



WaterShed
Monitoring

Dr. Sonja BEHMEL, President.

sbehmel@watershedmonitoring.com

+1 418 255 9477



**Cyanobacteria-favorable conditions
tracking & prediction**

Integrated satellite imagery, meteorological data, and local water
quality — from signals to decisions

September 2026

OUR COMPREHENSIVE SERVICE OFFERING



Consulting

Support from our experts to achieve your goals



Capacity Building

Remote or on-site training for your teams



IT Integration

Automation of your data processing to achieve Industry 4.0



Technological Tools

To better store, structure, contextualize, and exploit water quality data

Leaders in design and implementation
of Water Safety Plans

An innovative approach for the entire water cycle!

State of the Water Resources

Monitoring, studies...

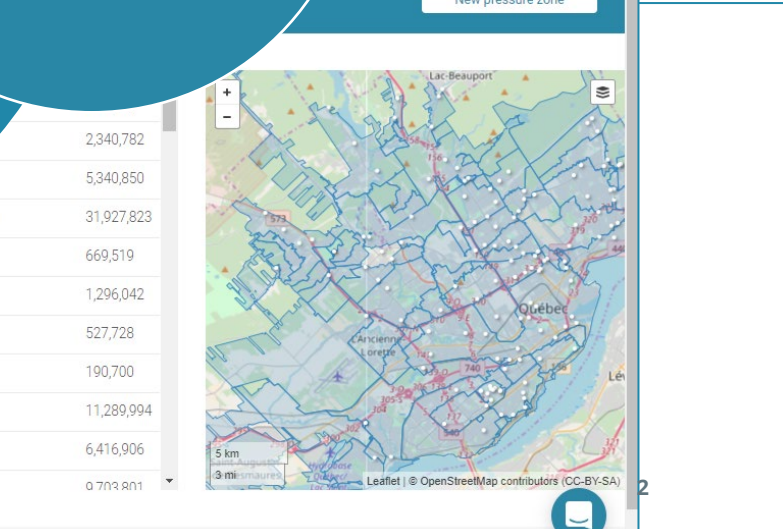
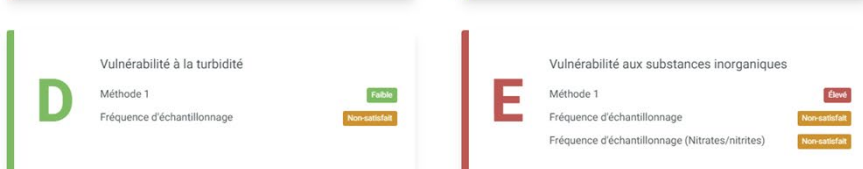
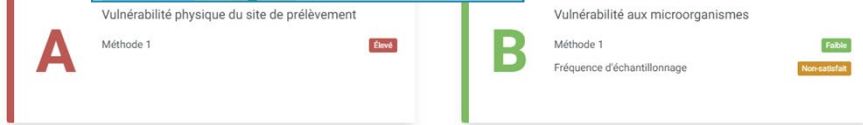
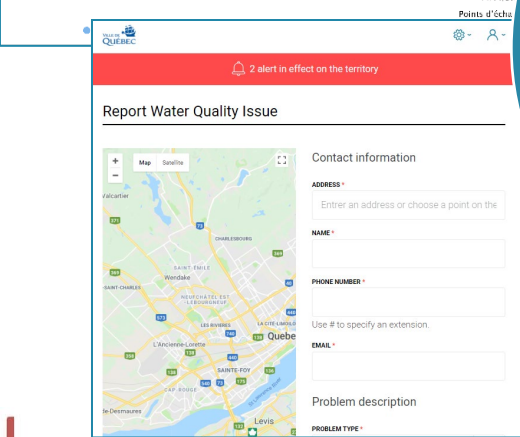
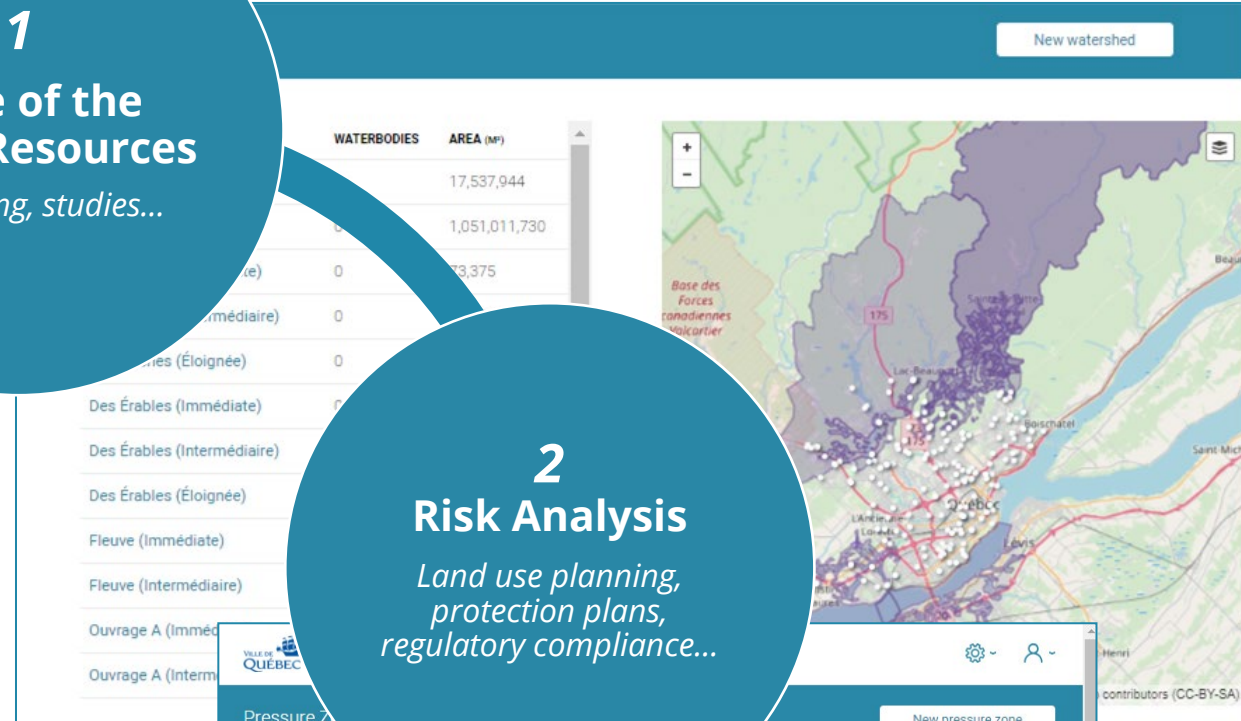
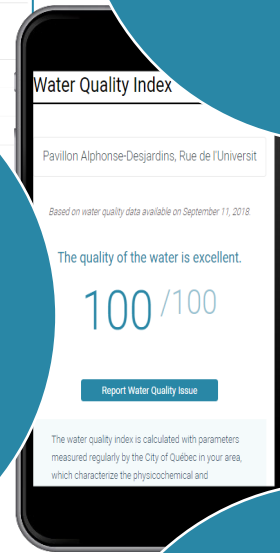
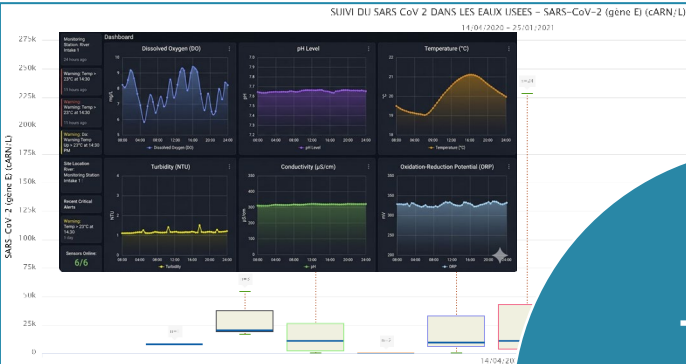
Alerts, complaint
management, smart and
learning communities...

**Drinking Water
Treatment and
Distribution
+
Sewage Collection and
Waste Water
Treatment**

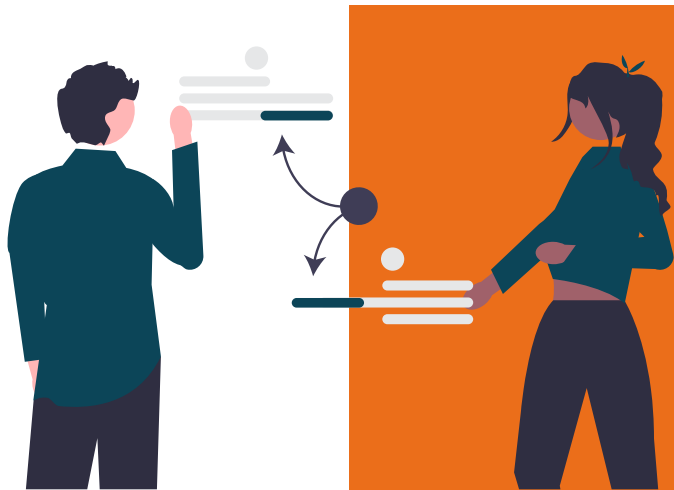
*Early warnings, events
and system
management...*

