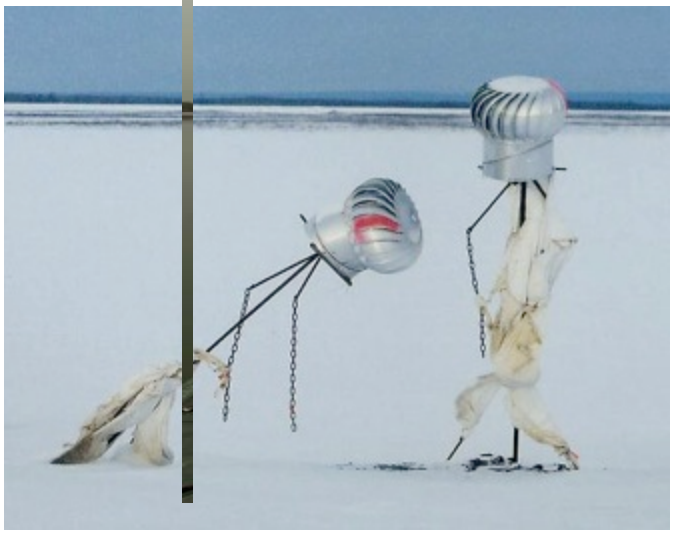
There are 54 process-affected tailings ponds;
over 20 are larger than 0.1 ha and may contain residual bitumen

Tailings Ponds can be dangerous for waterbirds…

… especially in the early spring when natural water bodies are still frozen

Severe weather can force birds to land; late fall migrants may be especially vulnerable

Deterrence systems are installed to protect birds



Some recent history

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500 ducks suffer a crude death in Alberta

DAWN WALTON

CALGARY— From Wednesday's Globe and Mail

Published Wednesday, Apr. 30, 2008 10:36PM EDT

Last updated Monday, Mar. 30, 2009 3:33PM EDT

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Just five mallard ducks have been rescued from an oily tailings pond, while up to 500 birds have sunk to their deaths in the toxic byproduct of Syncrude Canada Ltd.'s oil-sands operation in northern Alberta.

An estimated 400 to 500 ducks landed on the hydrocarbon contaminated lake, which is usually surrounded by noise-making cannons to deter migrating waterfowl, but a late winter storm that dumped 50 centimetres of snow in the area delayed deployment of the devices this spring, the company said.

"It's definitely unusual circumstances, but they're really sad circumstances and we want to do everything we can to help ensure it doesn't happen again," Syncrude spokesman Alain Moore said Wednesday.

Syncrude to pay $3M for duck deaths

JOSH WINGROVE

Edmonton— Globe and Mail Update

Published Friday, Oct. 22, 2010 1:35PM EDT

Last updated Wednesday, Dec. 15, 2010 4:57AM EST

An Alberta judge has accepted a bargain struck by prosecutors and oil sands producer Syncrude Canada Ltd. that will see the company pay a $3-million fine - the largest environmental penalty in Alberta history - after being found guilty of the deaths of 1,606 birds on its tailings ponds two years ago.

Toxic Syncrude tailings pond kills hundreds more ducks

PATRICK WHITE

From Wednesday's Globe and Mail

Published Tuesday, Oct. 26, 2010 2:42PM EDT

Last updated Monday, Nov. 29, 2010 6:37PM EST

Hundreds of ducks are dead after landing in a toxic Syncrude tailings pond on Monday, igniting yet another public-relations disaster for a company and an industry that was slapped with the largest environmental penalty in Alberta court history just three days ago.

We're going to solve these issues in environment through technology... The markets will demand energy... Nobody's going to tell Asia, China, India, 'Sorry, this is the end of energy supply, you will have to live without new sources of oil'... It just won't happen!

Alberta Premiere Ed Stelmach after 2nd landing

Common public questions

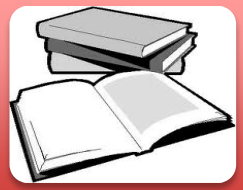
1. How many birds land?
2. How many die?
3. Is this inevitable?
4. Why don't birds see the bitumen and avoid it?
5. Do the deterrents work?
6. Are there better ways to protect birds?

Why am I involved?

RAPP
Research on Avian Protection Project

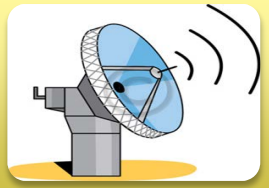
Darrell Martindale, Shell; Joel Ingram, Environment Canada,
John Gulley, Golder Associates, Dave Fairless, Alberta Environment

