

The Role of the Private Sector in Seabed 2030

GEBCO Symposium: Map the Gaps – Busan, Republic of South Korea – November 15, 2017

David Millar - Fugro

The Role of Industry – A Survey Company’s Perspective

Results from the Forum for Future Ocean Floor Mapping

Initially identify and access existing bathymetric data from hydrographic offices, industry, research organizations and individual mariners

Bathymetric gaps can be filled using coordinated regional compilations, basin scale mapping campaigns, satellite derived bathymetry, crowd sourcing, LIDAR and innovative new tools and techniques

Greater access to tools and technology (through capacity building) for developing coastal nations

Strong partnerships for collecting, sharing, and compiling data

Challenges and Opportunities for the Private Sector

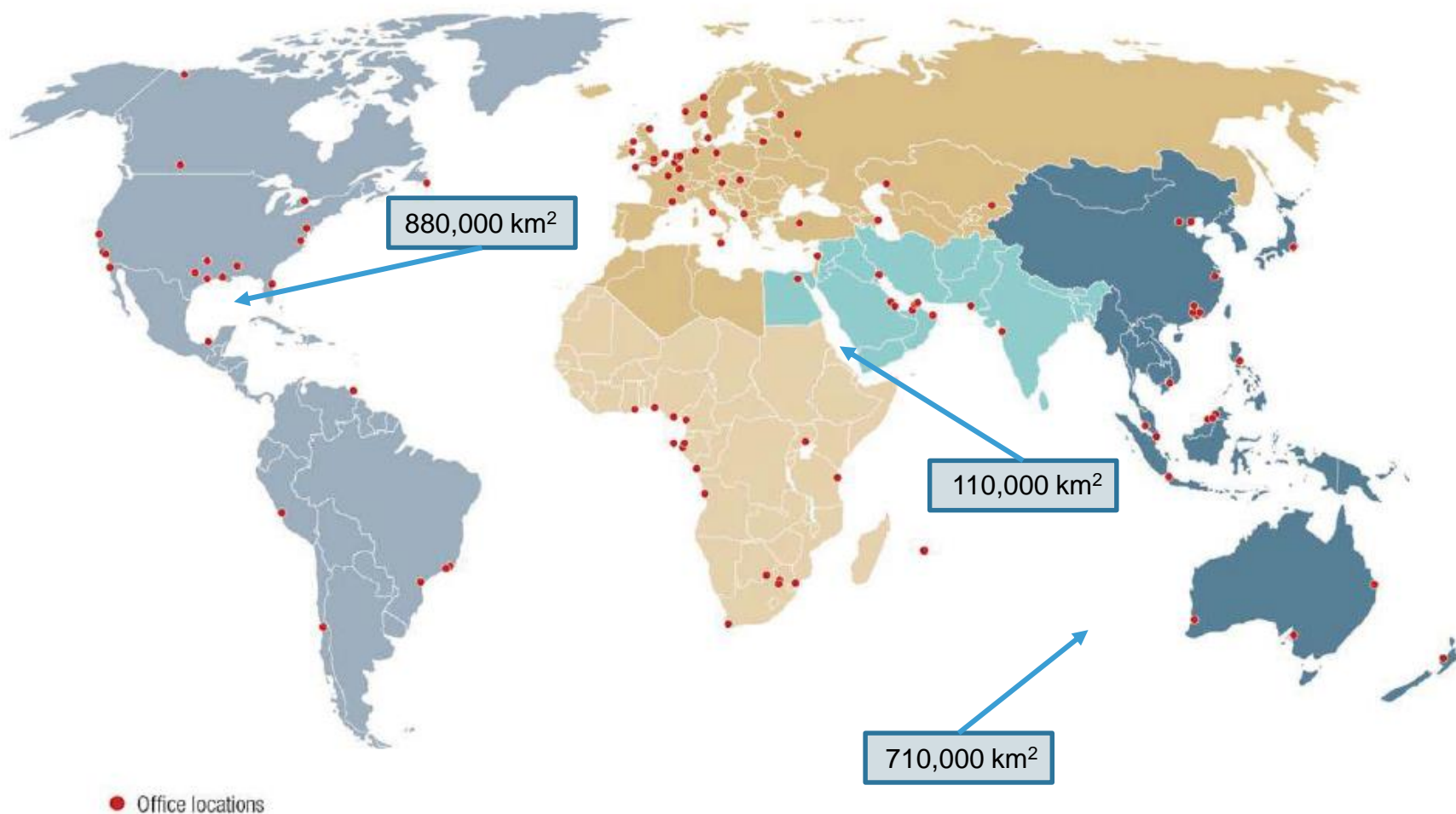
- Contribute “Owned” Data
- Facilitate Contribution of “Unowned” Data

- Crowd Source Bathymetry Contributions
- Participation in Basin Scale Mapping Campaigns
- Satellite Derived Bathymetry / LIDAR / Other

- Capacity Building
- Education & Technology Transfer
- Local Content & Participation

