RBR

rbr-global.com

RBR Generation 3 Instruments

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Senior Business Development Manager

About RBR

- Established in 1973 and Headquartered in Canada
- Offices: Ottawa, Halifax, USA, China, Australia, and France
- 80+ dedicated staff members
- Global sales and support network
- Focused on developing high precision, low-power oceanographic instruments
- Calibrated to WOCE standards
- RBR instruments have been deployed on all continents and oceans

Products

Loggers

Systems

Sensors

OEM

RBR

RBR*coda*³ Sensors

- RBR*coda*³ T — Temperature
- RBR*coda*³ D — Depth
- RBR*coda*³ T.D — Temperature & Depth
- RBR*coda*³ PAR — PAR
- RBR*coda*³ T.ODO — Temp & Optical Dissolved Oxygen

- No power, no logging
- Requires 6 – 18 VDC
- RS-232 communication
- Polled or autonomous streaming

RBR*coda*³ T

Range -5°C to +35°C

Initial Accuracy: ±0.002°C

Resolution: <0.00005°C

Time Constant: ~1s (standard) / ~0.1s (optional)

Sampling Available: 2Hz, 8Hz, 16Hz, 32Hz

RBR

RBR*coda*³ D

Range: 0 to 20 / 50 / 100 / 200 / 500 / 1000 dbar

Initial Accuracy: ±0.05% full scale

Time Constant: <0.001% full scale

Sampling Available: 2Hz, 8Hz, 16Hz, 32Hz, tide16, wave16

RBR

RBR*coda*³ T.D

Range -5°C to +35°C

Initial Accuracy: ±0.002°C

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Time Constant: ~1s (standard) / ~0.1s (optional)

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Sampling Available: 2Hz, 8Hz, 16Hz, 32Hz, tide16, wave16

RBR

RBR*coda*³ T.ODO

- Range: 0-500uM (saturation 0-120%)
- Initial Accuracy: Max. of ±8uM or ±5%
- Resolution: <1uM (saturation 0.4%)
- Sampling Available: 24hr to 1Hz
- Max. Depth: 6000m

• |fast	1s (profiling)
• Standard	8s
• |slow	30s (moored)

(Wiper available for |slow)

RBR

RBR*coda*^{3} PAR (Photosynthetically Active Radiation)

- Range: 400nm to 700nm (i.e. visible)
- Accuracy: ±2%
- Wavelength: 400-700nm
- Sampling Rate: up to 16Hz
- Maximum Depth: 560m

RBR

Compact Loggers

1x AA battery

1 or 2 channels

USB-C download

Compact Loggers

Single Channel (RBR*solo*^{3})
- Temperature
- Depth
- DO
- Turbidity
- PAR

Dual Channel (RBR*duet*^{3})
- Temp. & Depth
- Temp. & ODO

Standard Version ≦1,700m*
Titanium Version ≦10,000m*

RBR

Standard Loggers

8x AA battery

1-10 channels

USB-C download

Twist activation

Wi-Fi ready

Ruskin Mobile App

Optional ext. comms

Standard Loggers

- **RBR*virtuoso*³** – Most any 1 sensor
- **RBR*duo*³** – Most any 2 sensor
- **RBR*brevio*³** – 3 sensors (CTD only)
- **RBR*concerto*³** – 3 to 5 sensors (CTD++)
- **RBR*maestro*³** – 6 to 10 sensors

- Conductivity, Temp., Depth, T.ODO, DO, FI, PAR, ORP, pH, Turbidity, Transmissometer, Altitude, Tilt, CO_2, CH4, Voltage, and more.

RBR

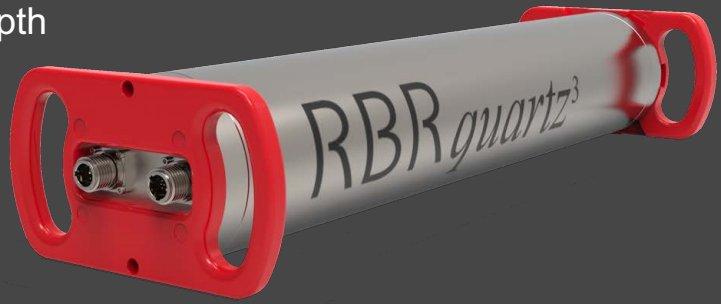
RBR*quartz*³ Series

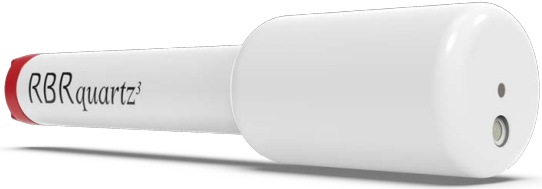
Initial Acc. : +/- 0.01% full scale

Resolution : 10ppb (@ 1Hz)

