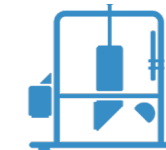


MEASURING SEAFLOOR HEALTH

Rapid Environmental Assessment for Same Day Results

Seeing is believing, and since the earliest days of oceanography, marine scientists have sought to accurately represent and understand the complex ecology of the seafloor. Interpreting data from grab samples and cores, scientists have attempted to tell a complete story of the largest ecosystem on earth. However, removed from context, these samples can misinform seafloor monitoring programs and underrepresent the complex dynamics of the seafloor. At INSPIRE, we read through layers of seafloor history *in situ*, deriving both qualitative and quantitative observations and applying robust statistics for faster and more holistic information for effective seafloor management at a lower cost.

We can mobilize our equipment anywhere in the world and we provide real-time assessments using cutting-edge technology developed and deployed by INSPIRE staff. We have more experience conducting Sediment Profile and Plan View Imaging (SPI/PV) surveys than any other provider and we have the largest inventory of SPI/PV equipment in the world - reducing survey risk. Our integrated team of marine scientists provides expert analysis, including rapid assessment of results. Our team produces clear and comprehensive technical reports and COP sections, and provides compelling presentation of results in innovative, interactive, agency-preferred visualizations; these efforts help facilitate stakeholder understanding and drive informed decision-making.



INNOVATIVE DATA COLLECTION TECHNOLOGY

We combine technologies to help our clients visualize the seafloor. SPI, integrated into GIS and paired with high-resolution acoustic data, tells detailed stories of seafloor resilience.



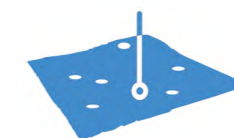
IMMEDIATE DATA PROCESSING

Immediate data processing aboard research vessels and in real-time at our Newport office provides same-day preliminary results to support adaptive sampling and optimize field collection.



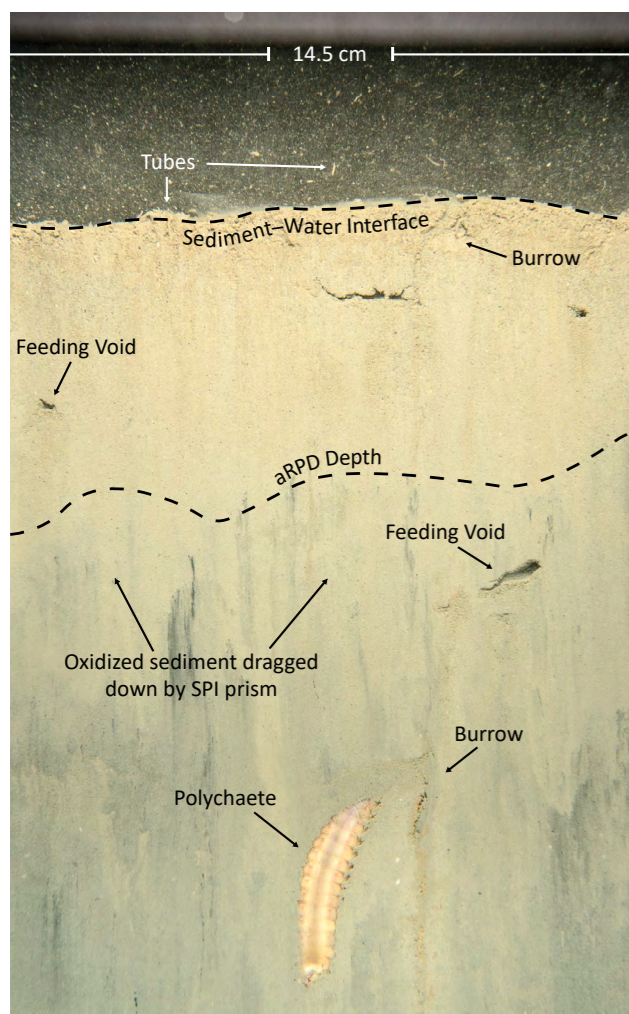
QUALITY CONTROL & INTERPRETATION

From survey design to our state-of-the-art image analysis process, our statistical analyses and quality control protocols ensure data integrity and usability.