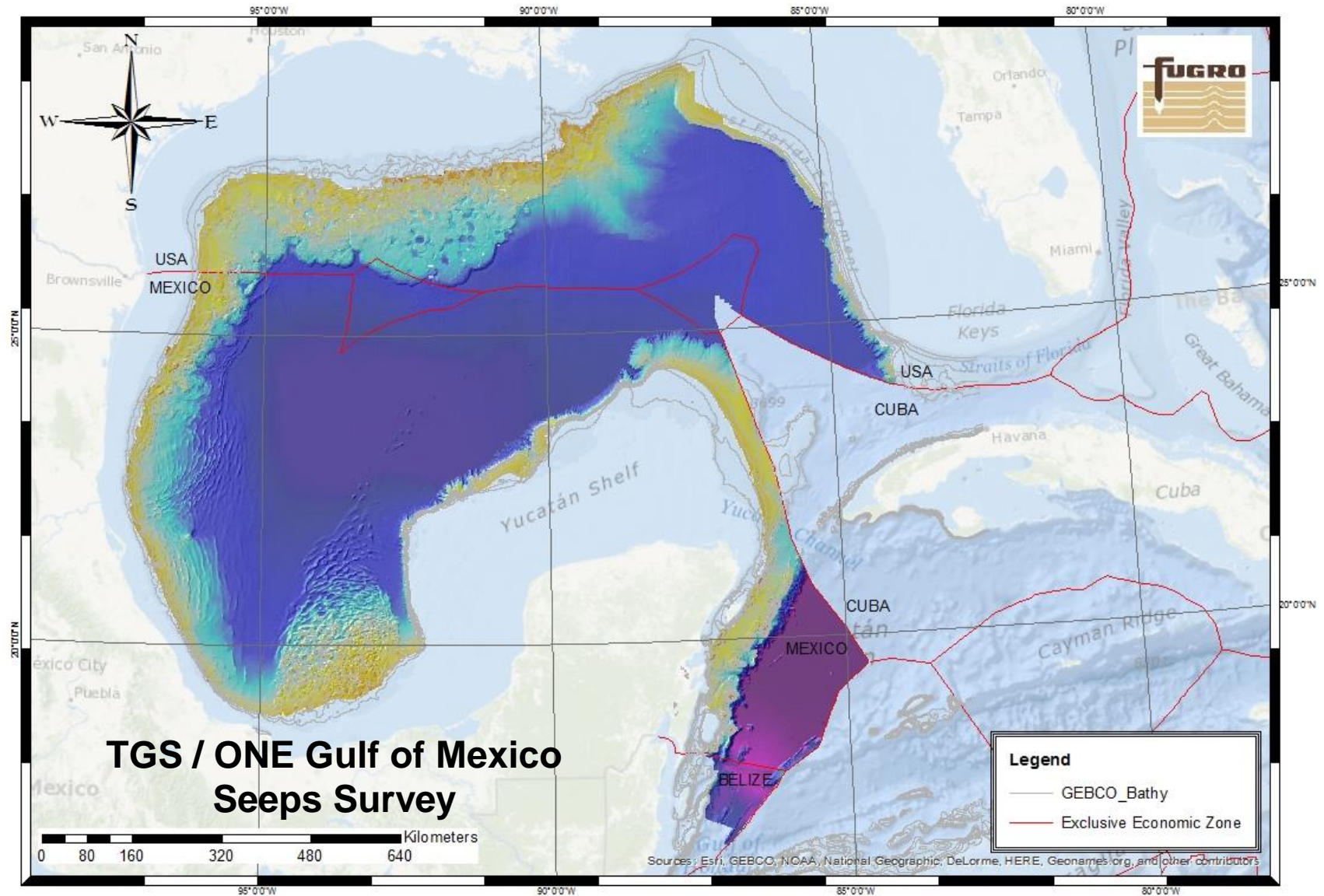
- Participation / Collaboration / Leadership
- Public-Private Partnerships