Low drift – high stability

Up to 7000m depth





RBR*quartz* ³ Series

- RBR*quartz* ³ Q & Q|plus
  - ≦330m
  - Wave, Tide, Sea-level
- RBR*quartz* ³ BPR
  - ≦ 7000m
  - Autonomous BPR
- RBR*quartz* ³ BPR|zero
  - ≦ 7000m
  - AzeroA Correction Recorder
- RBR*quartz* ³ APT
  - BPR
  - Triaxial Quartz Accelerometer

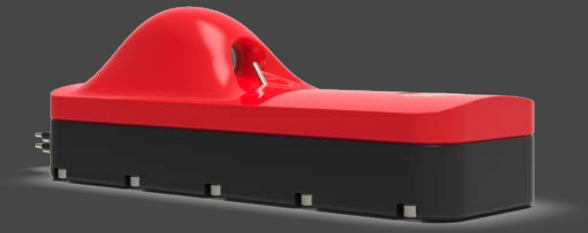
RBR

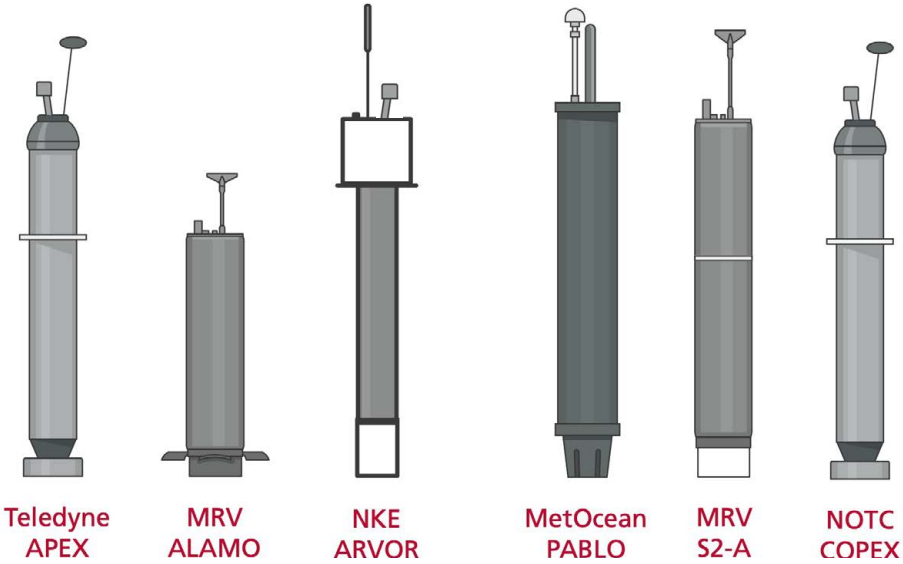
OEM

Low power electronics

Sensor hub

Integrated solutions





RBR*argo*³

- Integrated into many Argo and non-Argo vertically profiling floats
- Low power electronics extends missions and reduces cost/profile
- Low drift sensor improve data quality over long deployments

RBR

Seaglider – L. Rainville and G. Shilling (APL-UW)

Slocum - NOAA GLERL – Great Lakes Observing System

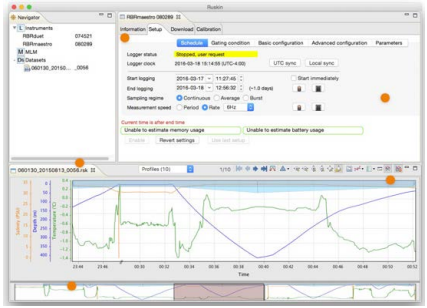
Seaexplorer

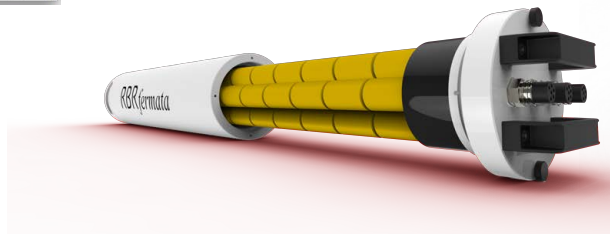
RBR*legato*³ C.T.D

- Seamlessly integrated CTD to ocean gliders and AUVs
- Low power electronics extends missions and increases sample density
- No pump means quiet operation for passive acoustic listening and turbulence studies
- Functions as ‘sensor hub’ to efficiently integrate other sensors

