

Why do different beaches have different types of vegetation?

Allan Crowe

Environment Canada
National Water Research Institute
Burlington, Ontario



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Canada



NATIONAL WATER
RESEARCH INSTITUTE
INSTITUT NATIONAL DE
RECHERCHE SUR LES EAUX

Nice beach and vegetation



Problem vegetation



Why do different beaches have different vegetation?



these conditions relates to the hydrological
(water characteristics) of the beach . . .

Do you have a DRY BEACH?

Do you have a WET BEACH?

Types of beaches: Dry Beach

dry sand, only plant is beach grass

(American Beach Grass or Marram Grass)



Types of beaches: Wet Beach

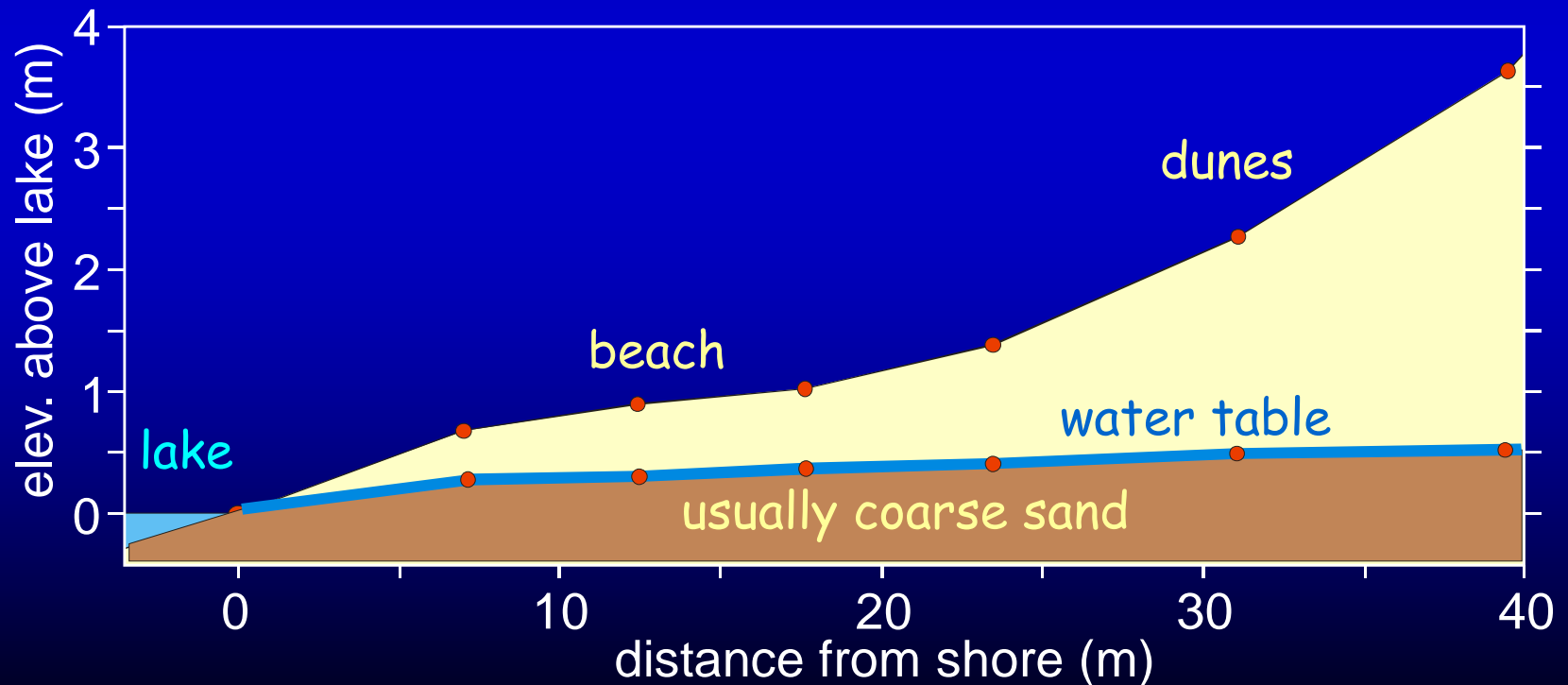
beach: flat (no dunes), wet sand, many plants



