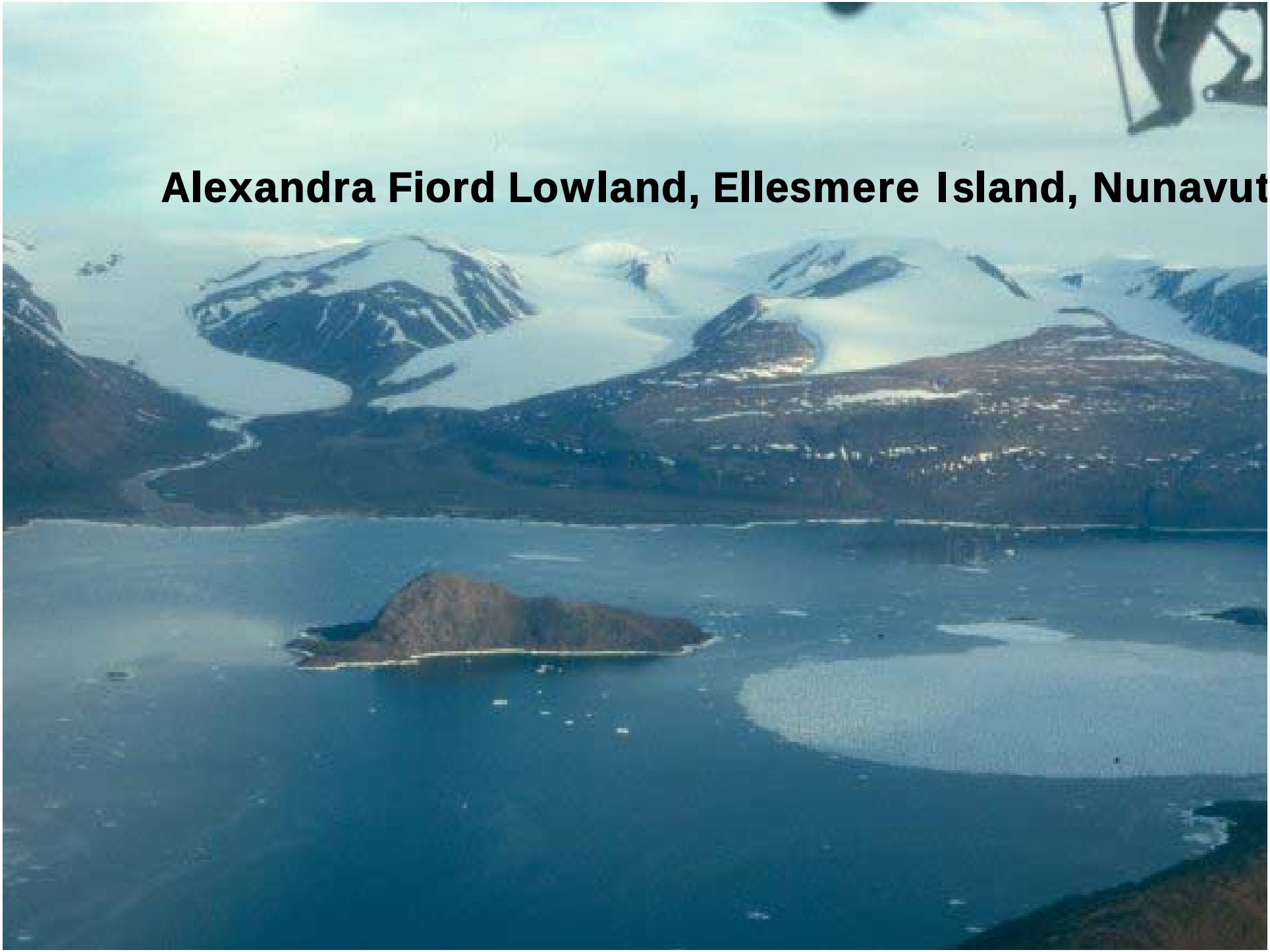
Monitoring the Environment in the 21st Century -An update from an equipment user and supplier