ADVANCED DATA VISUALIZATION

Our visualization techniques take full advantage of high-resolution remote sediment imaging by integrating data into interactive maps that are easily interpretable by clients and stakeholders.



EXPERTS IN SEAFLOOR HEALTH

Our scientists are best known as the original developers of Sediment Profile Imaging (SPI) and our staff have more collective experience than anyone in acquiring and interpreting benthic images. From this core focus, our team has expanded to include expertise in seafloor, water quality, hydrodynamics, and fisheries assessments: capabilities that provide support to a full range of coastal and ocean projects. We have developed a suite of standard processes from data collection through analysis and interpretation, backed by rigorous quality assurance to ensure data integrity and defensibility. Unique and interactive visualizations convey this information to key stakeholders and decision-makers, providing a “worm’s eye view.” Our company was formed to communicate complex seafloor, coastal, and water dynamics through assessments of a wide range of natural and human impacts.



290+

SUCCESSFUL PROJECTS

Throughout North America, Europe, Asia, Australia, and Africa, SPI has been used to characterize the physical, chemical, and biological processes of the seafloor and fresh water systems.

65,000+

NUMBER OF SPI PHOTOS

Members of INSPIRE's team have used this unique tool since the development of the SPI camera four decades ago. SPI allows for quick reconnaissance with multiple frames per sampling station.

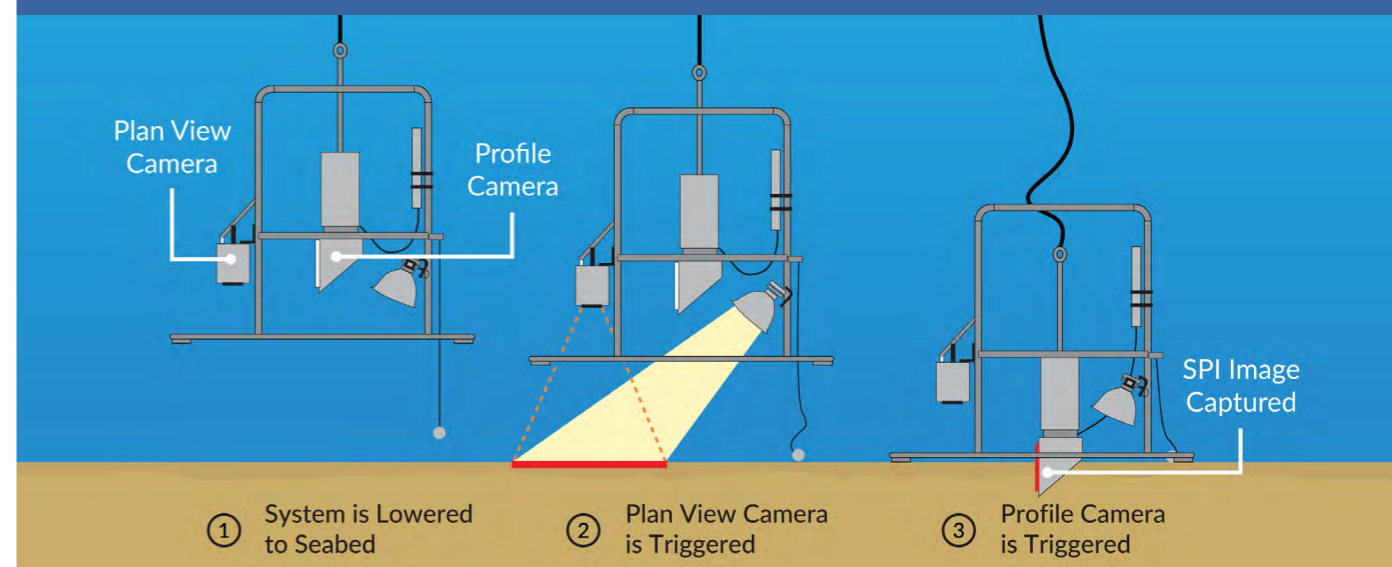
30

FULL TIME STAFF

INSPIRE is comprised of a tight core team of geologists, benthic ecologists, engineers, fisheries scientists, data analysts, and field and project managers. As an integrated business, we operate efficiently to provide rapid turnaround on our projects.