Depth to water table at dry beach

high ground surface

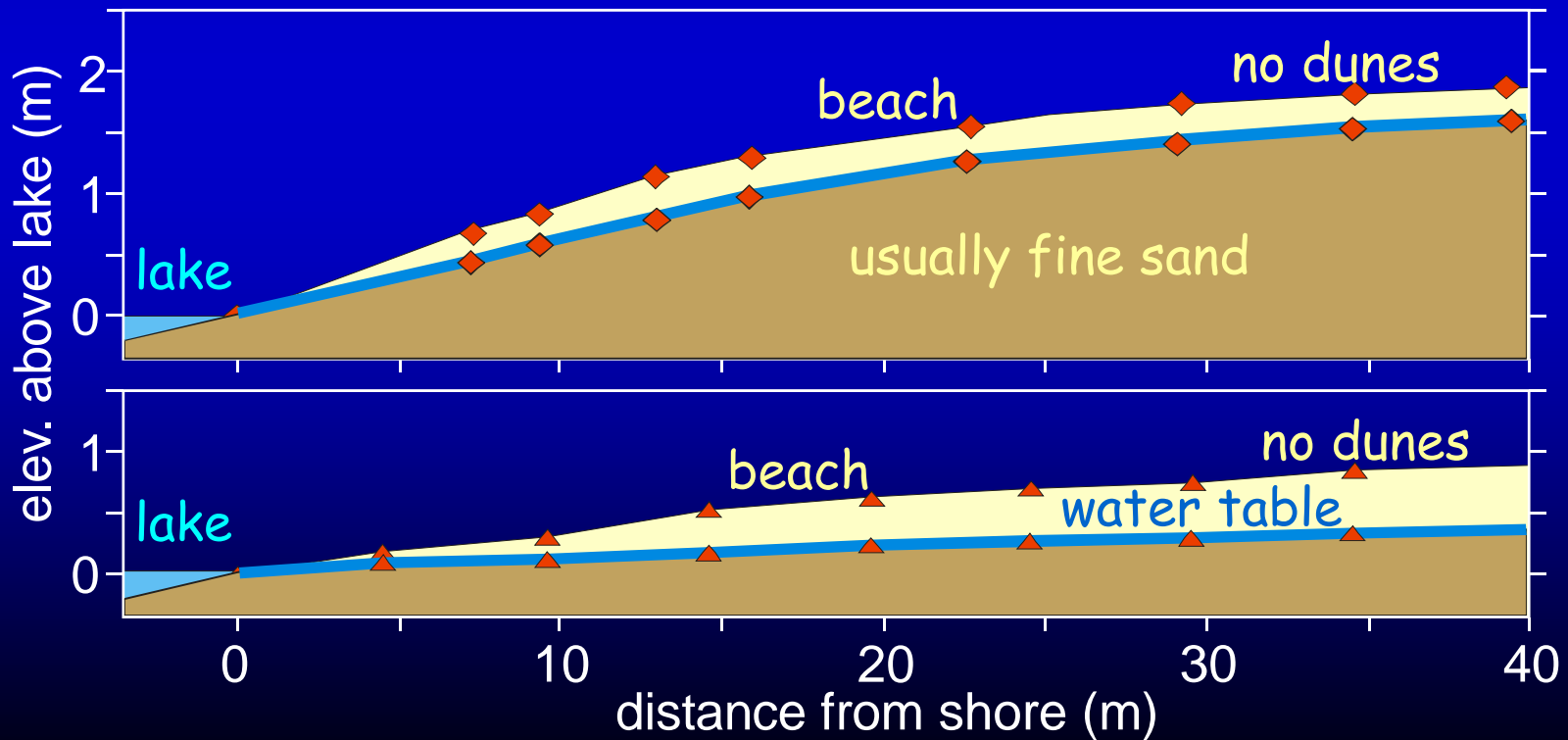
deep water table
0.5 m to >4.0 m



Depth to water table at wet beach

flat ground surface

shallow water table
0.0 m to 0.5 m



Water content vs. type of beach

Dry Beach:

- low moisture content in sand above wt
- no water in sand at surface



Wet Beach:

- high moisture content in sand above wt
- moist or wet sand at surface

Water content vs. type of beach



Dry Beach = "dry" sand

- essentially no infiltration of rain
- no surface runoff after rain
- no ponding of water



Wet Beach = "wet" sand

- rain will infiltration to w.t.
- surface runoff after rain
- ponding of water

Vegetation on beaches

type of vegetation relates to type of beach



Dry Beach:

- deep water table, dry sand
- little infiltration of rain
- plants adapted to dry conditions



Wet Beach:

- shallow water table, wet sand
- lots of infiltration of rain
- just about any plant

Vegetation on dry beaches



Vegetation on wet beaches

native plants do not grow well on wet beaches

2 types of "invasive" plants on wet beaches

exotic species:

- not native to Great Lakes
- *Phragmites* turf grass
- opportunistic



Vegetation on wet beaches

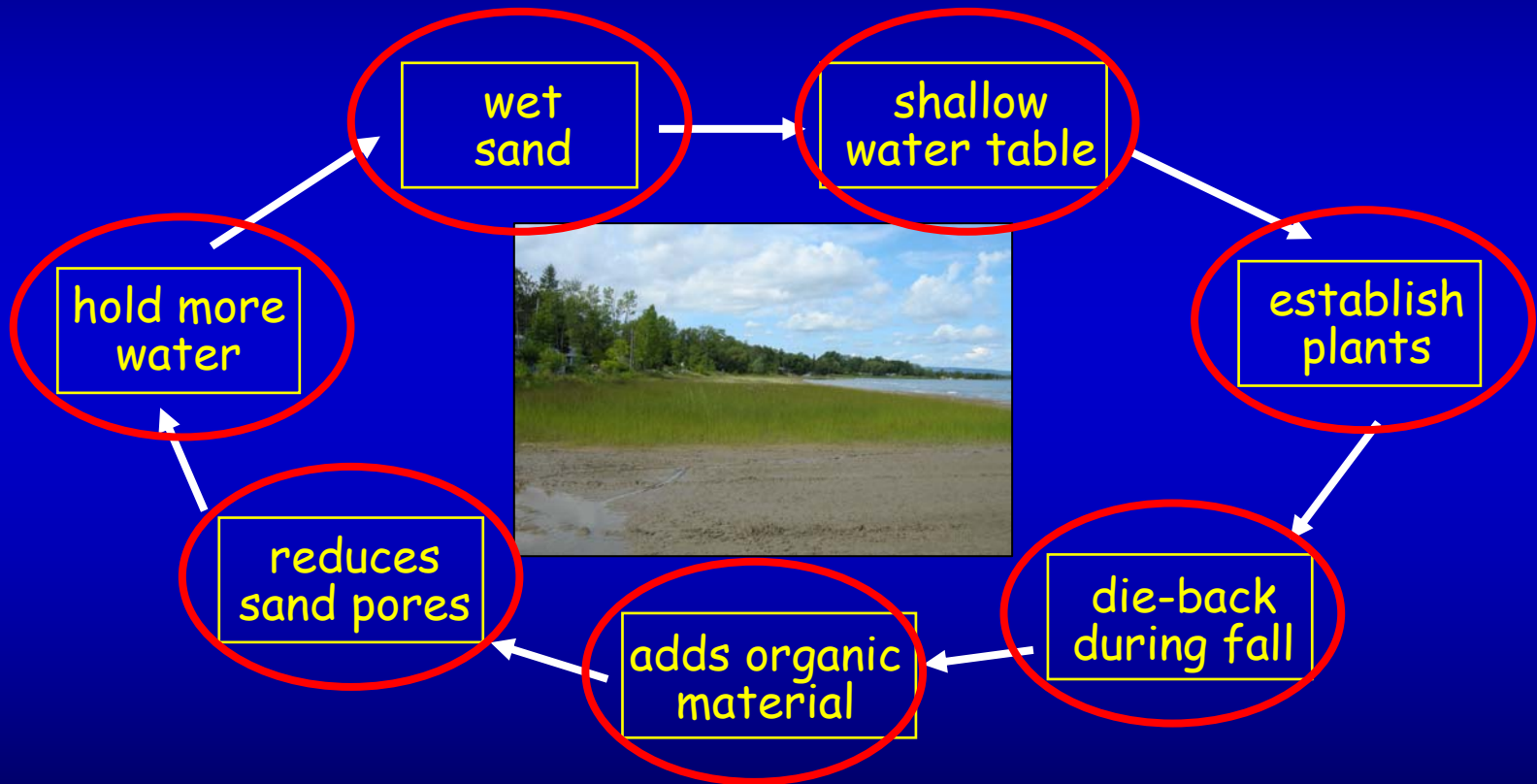
2 types of "invasive" plants on wet beaches