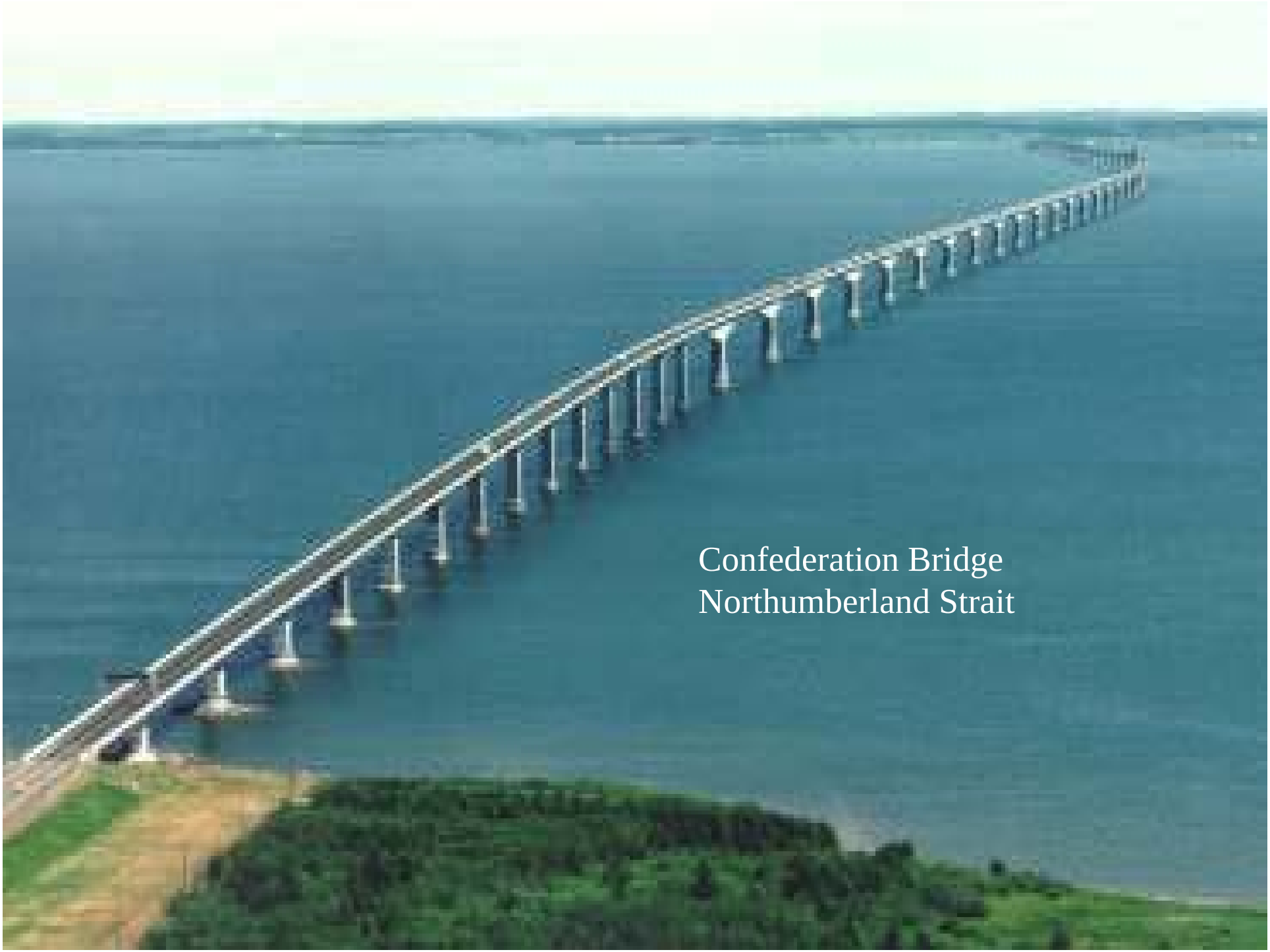
Claude Labine,
Campbell Scientific Canada