HOW SPI WORKS

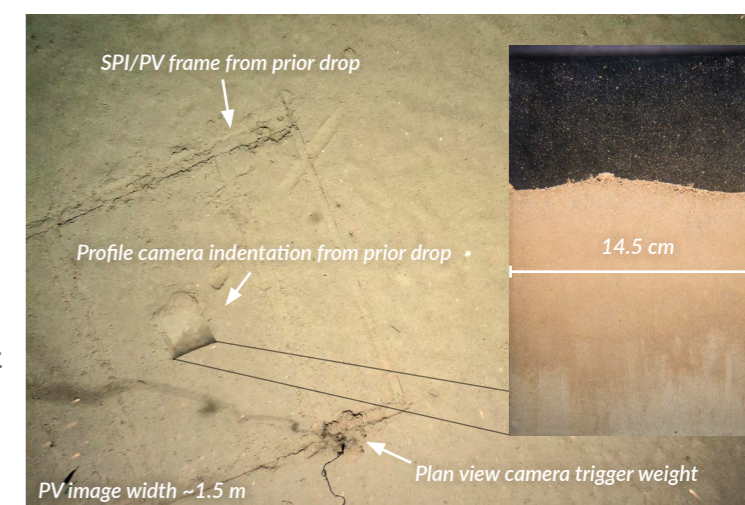
The SPI system can complete 3-5 stations per hour in shallow waters, and one station per hour in deep-sea environments.



The camera system is deployed from the vessel stern using an A-Frame or crane. When a lead weight hanging from the frame ① reaches the bottom, it triggers the plan view camera to capture a downward-looking image ②. When the frame reaches the bottom, hydraulic pistons allow the prism to lower slowly into the sediment and the SPI camera captures a cross-sectional image of the sediment-water interface ③. This process can be repeated by raising and lowering the system without bringing the camera on deck, allowing for rapid collection at multiple stations.

Sediment Profile Images provide data for the identification and measurement of physical and biological features using well-established interpretive paradigms. SPI is a proven tool for assessing disposal and discharge impacts (e.g., dredged material, drill cuttings), response to contaminants, and mapping benthic conditions. The technology is widely accepted as a baseline and impact assessment monitoring tool by regulators and agencies including U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the Bureau of Ocean and Energy Management (BOEM), and the EU Water Directive.

Plan View Images provide increased areal coverage and context to aid in the interpretation of SPI. The detailed, high resolution images from the plan view camera can also be used for a quantitative analysis of the seafloor. INSPIRE has pioneered the use of plan view images to classify dominant biotic groupings in support of benthic habitat classification, including the Coastal and Marine Ecological Classification Standard (CMECS). Plan View imaging is suitable for assessment of hard and soft bottom habitats.



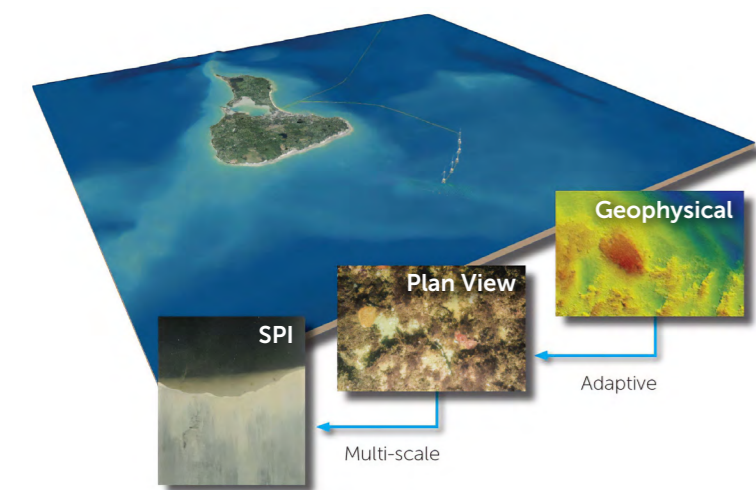
Note: Representative plan view image with corresponding sediment profile image as inset.