RBR

Systems





Systems

- Integrated platforms
  - Sofar Smart Mooring
  - DMO Wirewalker
- Software
  - Ruskin Mobile (iOS / Android)
  - Ruskin (PC / macOS)
- External Power and Brains
  - RBRfermata
  - RBRcervata
- Inductive modems
  - MLM-1000
- Telemetry and hosting
  - RBRcervello

RBR

Thank you!

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Over to you, Sofar! …

RBR

Accessible Ocean Observations

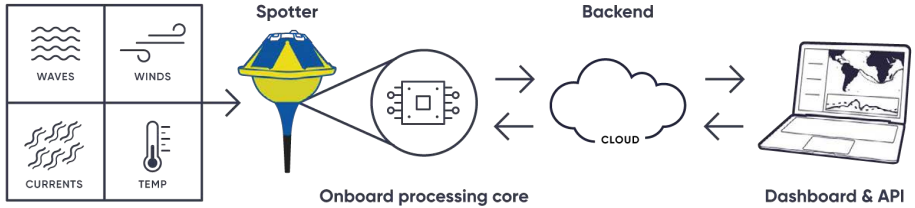
SOFAR
We connect the world's oceans to provide insights to science, society and industry for a more sustainable planet.

Agile Metocean Buoy

Accessible Ocean Observations

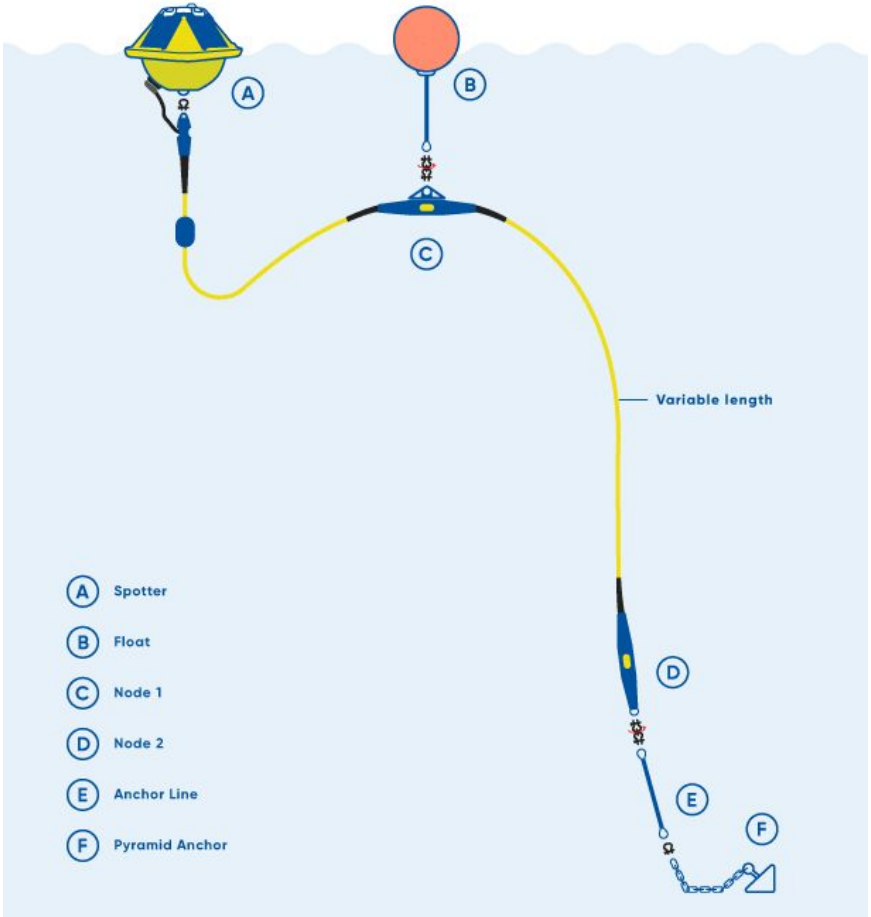
Spotter is a scientific-grade metocean buoy powered by the sun and connected through satellite. Every Spotter measures and calculates:

- Surface wave spectrum (swell, sea, period, direction)
- Wind speed and direction
- Surface current and direction
- Sea surface temperature
- Barometric pressure (next gen)
- Acoustic intensity (next gen)



Spotter + Smart Mooring

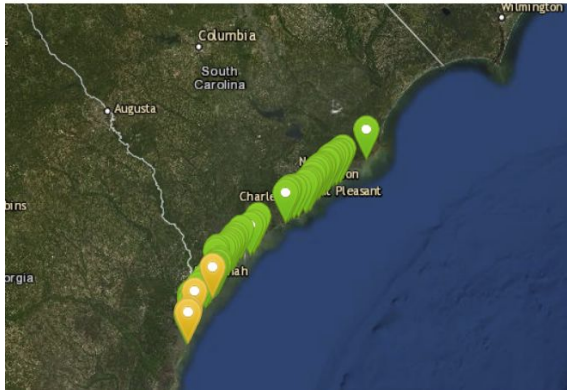
- **Easy deployment** - a single package that can be deployed from any size vessel. After deployment, data will start flowing to your Dashboard and API
- **Sensor Modularity** - provides unprecedented flexibility and modularity. The system is designed to integrate with most sensors. You pick the sensor and at what depth you want it
- **Durable and Tough** - the polyurethane cable with Kevlar braid is designed to withstand the harshest marine environments



Smart Mooring + RBR*coda*^{3}

USGS - Coastal Resilience

Building regional networks of real-time storm surge, coastal erosion, and flood prediction models

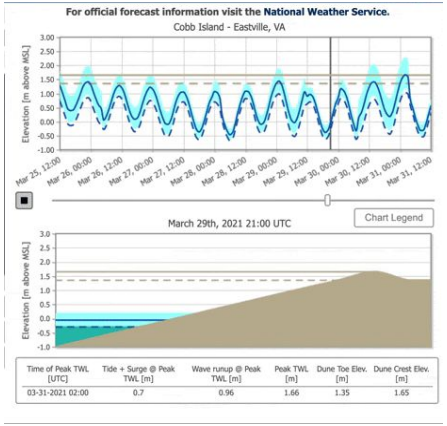


Storms and sea-level rise pose huge challenges for coastal communities.

Each beach and harbor has different physical characteristics that make **modelling and predictions difficult.**

USGS is deploying networks of **hyper-local** pressure sensors to measure water levels and surge.

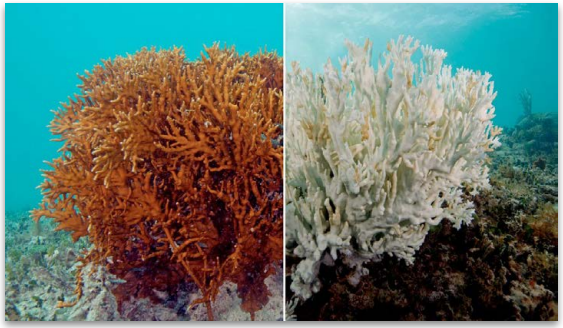
A map-based digital tool will aggregate data predict effects of **storms and coastal erosion**.



USGS will be able to develop **better predictive models** and provide **real-time information** for planners and emergency management agencies to make better decisions.

Aqualink - Global Reef Observation System

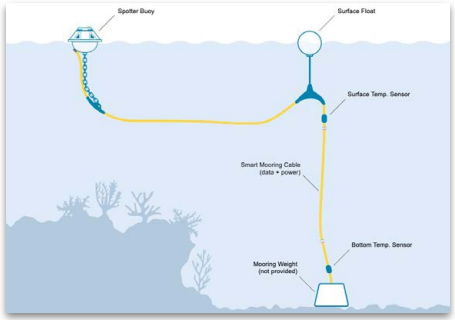
A non-profit organization working on building ocean conservation technology to track and mitigate the impact of rising ocean temperatures



Currently **coral reefs are undergoing heat related stress events** and die-offs.