Water Quality Conference
St John's, June 2007


Devon Island Ice Cap, Nunavut


Alexandra Fiord Lowland, Ellesmere Island, Nunavut


Vehicle Testing
Maintenance Schedule
CATERPILLAR
CAT
24054
8057

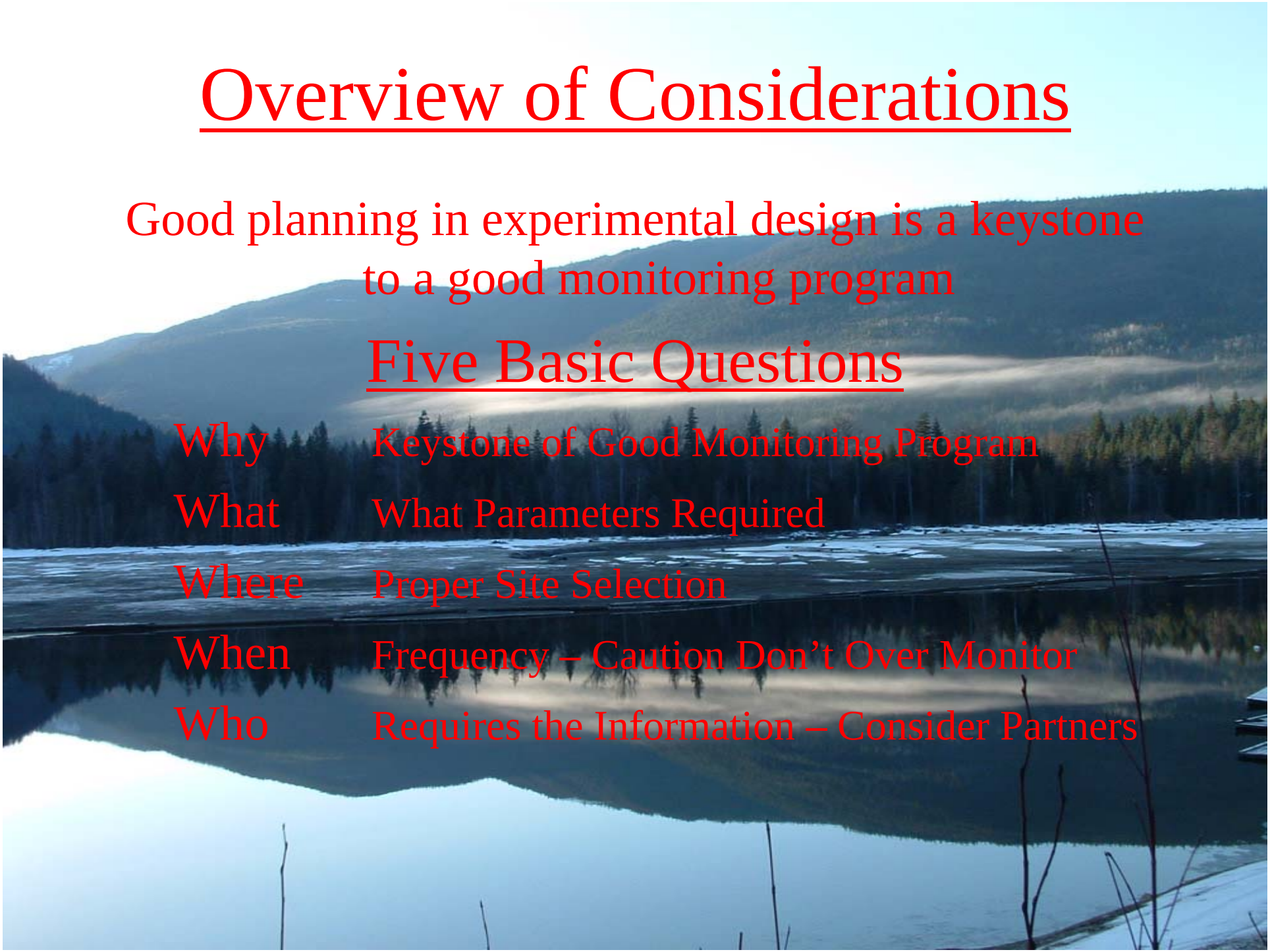

Confederation Bridge
Northumberland Strait

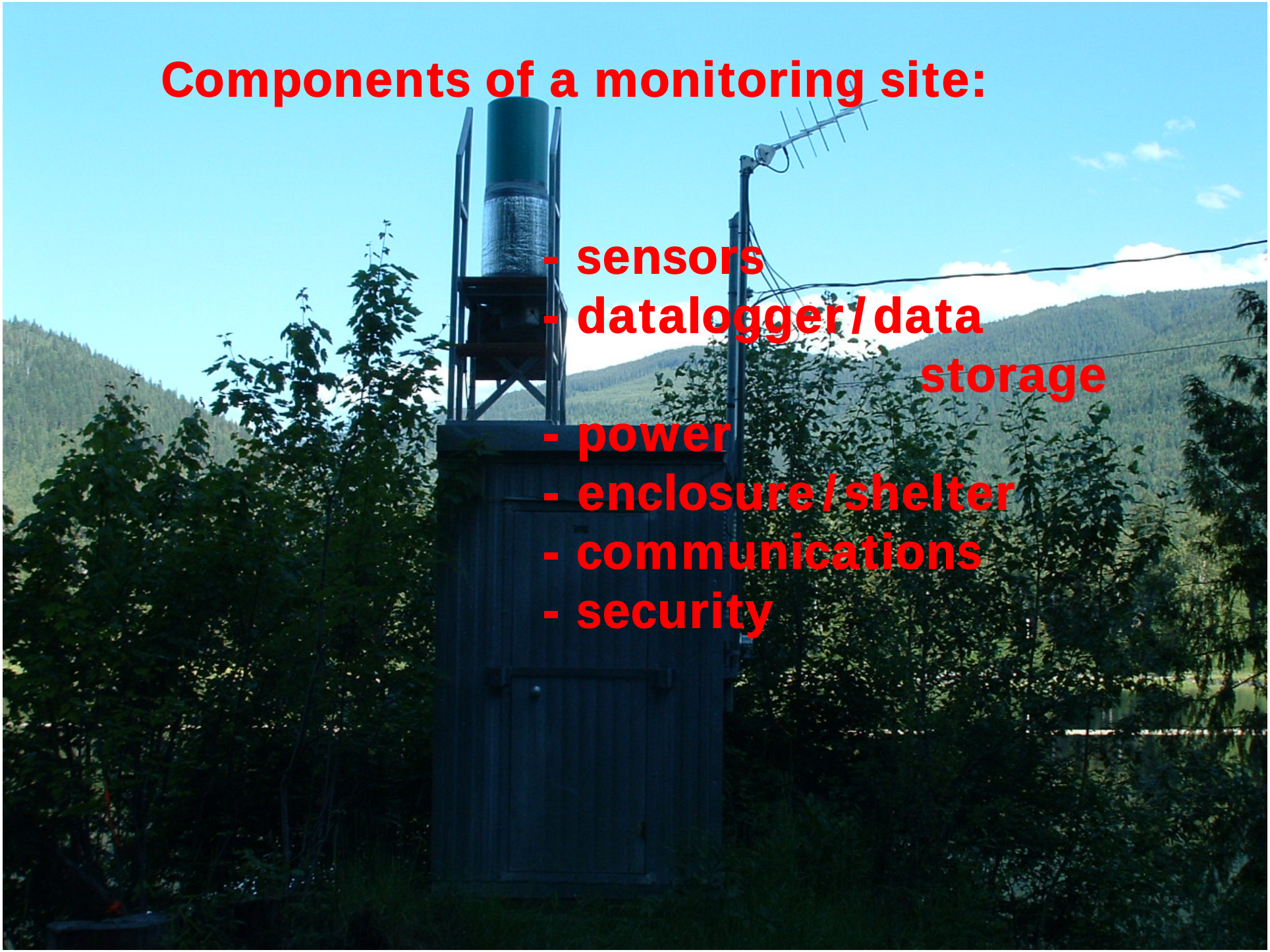
Overview of Considerations

Good planning in experimental design is a keystone to a good monitoring program