ADVANTAGES OF SPI

- › Rapid and cost-effective data collection and analysis.
- › Undisturbed, synoptic collection of sediment, geochemical and biological data.
- › Results that are easily understandable by a non-scientific audience.

SERVICES AND HEALTH & SAFETY

Committed to meeting and exceeding industry standards across sectors.



The INSPIRE team's innovative approach integrates technology from SPI, acoustic, and direct sampling to deliver compelling, accurate, and accessible visualizations of the seafloor across the globe.

INSPIRE produces innovative interactive visualizations that combine data in the context of regional seafloor topography. We layer geological, sediment, and biological data over regional bathymetry to show users their data in context. Seismic, sidescan, and SPI images are easily accessible in our simple HTML interface, through which users can selectively display results online.

Ground-Truthing and Reconnaissance

SPI and PV images can be used to ground-truth geological and geophysical survey data. Assessments of sediment characteristics derived through analysis of acoustic data can be quickly confirmed in these images. The image data can also be used with high-frequency mapping technologies in a reconnaissance mode, to ground-truth desktop data and quickly identify favorable locations for offshore infrastructure.

SPI Image Assessment

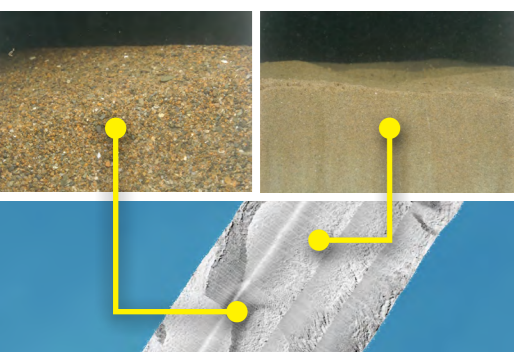
INSPIRE's rapid turnaround of quality-controlled data and robust quantitative analyses is made possible by our team of skilled scientists. Collaborating with field scientists in real-time, our analysts quantify substantial changes in benthic community composition associated with the study site. The robust results provide defensible baseline site characterizations for development or remediation projects.

Stakeholder Engagement

A picture is worth a thousand words, and the SPI camera's lens into seafloor ecology tells a singularly compelling story to developers, stakeholders, and permitting agencies alike. We integrate SPI images into dynamic visualizations to support developers in agency consultations with groups like BOEM, NOAA Fisheries, USACE, local tribes, fishermen, and state and federal representatives.

Health & Safety

INSPIRE is committed to keeping our staff and clients safe. We strive for a healthy, secure, and safe workplace and work to protect the environment in accordance with applicable laws and our Quality, Health, Safety, Security, and Environmental (QHSSSE) Policy. Our commitment is based on the conviction that incidents are preventable, and we promote a strong safety culture in the office and in the field.



MARKET SECTORS



OFFSHORE ENERGY



The era of renewable offshore energy is now upon us. Through the painstaking progress of industry and governmental leaders in the U.S. and abroad, there is now a policy and regulatory landscape primed for offshore renewable development, increasingly advantageous pricing for reliable technology and construction services, and a need for specialized expertise necessary for successful project development. INSPIRE can provide this unique expertise and tools to expedite offshore renewable development.

We supported the development and implementation of the historic Block Island Wind Farm, the first offshore wind farm in the United States. Through the design and implementation of numerous technical studies including seafloor imaging, baseline surveys, site suitability consulting, finfish and lobster trawl surveys, export cable route optimization, stakeholder outreach, and data visualization and reporting that meet and exceed national and international requirements, INSPIRE has developed exclusive expertise in rapid and rigorous seafloor reconnaissance to support offshore renewable project development.