RAPP's Court Orders



Review the literature

Support standardized monitoring program



Conduct field experiments

Recommend best practices

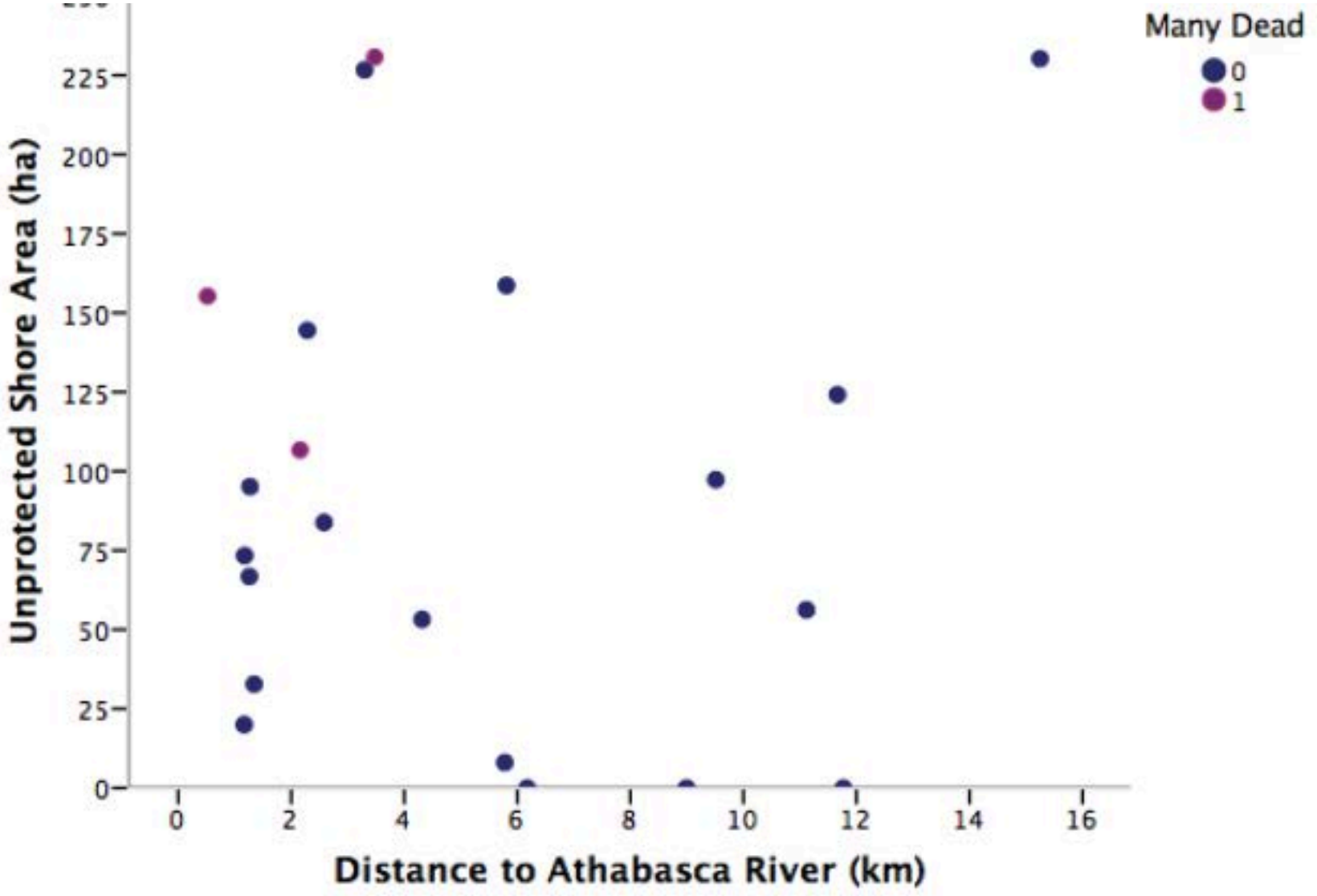
Can mass landings identify best practices?

Event	Mining Context	Deterrent Context
2010	Variable mining context, residual bitumen present	Deterrents placed, but variable in density / coverage
2008	Active mining at site of landing	Deterrents not yet placed
1979	Active mining at site of landing	Unknown

2010 had multiple landings sites; 6 ponds with dead birds and 15 without among 21 ‘dangerous’ ponds

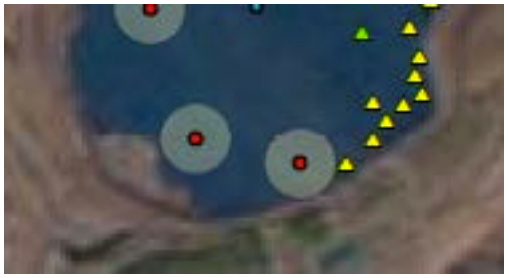
Ponds with many dead birds in 2010:

Best predicted by unprotected shoreline and its interaction with distance to river