Five Basic Questions

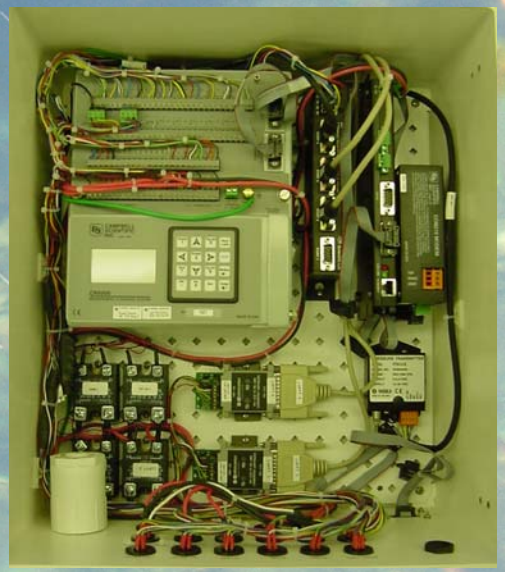
Why	Keystone of Good Monitoring Program
What	What Parameters Required
Where	Proper Site Selection
When	Frequency – Caution Don't Over Monitor
Who	Requires the Information – Consider Partners




Components of a monitoring site:
- sensors
- datalogger / data storage
- power
- enclosure / shelter
- communications
- security