Risk Analysis

*Land use planning,
protection plans,
regulatory compliance...*



HARMFUL ALGAE BLOOMS ARE A GLOBAL THREAT



The estimated cost of cyanobacteria bloom impacts reach
105-160 million Euros / year in England only.

CYANOBACTERIA: WHY ARE THEY A PROBLEM ?



Rapid growth

They can multiply quickly in warm, nutrient-rich water.



Toxins

Some species produce toxins that can affect humans and animals.



Poor water quality

Blooms can cause green water, bad smells, and less oxygen.



Impacts

They can disturb swimming, drinking water, fishing, and tourism.



Make the lake's next 1-3 days easier to understand

THE CHALLENGE

Cyanobacteria risk is local, dynamic, and hard to observe continuously.

- Field sampling is valuable but sparse.
- Satellite imagery shows patterns, not full causality.
- Weather shifts the conditions around every observation.

THE NERTHUS APPROACH

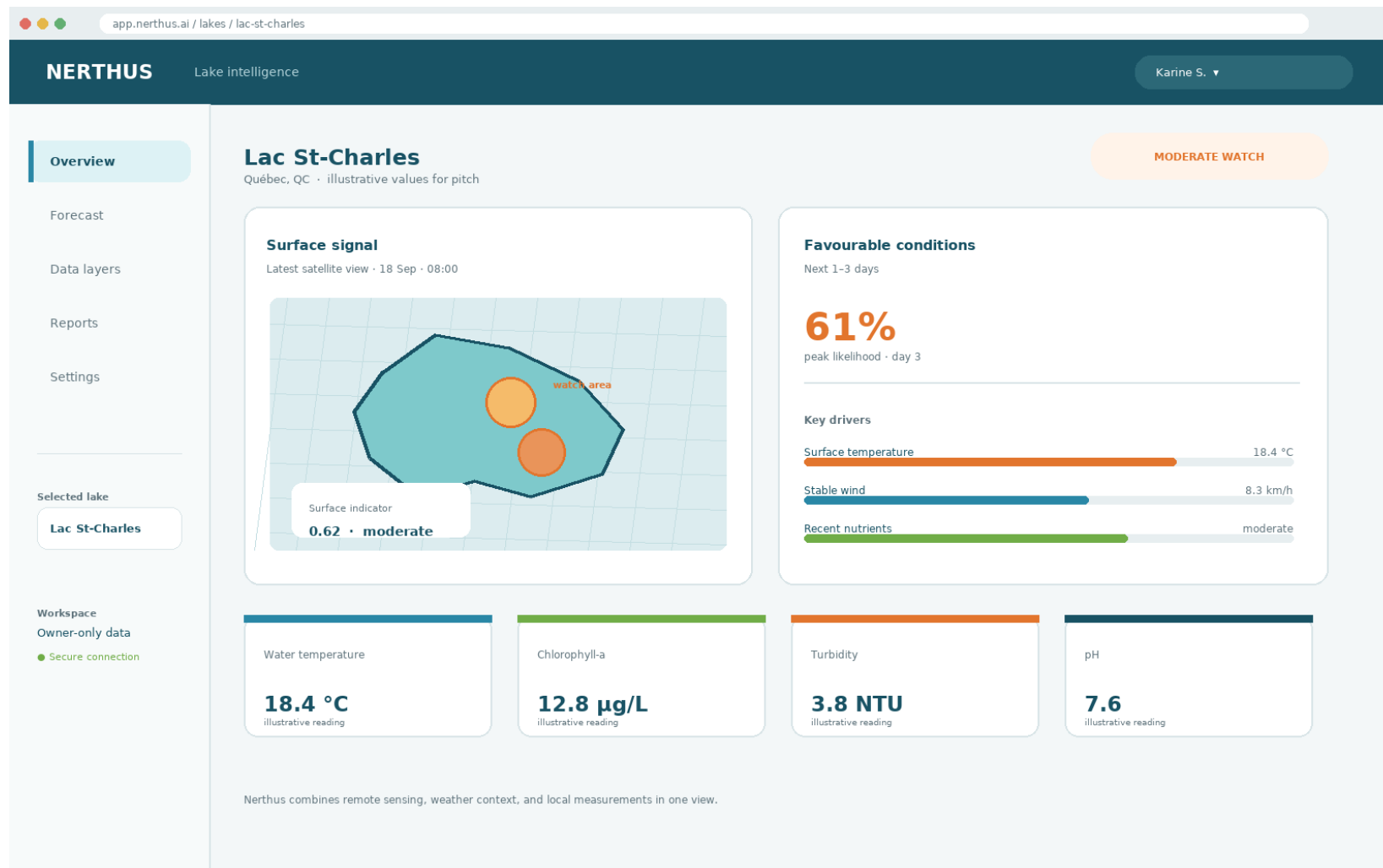
**Fuse the evidence.
Explain the signal.
Act before the bloom.**