"INSPIRE is unique among consulting firms due to their attention to detail and the thoughtful way they present the data they collect and analyze."
Aileen Kenney, Ørsted U.S. - Former Head of Development & Permitting



OIL & GAS

By rapidly generating accurate and compelling images of the seafloor before, during, and after drilling, SPI technology and our scientists' expert knowledge go beyond due diligence in assessing the health of the seafloor. Through SPI and PV images we can quickly identify and quantify the extent and impacts of any drilling discharges on the bottom as well as document the recovery of the benthic community following the initial impact from discharge. We work globally to map the footprint of drilling muds and remnant oil deposits, identify gradients in benthic community structure, and identify any benthic "hot spots" of low diversity or high benthic productivity. Our imagery systems reduce financial cost and risk and can easily communicate results to depict operational impacts to the seafloor with defensible detail.

DREDGED MATERIAL



INSPIRE founders and staff have more than 30 years of experience monitoring and assessing dredged material disposal sites. Integrated SPI and bathymetric visualizations help us monitor the placement of dredged material, precisely measure the thickness of sediment caps, and trace the biological recovery of sites after placement. Our staff are experienced interpreters of the presence and condition of dredged material, using Sediment Profiling to document ecological baselines and conduct forensic exercises that trace sediments to confirm disposal events.



SEAFOOD

Effective remediation of seafood processing waste – making actual, measured progress on ecological restoration – relies on comprehensive monitoring of seafloor ecology. INSPIRE combines SPI and PV imaging with high-resolution multibeam data, hydrodynamic studies, water quality testing, sediment cores, and towed video and video-probe imaging to assess the extent and impact of seafood processing waste on the environment. We use image data to assess both the depth of waste and the health of marine habitats in response to this intense nutrient input. We work with clients over time to develop and assess remediation solutions and evaluate the recovery and resilience of the seafloor at these locations. SPI is the optimal tool for seafood waste remediation because, unlike pneumatic or gravity coring that might alter material thickness in the process of taking the sample, the camera bisects rather than compresses materials. Accurate characterization of site conditions reduces cost and ensures successful site remediation. INSPIRE’s team has more than a decade of experience supporting clients in seafood waste remediation and providing them cost-effective measures to secure a healthy seafloor.



CONTAMINATED SEDIMENTS

There is no substitute for experience when it comes to interpreting the effects of contaminated sediments on the environment. While we can accurately measure the response of benthic biology to disturbance, biology and chemistry don’t always tell the whole story. At the individual image level, experienced analysts can discern sediment dynamics, such as erosion or frequent resuspension of surface sediments, that also influence the benthic biota. By contextualizing SPI images in physical processes our scientists can provide information on the likely fate and transport of contaminants at low cost and quantify the benthic response to contamination through statistical comparisons with reference locations. These data complement data on sediment composition, contaminant concentration, benthic community analysis, and toxicity testing in a weight-of-evidence approach to risk assessment. As with many of our projects, these data are enhanced when paired with high-resolution multibeam bathymetry and/or backscatter data.

CLIENT RECOMMENDATIONS

Proven in the Field



“ Their combination of the right tools and the right expertise facilitated our major shift in remedial strategy without any perception of consultant advocacy or overreach. They have been “partners” in the best sense of the word. ”

*Helder Costa, Haley & Aldrich
Principal Consultant & Sediment Practice Leader*



“ INSPIRE scientists proposed an innovative approach that gave us the information we needed much more cost effectively than we expected. ”

*Clint Plummer, Ørsted U.S.
Head of Market Strategies and New Projects*



“ INSPIRE reports have provided a remarkable level of detail to our studies, increasing the overall value and providing support to sound analyses and overall conclusions to our clients. ”

*Jose Antonio Castillo, Environmental Resources Management, Mexico
Principal Consultant*

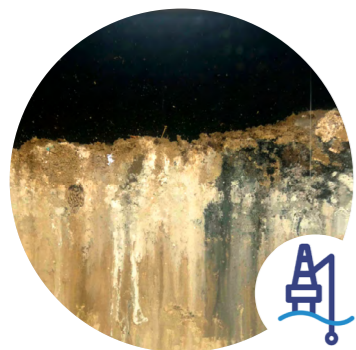
SELECTED PROJECTS

Providing seafloor ecology expertise in all sectors.