Contribute Owned Data & Unowned Data

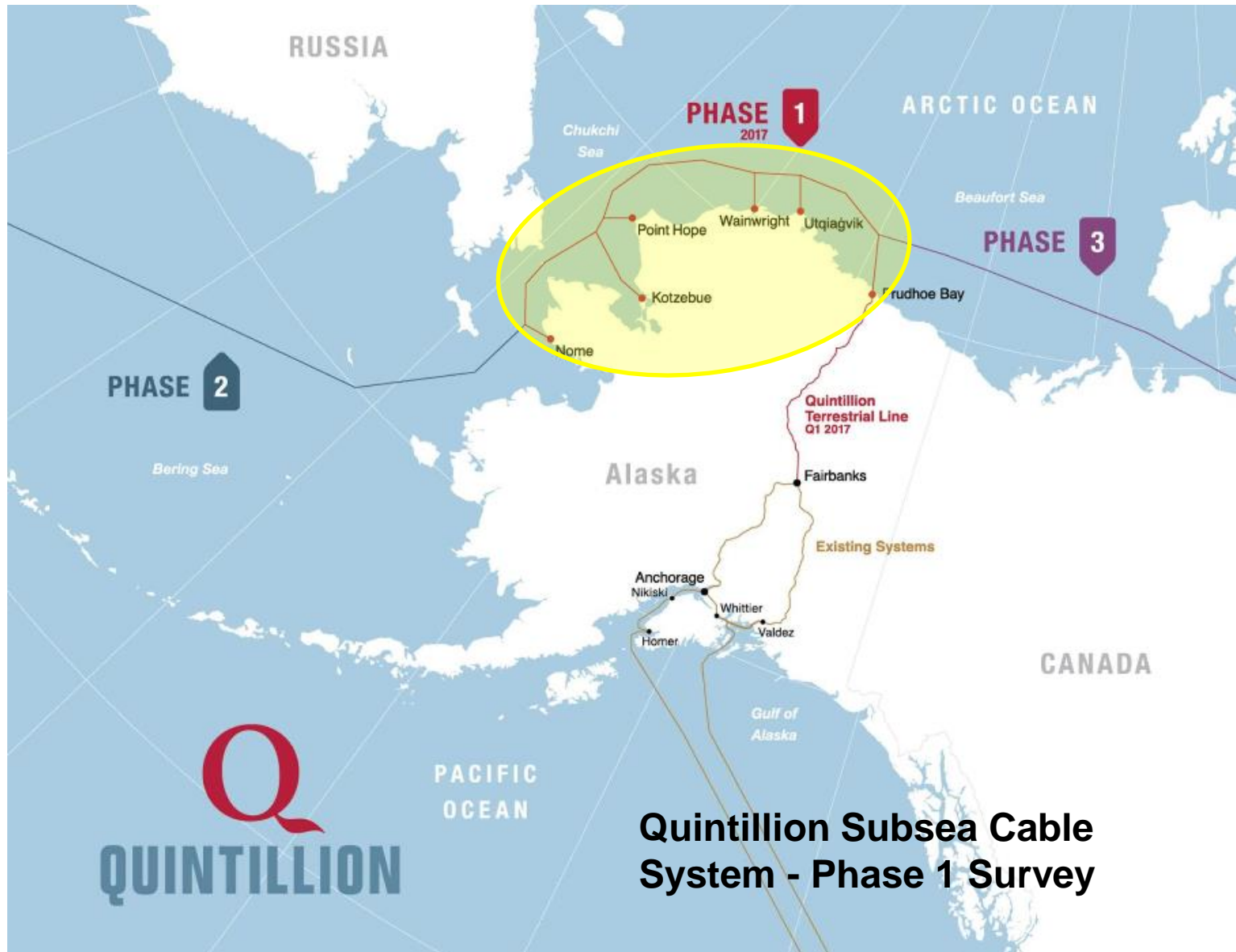


Fugro acquires on the order of 1,000,000 km² of MBES data per year, but these data are most often owned by our customers