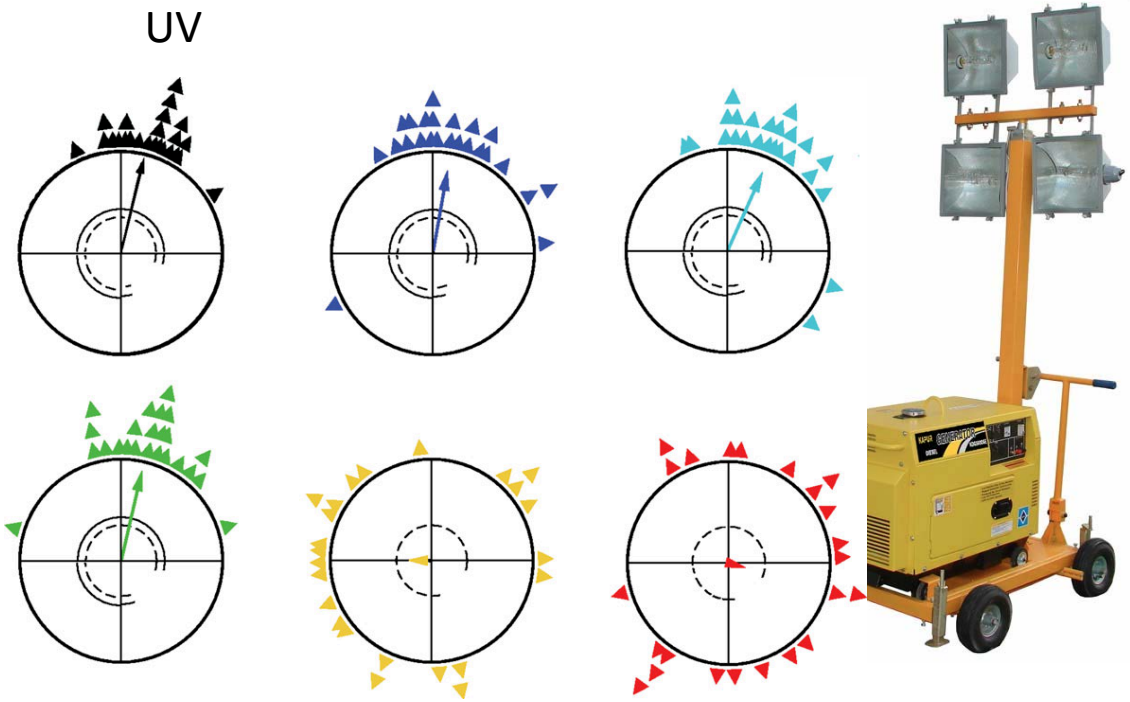
Locations of landings within ponds

- Within 200, usually 90, m of shore
- On downwind sides
- Near anthropogenic lights



Anthropogenic light

- Attracts most vertebrates
- Appears to interfere with UV cones and magnetic navigation
- Appears to disorient and trap nocturnal migrants



Directional orientation of birds is compromised by yellow and red light, which all white light contains
Wiltschko et al. 2010

Working hypotheses

=

Mass landings have happened (too) rarely

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And many factors are potentially involved

Better monitoring of occasional landings is needed to identify risk factors, evaluate efficacy of deterrent systems and, ultimately, to support best practice

Monitoring Plan Objectives

1. Provide an estimate of bird contacts and mortalities on ponds containing process-affected waters;

2. Provide an estimate of bird contacts on ponds containing fresh water;

3. Develop a standardized monitoring program for all oil sands mine operations to provide comparable data across ponds, sites, seasons, and years;

4. Identify species at risk that have been affected through contact on ponds containing process-affected waters, and

5. Provide direction on adaptive management for long-term monitoring and bird deterrent programs.

Monitoring Protocol Components

Bird Surveys

Mortality Searches

Incidental observations

Visits by U of A observers

- Experience with protocol on site
- Separate observer from site effects
- Share knowledge
- **Build effective, collaborative program**

What have we learned so far?

- Many thousand birds land; well over 100 species
- Very few (< 100) appear to die
- Several sensitive / threatened species land
- There's a LOT of variation among sites
- 2012 Report available soon

Monitoring Acknowledgements

Participation by the University of Alberta in the development, implementation, and reporting of the Regional Bird Monitoring Program for the Oil Sands Region was supported by Alberta Justice via a court-ordered research project emanating from *R. vs. Syncrude* in 2010. We are grateful for guidance and support from Alberta Environment and Sustainable Resource Development, particularly by Michael Aiton, Randall Barrett, Sarah McLean, Tanya Richens, and Joann Skilnick. Numerous employees of oil sands companies and their contractors were instrumental to the success of the program, especially

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2012 Protocol	2013 Protocol
Record data either using tablets or paper data forms.	Submit data only via tablets or web-based forms; use paper data forms only on an interim or emergency basis.
Conduct mortality searches twice weekly at each process-affected pond.	Conduct mortality searches at each process-affected pond once every 2 weeks. Plan a survey route and record the route that was completed.
Identify all birds with equal effort.	Identify birds initially by foraging mode, apply more effort to identifying target birds that dabble, dive or wade, and strive to identify all species with a risk designation.
Report birds heard during the pond inventories.	Do not report birds that are only heard as part of the bird surveys. Report species at risk that are heard in any location as an incidental observation.
Report all flyovers observed during bird surveys.	Report only those flyovers that occur within 100 m immediately above survey stations.