INSPIRE's team uses a cutting-edge approach to deliver compelling, accurate, and accessible visualizations of the seafloor from across the globe. The following projects exemplify our commitment to innovative solutions.

DEEPWATER HORIZON OIL SPILL

Gulf of Mexico, USA



In the spring of 2010 the Macondo wellhead blowout resulted in the tragic loss of 11 lives and the catastrophic release of more than 5 million barrels of crude oil and natural gas into the Gulf of Mexico. The impacts on coastal ecosystems, fish, birds, and mammals is well-documented. Based on this, public and scientific press assumed little hope for recovery in the Gulf's deep-sea ecosystem, anticipating severe impacts and a decades-long recovery. However, SPI technology enabled INSPIRE scientists to see beyond traditional sampling depths and preconceived notions of benthic response, discovering signs of benthic recovery in the deep-sea one year after the spill. SPI allowed for samples to be collected more rapidly, more precisely, and at a greater density than what was feasible with traditional sediment sampling techniques such as core and grab sampling. INSPIRE's unique approach to documenting benthic recovery presents new standards for monitoring offshore energy development, including environmental baseline studies, pre- and post-drilling evaluations, and environmental impact assessments following the decommissioning of wellheads.

DYNAMIC SEDIMENT ASSESSMENT

San Francisco, CA, USA

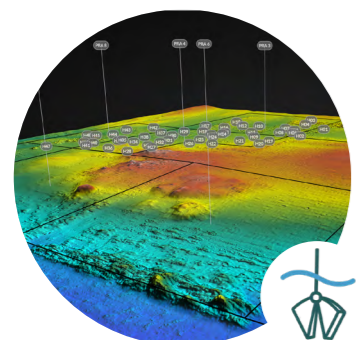


Residual contamination from a now-defunct manufactured gas operator at one of San Francisco's busy urban harbors poses risks for the local tourism and fisheries industries. Navigating an active harbor front, INSPIRE designed and conducted a 100+ station SPI survey to assess remediation needs and options related to legacy polycyclic aromatic hydrocarbon (PAH) contamination. INSPIRE staff compared data from the SPI survey to previous sediment chemistry and biological community index results conducted in the harbor and integrated these data to inform both industry and government regulators.

SPI imagery revealed impacts to the benthic ecology from frequent physical disturbance like scour and dredging activity, providing robust, comprehensive analysis of benthic health which other methods would have struggled to fully capture. Through careful analysis of the SPI and existing sediment quality index results, INSPIRE scientists presented a new option for assessing impairment to the benthic community in the harbor, enhancing the decision-making ability of district managers as they plan for remediation.