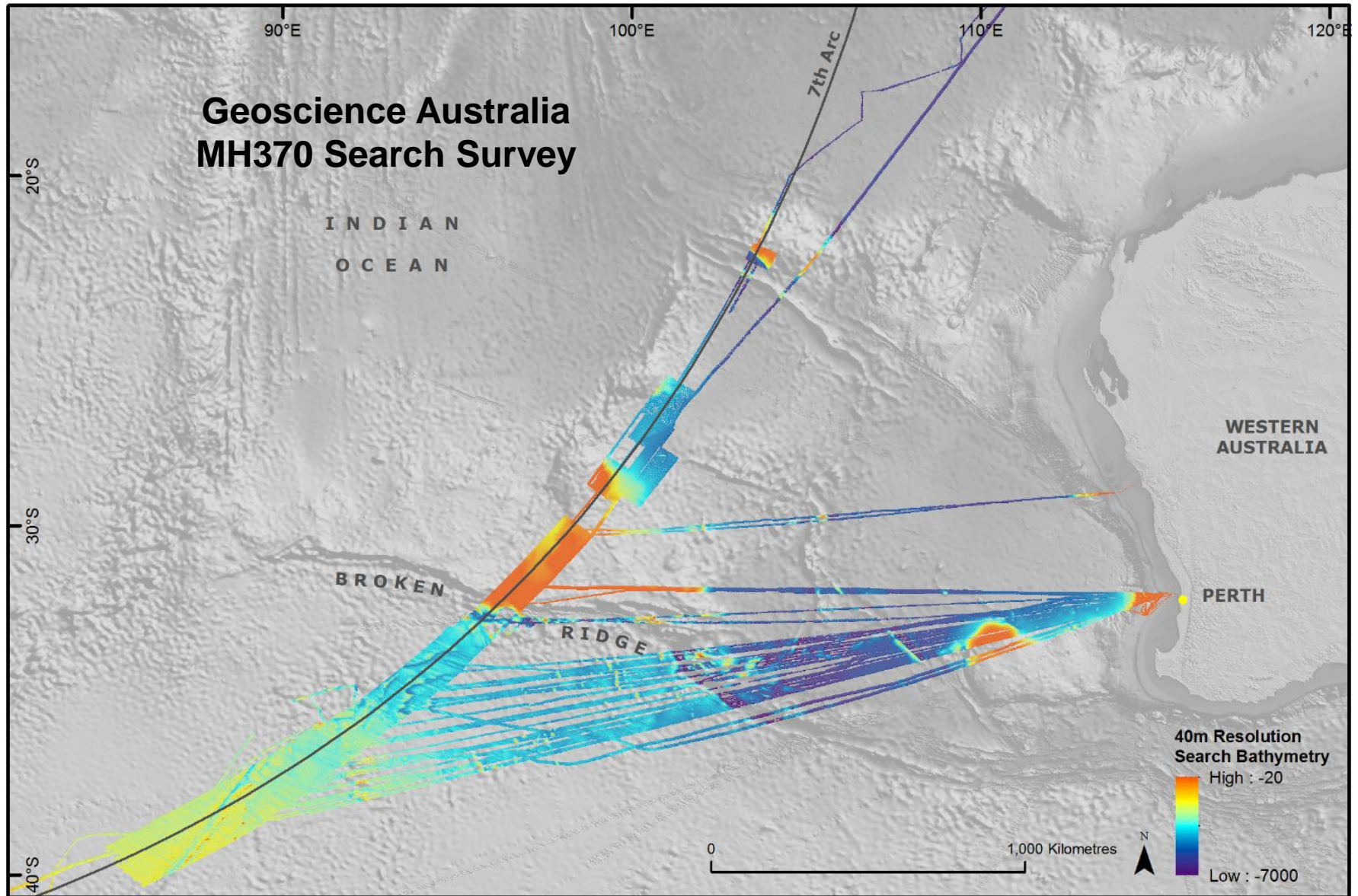
Contribute Owned Data & Unowned Data



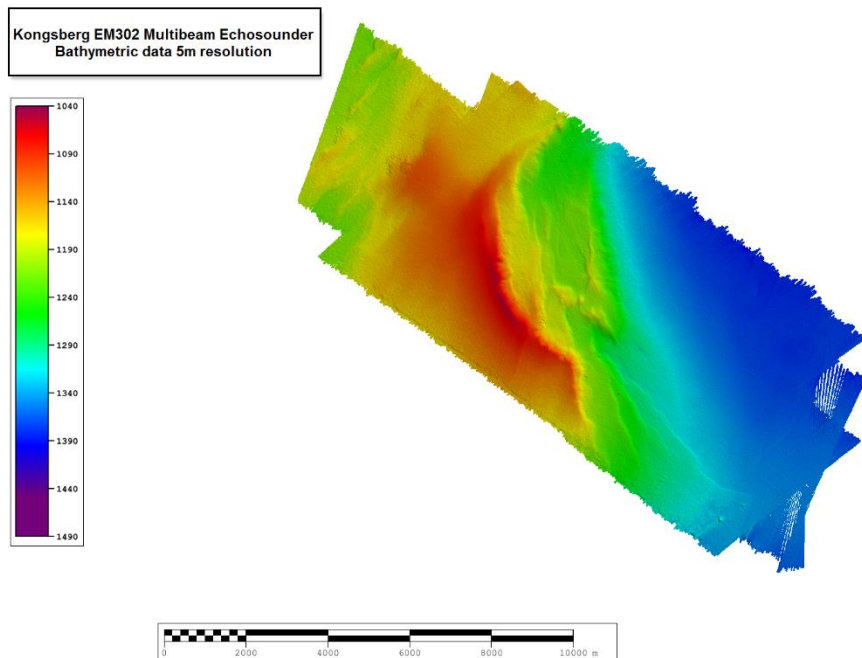
Contribute Owned Data & Unowned Data



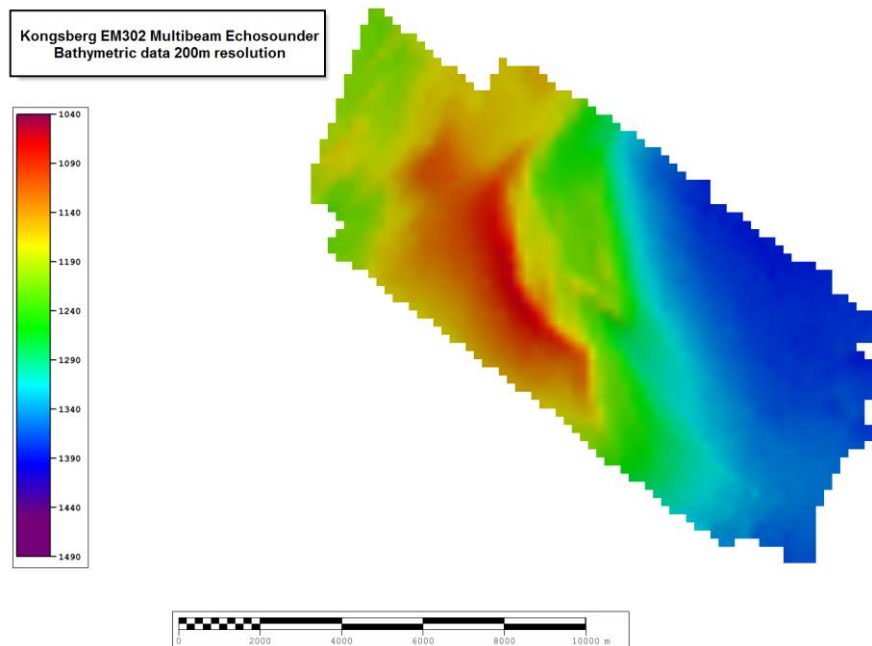
Quintillion Subsea Cable System - Phase 1 Survey



Can “Decimated” Data be Made Available?