native species:

- native to wet shorelines
- sedge, cattails, bulrush, silverweed, etc.
- opportunistic



The wet beach cycle



What caused vegetation problems?

Natural Events

low lake levels

Community / Resident Actions

remove dunes

External Pressures

invasive *Phragmites*

Impact of low lake levels

expose more of lake bed = a wider beach
but also flatter and wetter

impact depends on:

- dunes vs. flat beach
- if beach grass is present



Impact of low lake levels

no dunes + no beach grass = problem

- loss of sand - no beach grass to hold sand
- maintain a shallow water table



Impact of low lake levels

dunes + beach grass = less problem

beach grass holds sand

beach grass and dune
migrates towards lake



Impact of people

removing sand dunes
and beach grass

nothing to hold sand
promote shallow w.t.



- leads to wet beaches
- provide wet conditions for plants

Impact of people

lawns planted
next to beach



grass will get
on to beach

Impact of people

turf grass on a beach
will attract geese!



leads to *E. coli* in
lake water & sand

Can anything be done?

in some case . . . NO

- may need to remove all vegetation and beach sand (roots & organic matter)
- "wet" is the natural state



wet cobble beach



wet sand beach

Can anything be done?

but in many cases . . . YES

- when lake levels rise?
- increase depth to water table?

Increase depth to water table