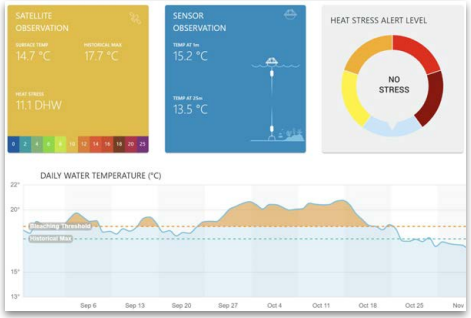
Satellite data is also used but only shows the top layer of water.

Due to the difficulty of deployment & data recovery efforts, **measurements are mostly sparse & intermittent.**



Smart mooring allows the deployment of **real time sensors**.

At scale this will allow for a greater understanding of **heating and weather related events** and their effects on coral reefs.



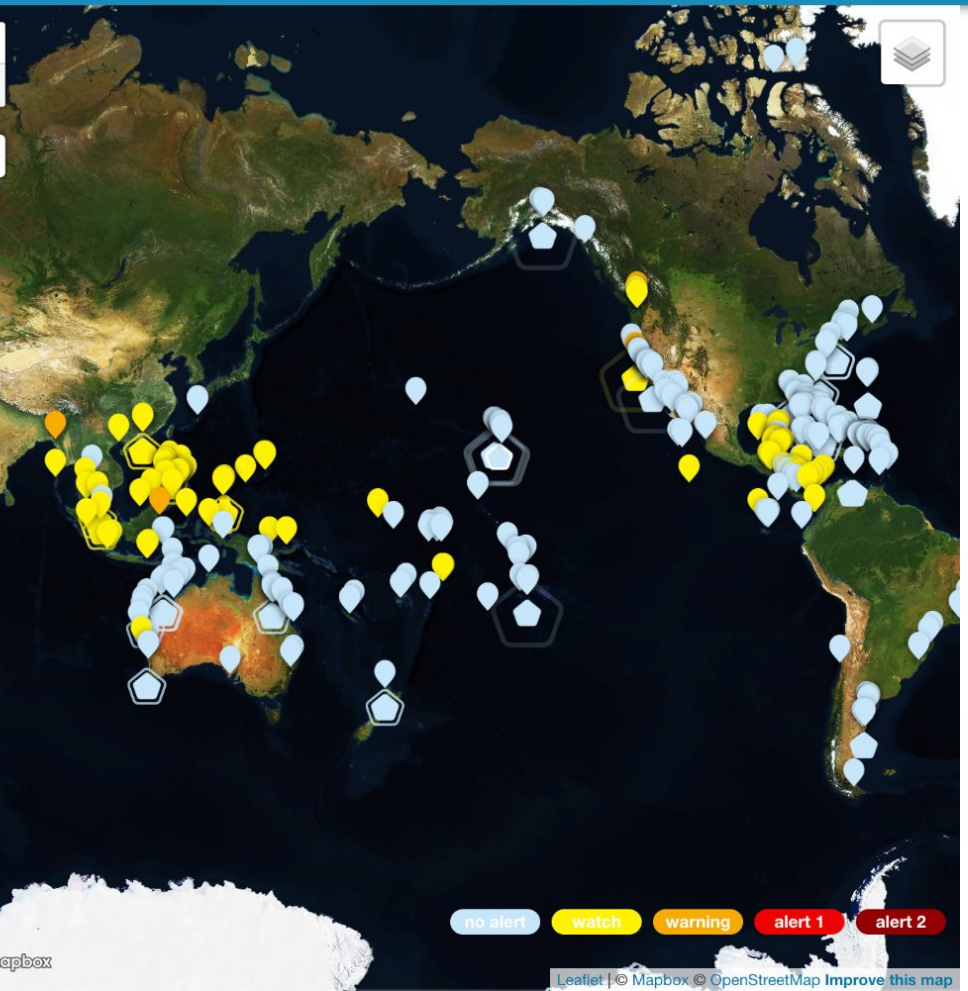
Future integrations Smart Mooring system will including **water quality sensors** and **live photos or videos** from the reef.

Aqualink is building a database & analyzing this data, which can have a significant **impact on reef preservation and restoration**.