Nerthus tracks and predicts favourable conditions for cyanobacteria development through integrated analysis of:

SATELLITE · WEATHER · WATER QUALITY

Cloud-based, API-connected, and designed for secure owner-controlled data.

PRODUCT VIEW – One lake, on decision surface



OVERVIEW

The selected lake is always the anchor.

- Surface pattern on a map
- Next 1–3 day outlook
- Drivers behind the signal
- Local readings alongside model output

Why it matters

A user can move from “where?” to “what next?” without opening another system.

DATA INTEGRATION – Three evidence layers, one prediction mechanism

01 Satellite imagery

WHERE

- Surface-wide spatial coverage
- Change detection and hotspots
- ESA / Copernicus connections

02 Meteorological data

WHY / WHEN

- Temperature, wind, rainfall, light
- Event windows around observations
- Meteo + ENKI connections

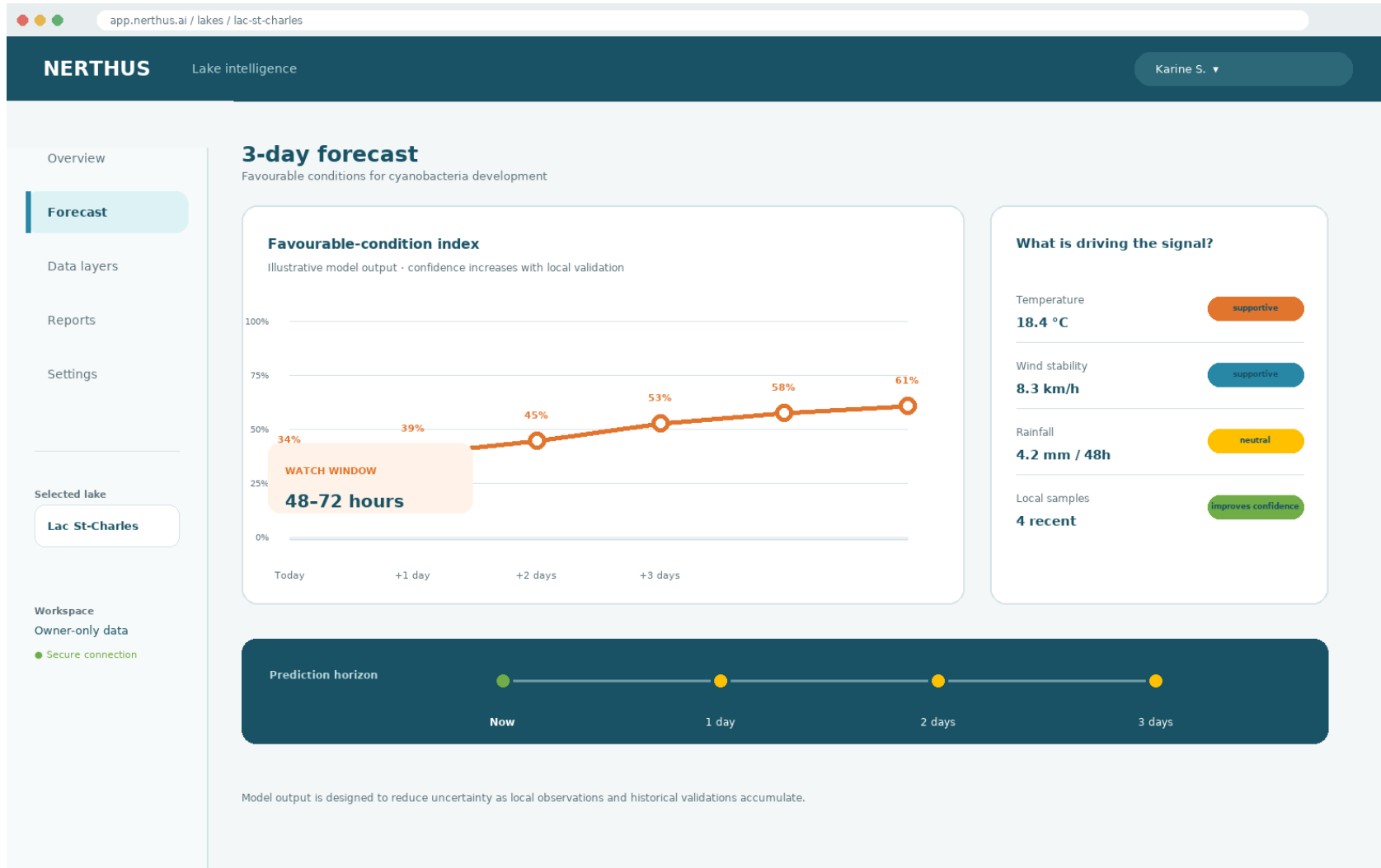
03 Water quality

WHAT

- Local measurements and history
- Ground truth and calibration
- Datastream / owner data

ML + API interoperability + scientific validation → forecast, confidence, notification

PREDICTION – Turn a signal into a 1-2 days watch window



FORECAST

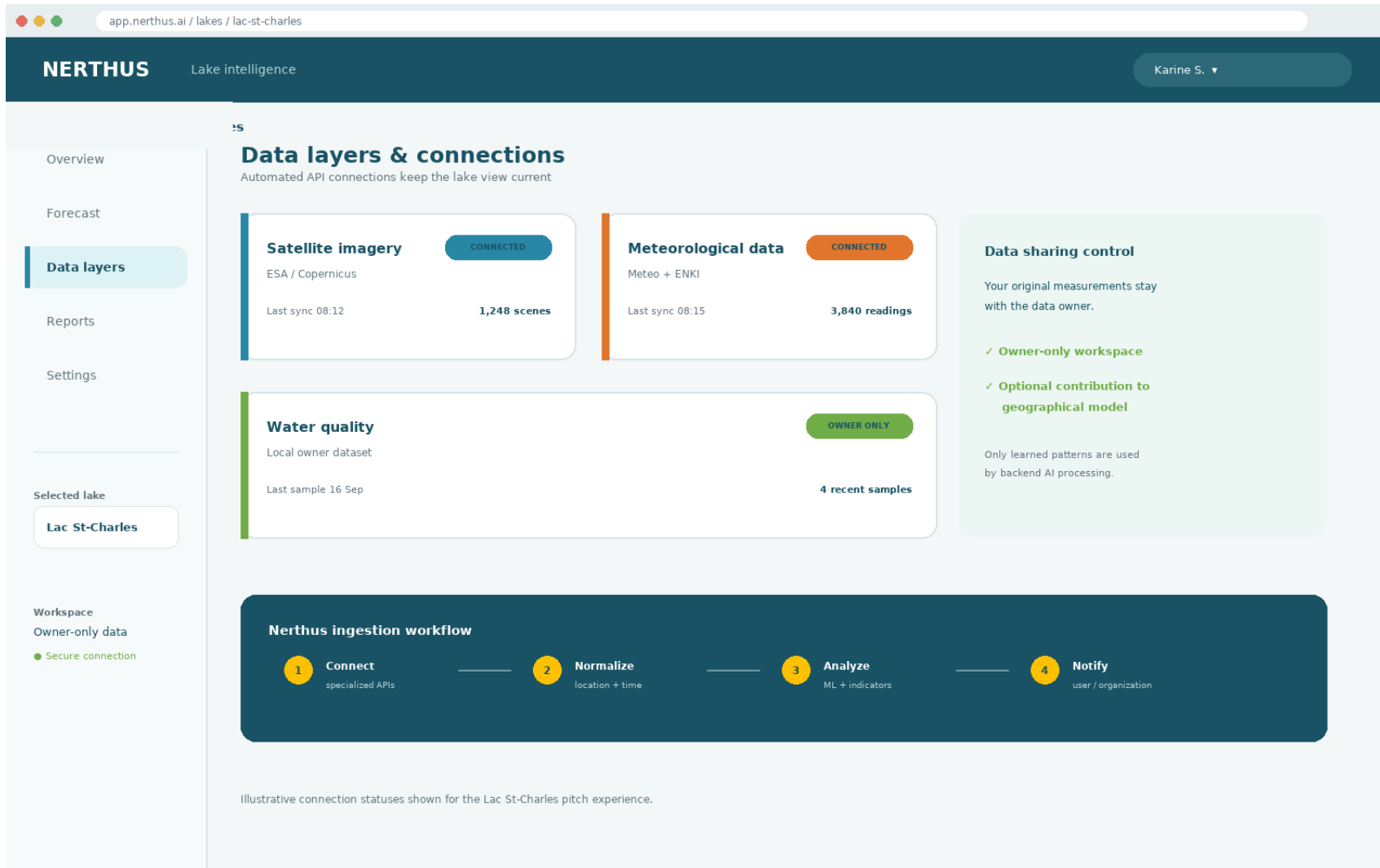
Forecasts become more useful when they explain themselves.