MBES – 5m Grid

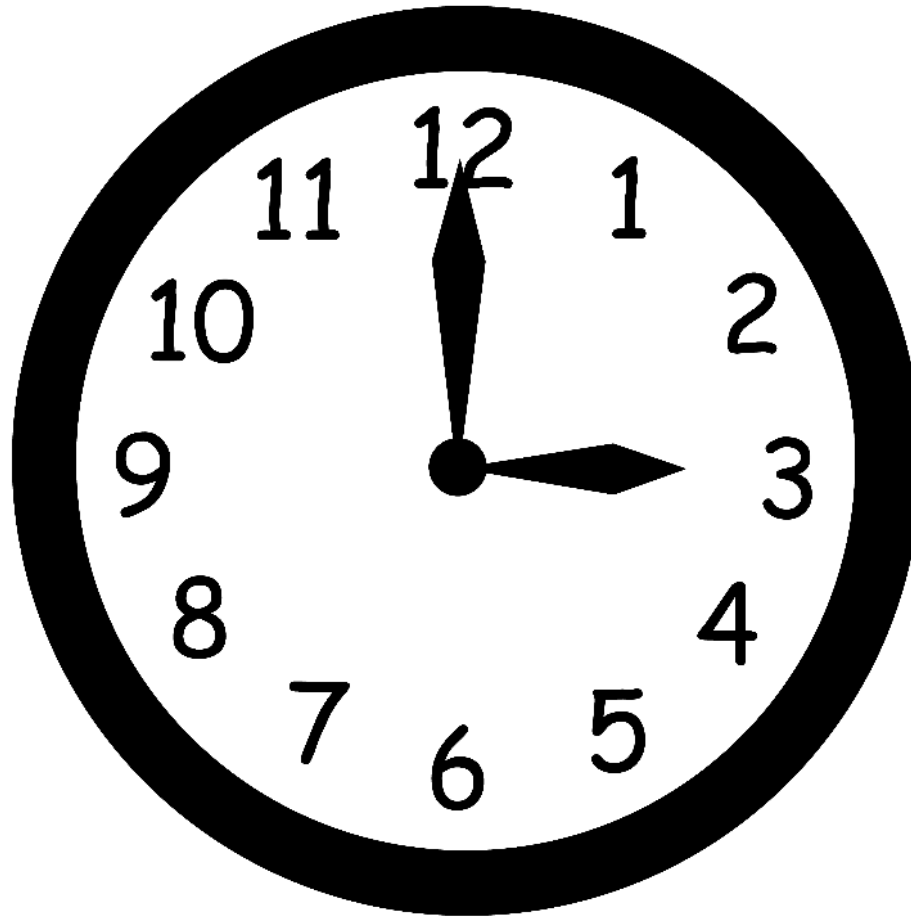


MBES – 200m Grid



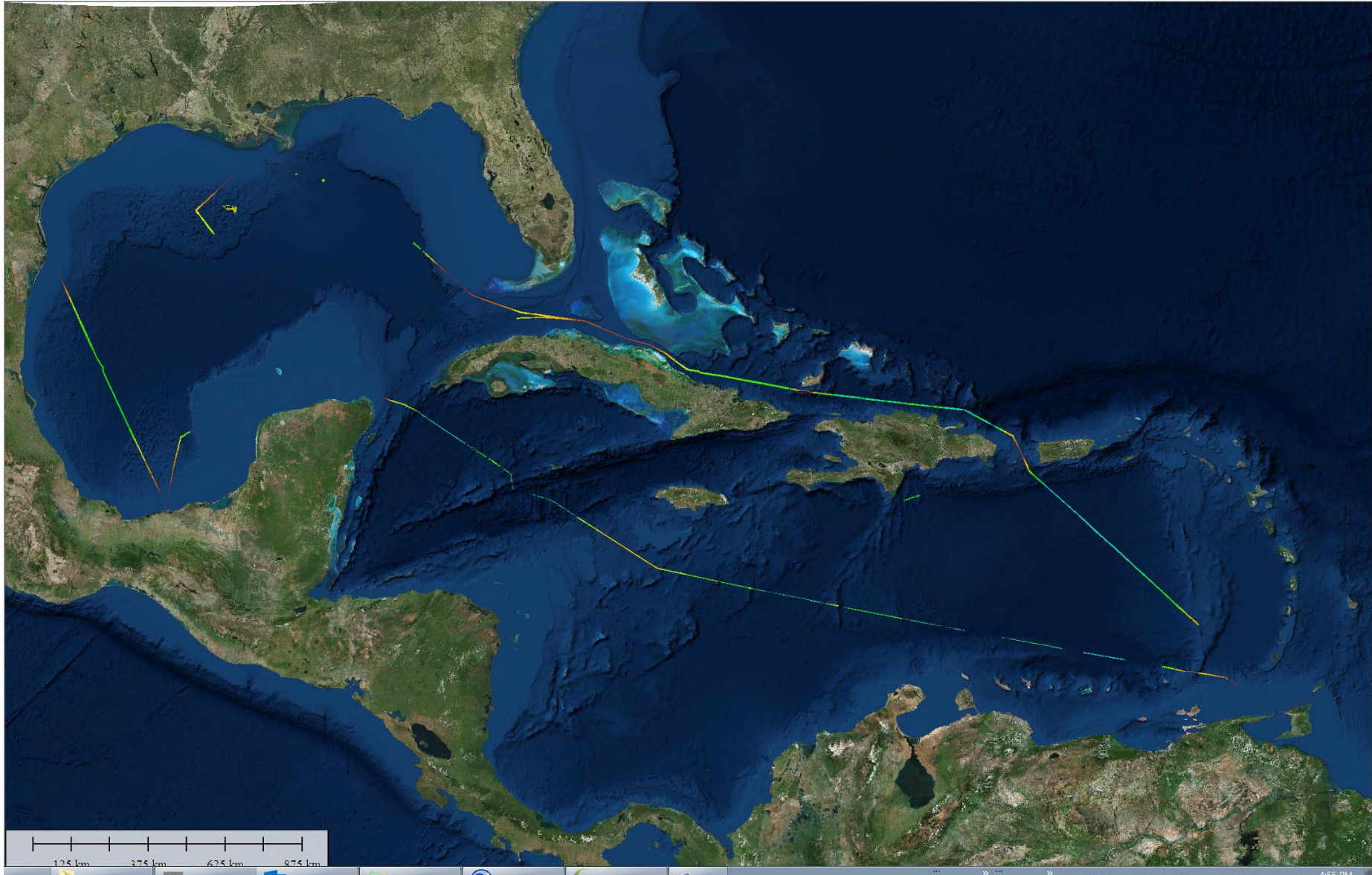
**Fugro is working with NOAA, who is working with the
IRS on this issue in the United States ...
there is a precedence ...**

Can “Older” Data be Made Available??



In some cases, time reduces or eliminates the sensitivity of proprietary data ...

Crowd Source Bathymetry Contributions



Crowd Source Bathymetry Contributions