Aqualink

Search

SIGN IN SIGN



Selected Site

Mala Reef
United States

SURFACE TEMP
26.1 °C

DAILY SURFACE TEMP. (°C)

HEAT STRESS
0.0 DHW

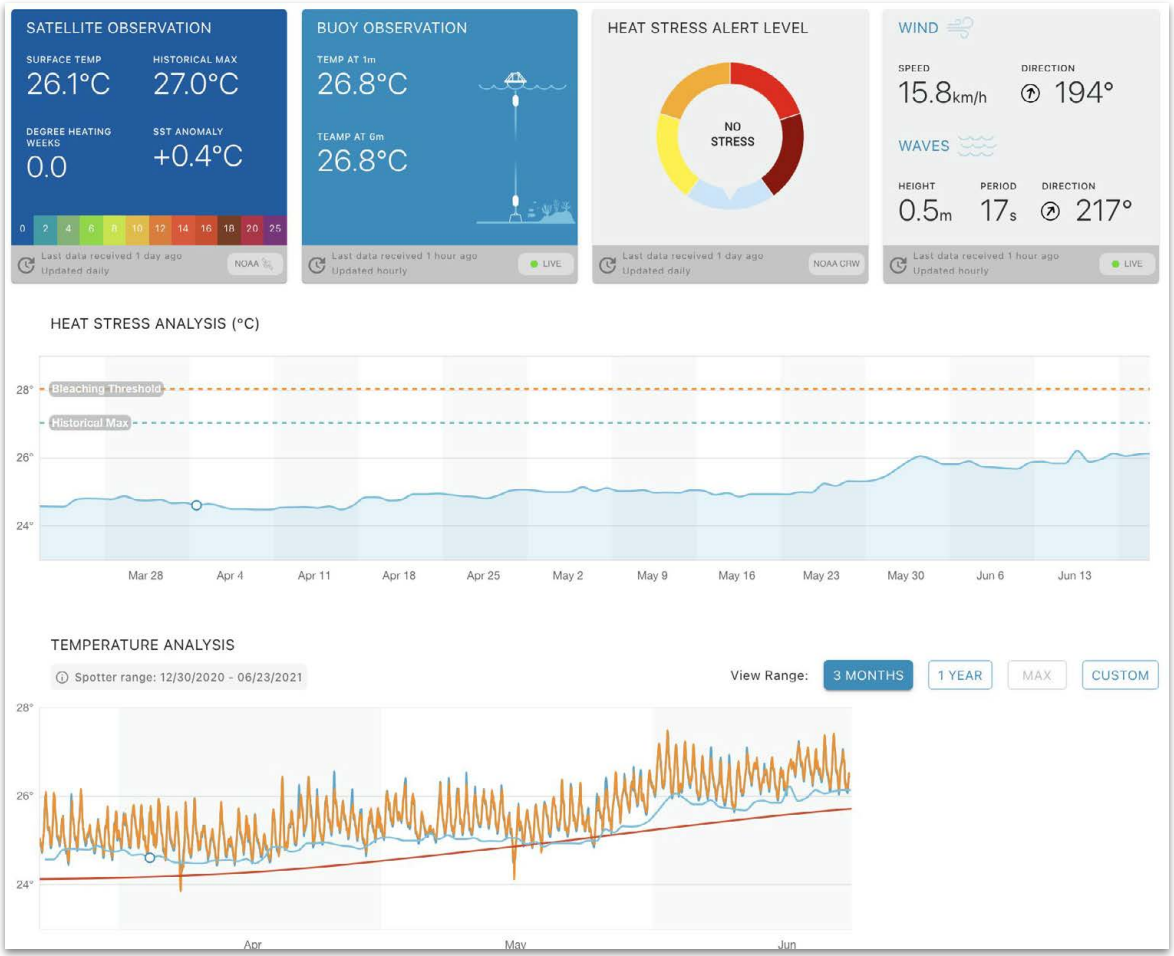
TEMP AT 6m
27.5 °C

deployed buoys o

SITE	SST (°C)	STRESS (DHW)	ALER
Makassar Indonesia	29.3	0.0	
Mala Reef United States	25.9	0.0	
Malcolm Bay Jamaica	28.8	0.0	

Aqualink - Dashboard

- Real-time data
- Modern APIs make it easy to embed data and insights into end-user applications
- Remotely configurable sampling, messaging, and alerts
- Cloud and device-side data processing



Questions?

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