- Shows likelihood, not a false certainty
- Surfaces the environmental drivers
- Makes local validation visible
- Triggers a user or organization alert

Pitch line

**Not “a black-box bloom alarm.”
A transparent, improving watch system.**

TRUST & SCALE – cloud-ready science with owner-controlled data



app.nerthus.ai / lakes / lac-st-charles

NERTHUS Lake intelligence Karine S. ▼

Overview
Forecast
Data layers
Reports
Settings

Selected lake
Lac St-Charles

Workspace
Owner-only data
● Secure connection

Data layers & connections

Automated API connections keep the lake view current

Satellite imagery CONNECTED
ESA / Copernicus
Last sync 08:12 **1,248 scenes**

Meteorological data CONNECTED
Meteo + ENKI
Last sync 08:15 **3,840 readings**

Water quality OWNER ONLY
Local owner dataset
Last sample 16 Sep **4 recent samples**

Data sharing control
Your original measurements stay with the data owner.
✓ **Owner-only workspace**
✓ **Optional contribution to geographical model**
Only learned patterns are used by backend AI processing.

Nerthus ingestion workflow
1 **Connect** specialized APIs — 2 **Normalize** location + time — 3 **Analyze** ML + indicators — 4 **Notify** user / organization

Illustrative connection statuses shown for the Lac St-Charles pitch experience.

BUILT TO SCALE

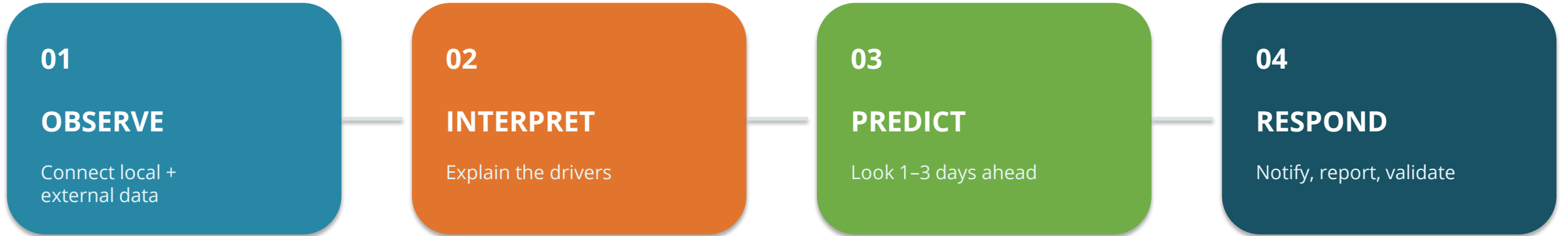
The system can be deployed on any cloud or data center.

- Specialized APIs reduce data-hunting effort
- ML processes high-volume streams
- Local data stays with the owner
- Only learned patterns are shared by choice
- Reports and notifications are configurable

Secure access control

A shared model does not require shared raw data.