Multibeam Report for FA150001

Ship Name: Fugro Americas
Chief Scientist:
Source Organization: Fugro
Start Date: 2015-04-16
End Date: 2015-04-20

[View ISO Metadata](#)

[Download / Request All Files](#)

[Visit the full NCEI Bathymetry Viewer](#)

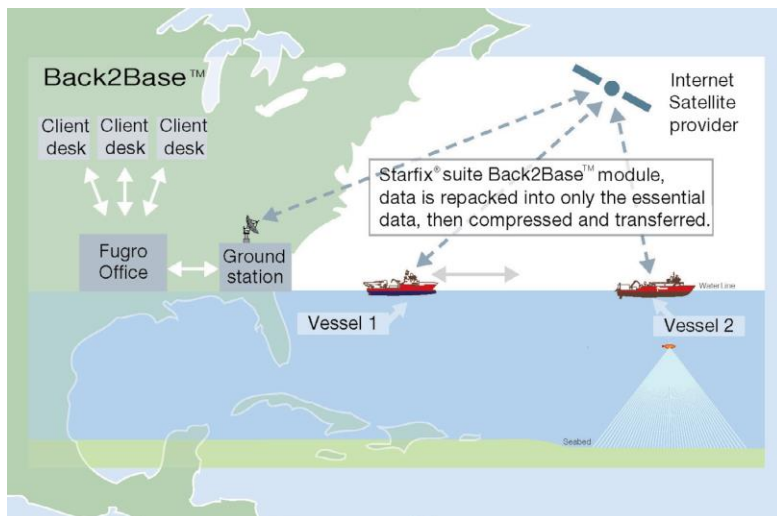
Multibeam Bathymetry

Cruise Details	▼
Data Quality	▼
Navigation Totals	▼
Cruise Bounds	▼
Limits	▼

[File Information](#)