Equipment Considerations

Pre-Wired



Capital Cost

Installation

Flexibility

Maintenance

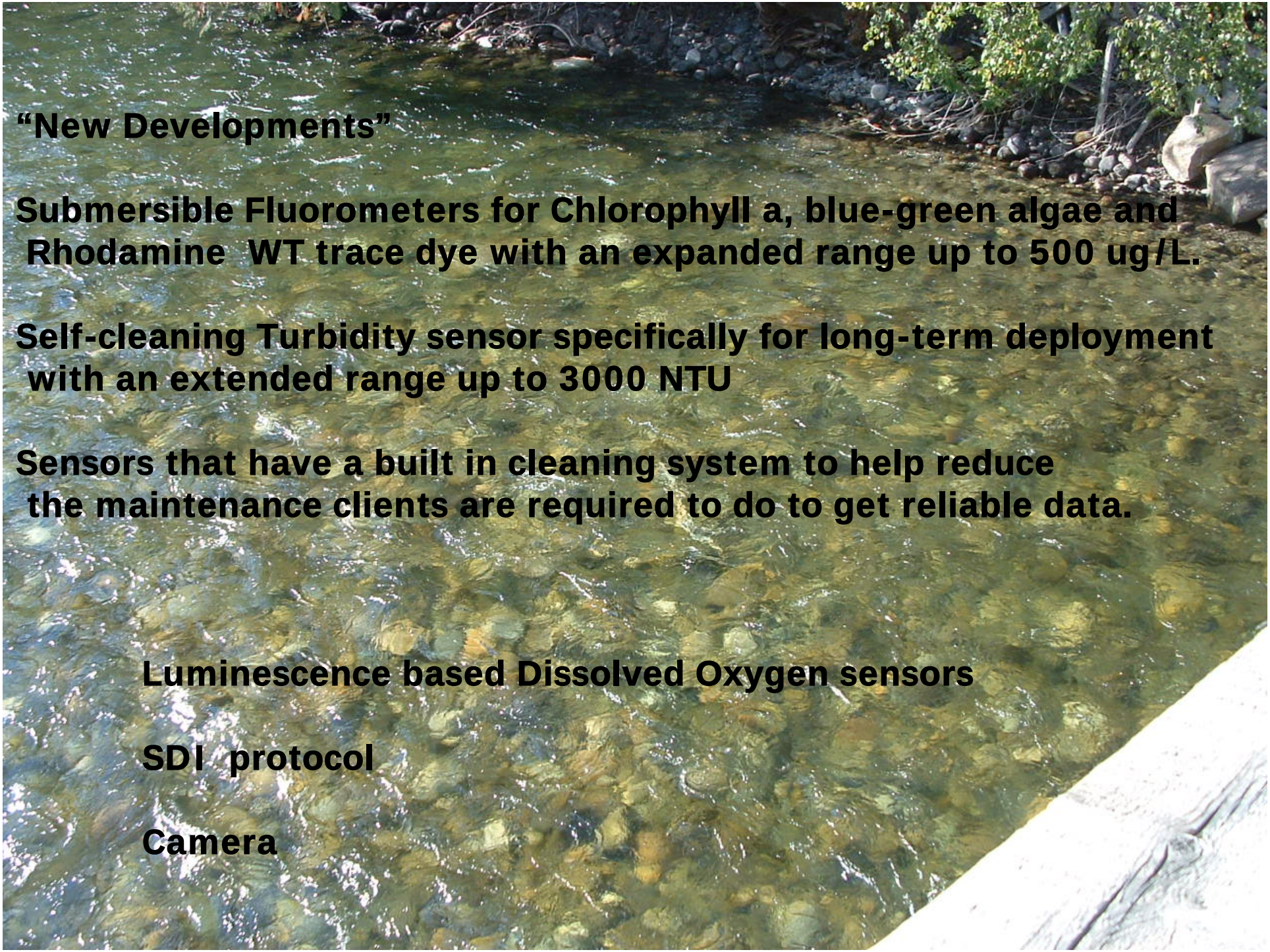
Wired on Site


Power Supply
- needs proper design
- solar and wind charging systems
- the dawn of small fuel cells
Extreme temperature environments
- cold specifications


Telecommunications:
- Telephone (line and cellular)
- Radio – Spread Spectrum
- Satellite: GOES & Argos
- MSAT
- Iridium
- Globalstar
- Xplorenet (Anik)
- Internet


Maintenance & Calibration
Program Responsibility
Documentation & Metadata
Data Management
Data Quality Control
Staff Training


Data Management & Quality Control
Spreadsheets
In-House Development
Aquatic Informatics
W.M.O.
On-Site QC FLAGS
Various Levels of QC
From Hourly to Yearly
Single Station to Network



“New Developments”

Submersible Fluorometers for Chlorophyll a, blue-green algae and Rhodamine WT trace dye with an expanded range up to 500 ug/L.

Self-cleaning Turbidity sensor specifically for long-term deployment with an extended range up to 3000 NTU

Sensors that have a built in cleaning system to help reduce the maintenance clients are required to do to get reliable data.

Luminescence based Dissolved Oxygen sensors

SDI protocol

Camera


Thank you!