THE PAYOFF – A repeatable decision loop for every lake

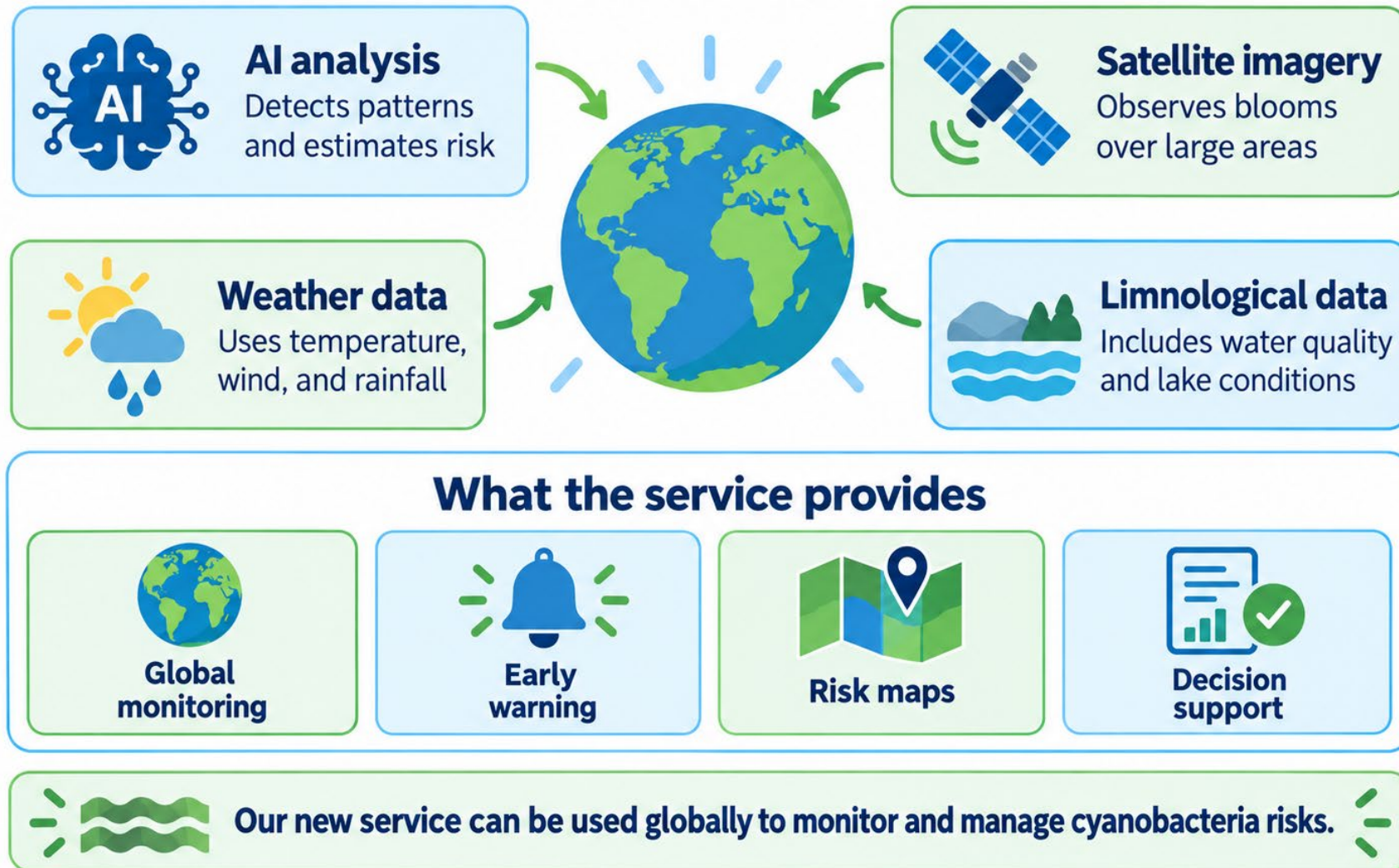


For a water manager, the value is practical:

- See a developing pattern across the whole lake.
- Understand which conditions are pushing it forward.
- Use local evidence to improve confidence over time.

Nerthus converts fragmented environmental data into an operational watch system: starting with one lake, then scaling lake by lake.

A LOCAL & GLOBAL SOLUTION FOR CYANOBACTERIA PREDICTION



INTERNATIONAL CLIENTS & PARTNERS

+300 users worldwide



watershedmonitoring.com



Thank you!

Please contact me for more information



Dr. Sonja BEHMEL , President
+ 1 418 255 9477

sbehmel@watershedmonitoring.com