**Over 65,000km² of MBES data (including water column) uploaded
First dataset now online ...**

Crowd Source Bathymetry Contributions



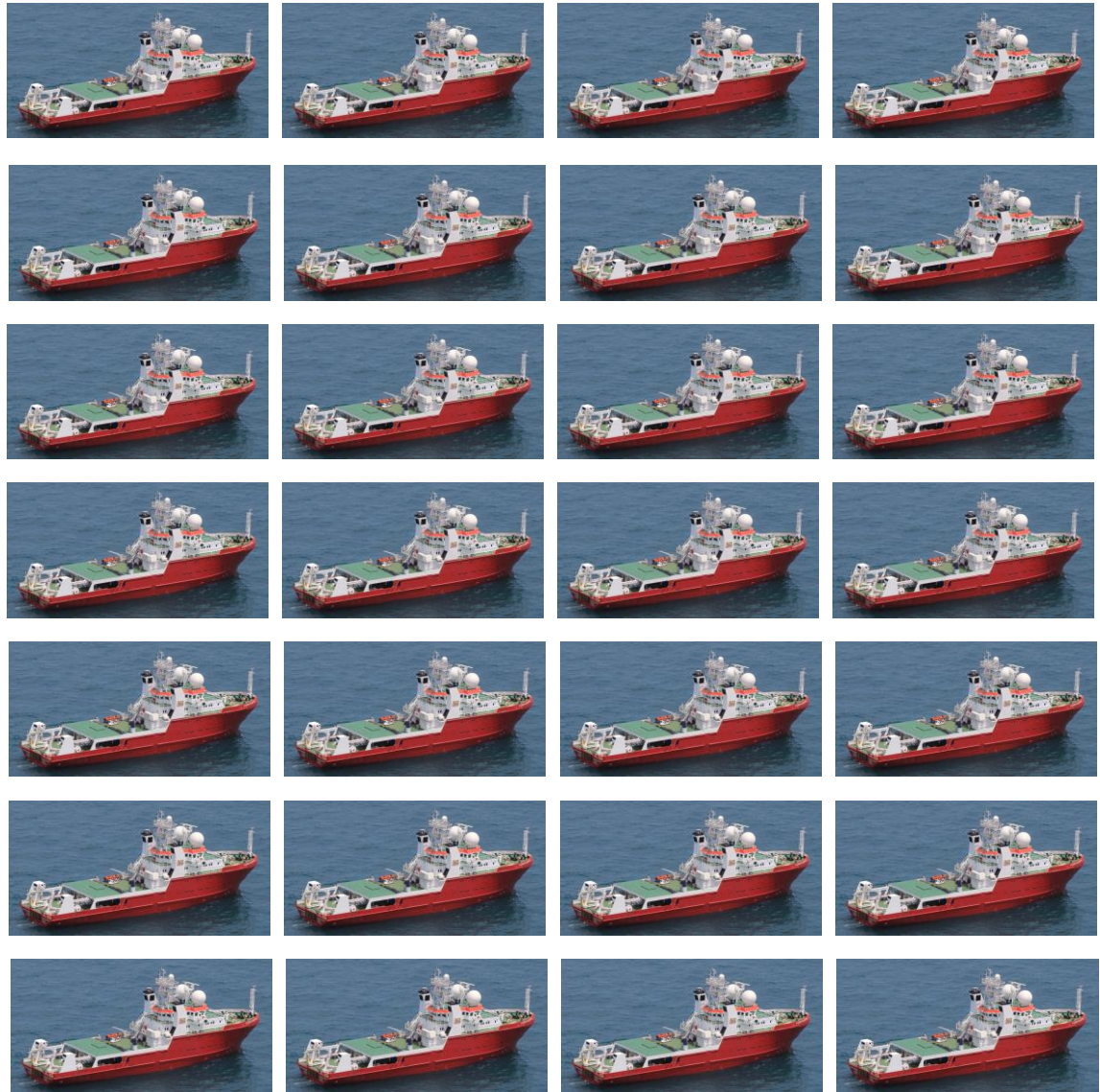
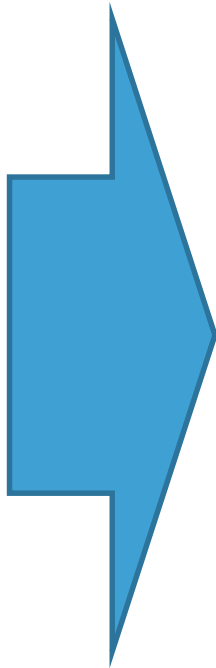
FUGRO
BACK2BASE™