slightly higher ground surface relative to the water table will form a dry beach

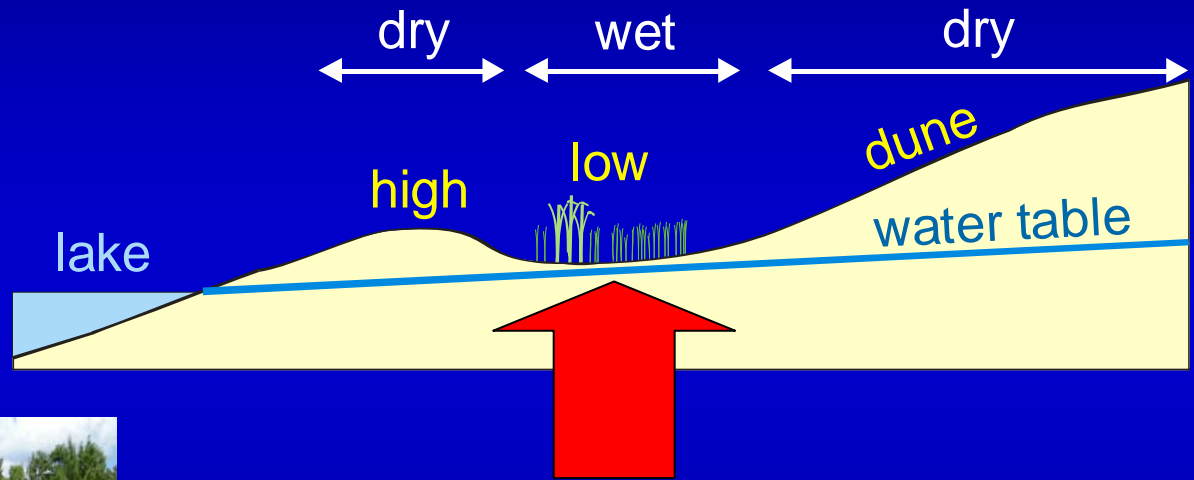


small
elev.
change

beach grass
dry sand

other plants
damp sand

Increase depth to water table



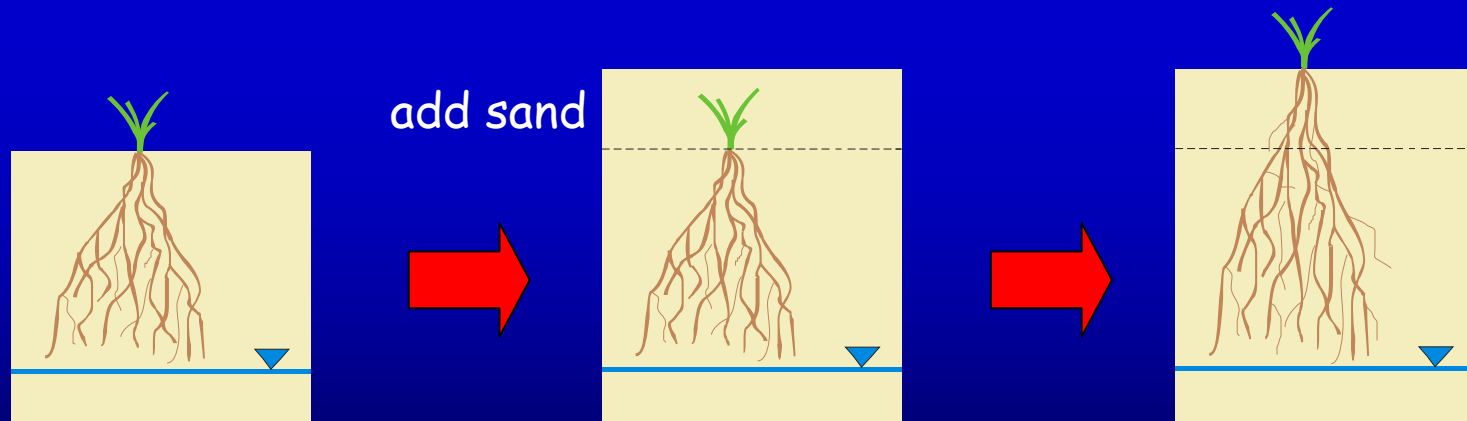
may be a dry beach if
dry beach (high)
20-30 cm of coarse
sand added to surface?
wet beach (low)

Increase depth to water table

BUT . . .

placing sand on top of vegetation may not work

- roots remain at water table
- plant grows through sand



Must remove vegetation before adding sand

How do you raise the ground surface?

Sand Fencing

accumulates sand at
fence and 10 to 15 m
beyond fence

best time - late fall
(but can keep all year)

stabilize accumulated
sand with beach grass



start building dunes at
wet beaches

How do you raise the ground surface?

Move existing dunes towards lake
(sand dune & beach grass migrates towards lake)

put clean sand at
base of dune or
let sand naturally
accumulate

plant beach grass
on top of sand



How do you raise ground surface?



American Beach Grass
(*Ammophila breviligulata*)

- traps sand
- builds dunes



What can you do?

Protect/restore sand dunes and beach grass

Don't plant lawns (natural landscaping)

Stop drainage onto beaches
(municipal storm drains, residential pavement)

Consult Park experts about your beach sand, vegetation, and best management practices

Educate your neighbours