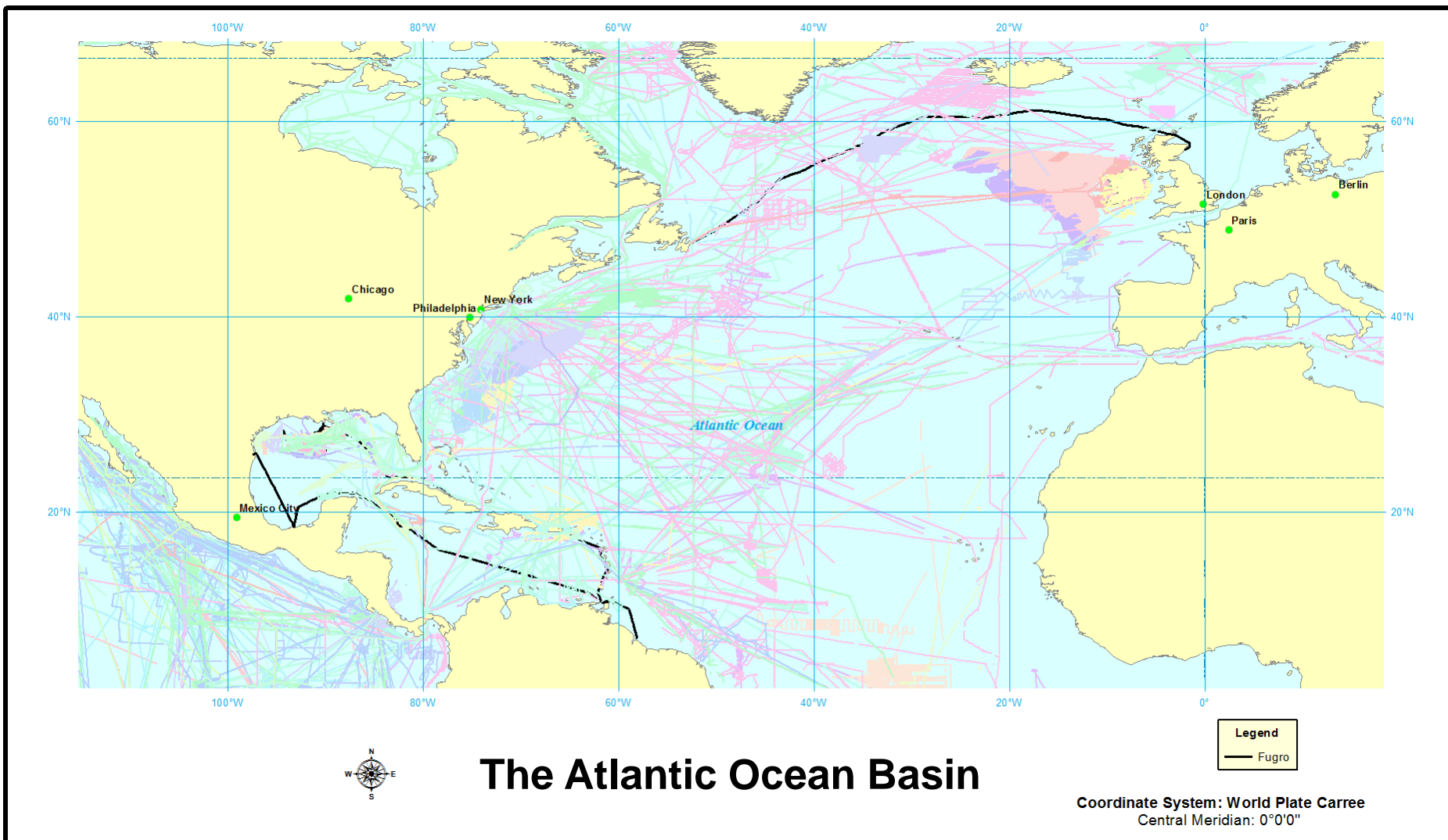
FUGRO
OARS®

**Remote and highly automated command and control
of MBES systems on Fugro vessels**

Crowd Source Bathymetry Contributions



Private sector participation in the Galway Program



Participation in Basin Scale Mapping Campaigns



Participation in Basin Scale Mapping Campaigns

Home
Partners
History
Products
Progress
Data Catalog




California Seafloor Mapping Project

A Collaborative Effort

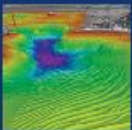
The California Seafloor Mapping Project (CSMP) is a collaborative, multi-institutional campaign creating the first comprehensive, high-resolution basemap of California's state waters (shoreline out to 3 nautical miles). Sponsored by the California Ocean Protection Council, State Coastal Conservancy, Department of Fish and Game, and several branches of the National Ocean and Atmospheric Administration (NOAA), this statewide project is being conducted as a public/private partnership involving industry, resource management agencies and academia. The tiered mapping campaign involves the use of state-of-the-art sonar, LIDAR (Light Detection and Ranging) and video mapping technologies; computer aided classification and visualization; expert geologic and habitat interpretations; and the creation of an online, publicly accessible data repository for the dissemination of CSMP products. Final products will include a folio series of multi-layer strip maps spanning California's land/sea margin showing the seafloor and coastal geology rendered in unprecedented detail.

Technology



Acquisition of mapping data is being carried out with multibeam, sidescan and sub-bottom sonar, video tow sleds, and LIDAR to create highly detailed surface models and imagery of California's seafloor landscapes. [More...](#)

Survey Data



The raw data are being analyzed and interpreted to create substrate and habitat maps which are then ground-truthed with video imagery for habitat verification. [More...](#)

Map Products



Folio map sheets based on the geomorphic imagery & interpretive products at 1:24,000 scale, as well as a complete set of GIS-ready digital products, are being created from CSMP data for the entire coast of California. [More..](#)





Thank You

David Millar

Fugro – Frederick, MD

DMillar@fugro.com

+1 858 427 2005