REMEDIATION SITE MONITORING

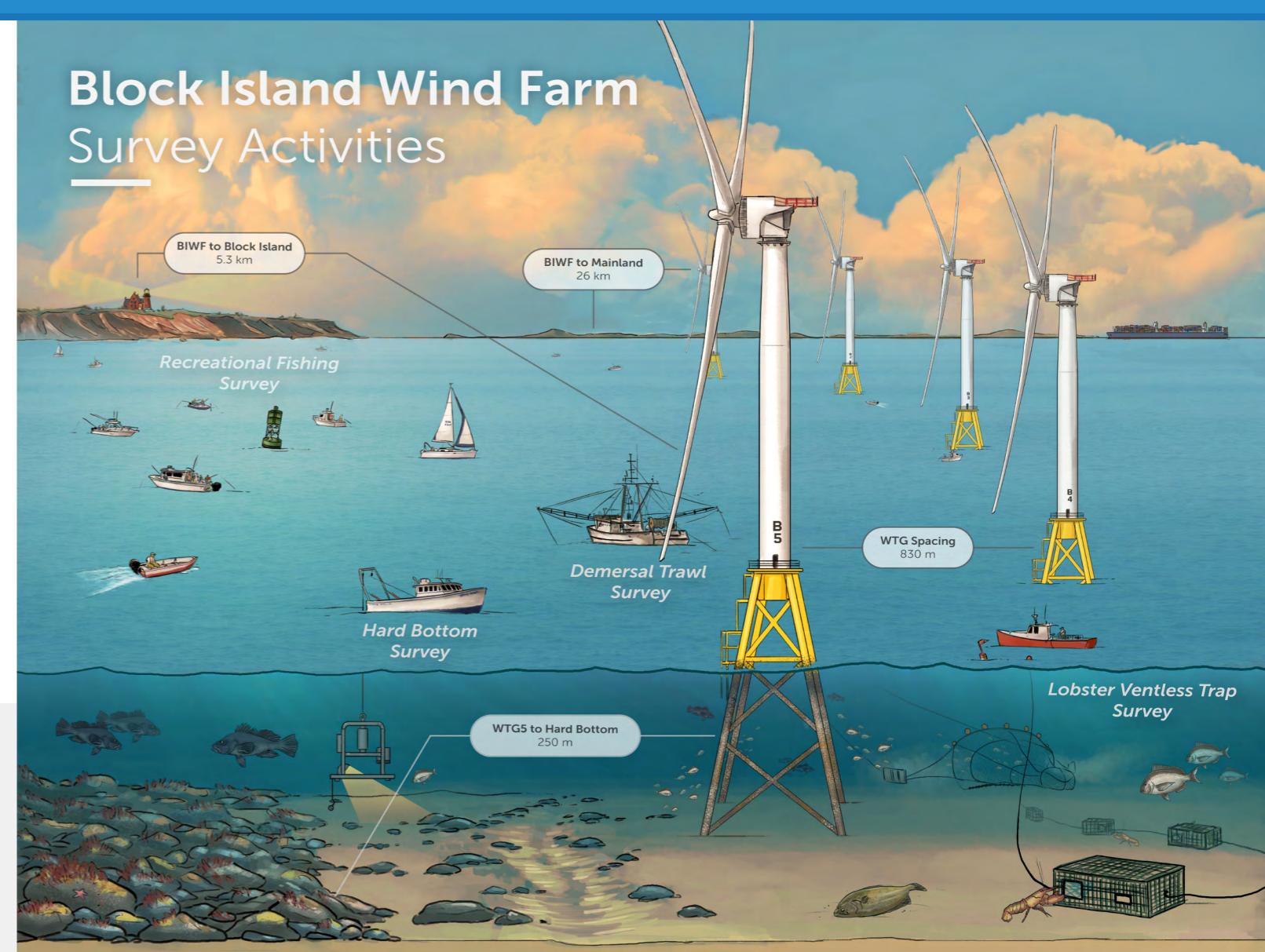
New York, NY, USA



New York District's Historic Area Remediation Site (HARS) is the historic disposal site for materials dredged from New York Harbor since the mid-1800s, resulting in a broad area of contaminated sediments. The site is currently under remediation using Category I dredged materials that isolate legacy sediments and require rigorous multi-method monitoring.

INSPIRE staff have supported these remediation efforts under contract to the U.S. Army Corps of Engineers since 2010, including annual, comprehensive acoustic site monitoring using multibeam echo sounder and acoustic backscatter, SPI, vibracoring, toxicity testing, and chemical and biological analyses to support objectives outlined in the Site Management and Monitoring Plan. Hallmarks of our performance have been consistency and comparability of data, including comparative analysis of current and historical data.

Block Island Wind Farm Survey Activities



PIONEERING APPROACHES TO ADVANCE PERMITTING FOR OFFSHORE WIND

After INSPIRE scientists addressed the environmental challenges associated with permitting Block Island Wind Farm (BIWF), the nation's first offshore wind farm, their expertise has been applied to twelve offshore wind projects. As a leader in offshore wind environmental assessment, INSPIRE has pioneered benthic site assessment and monitoring, fisheries monitoring, Essential Fish Habitat (EFH) mapping, and Forward Scouting®.

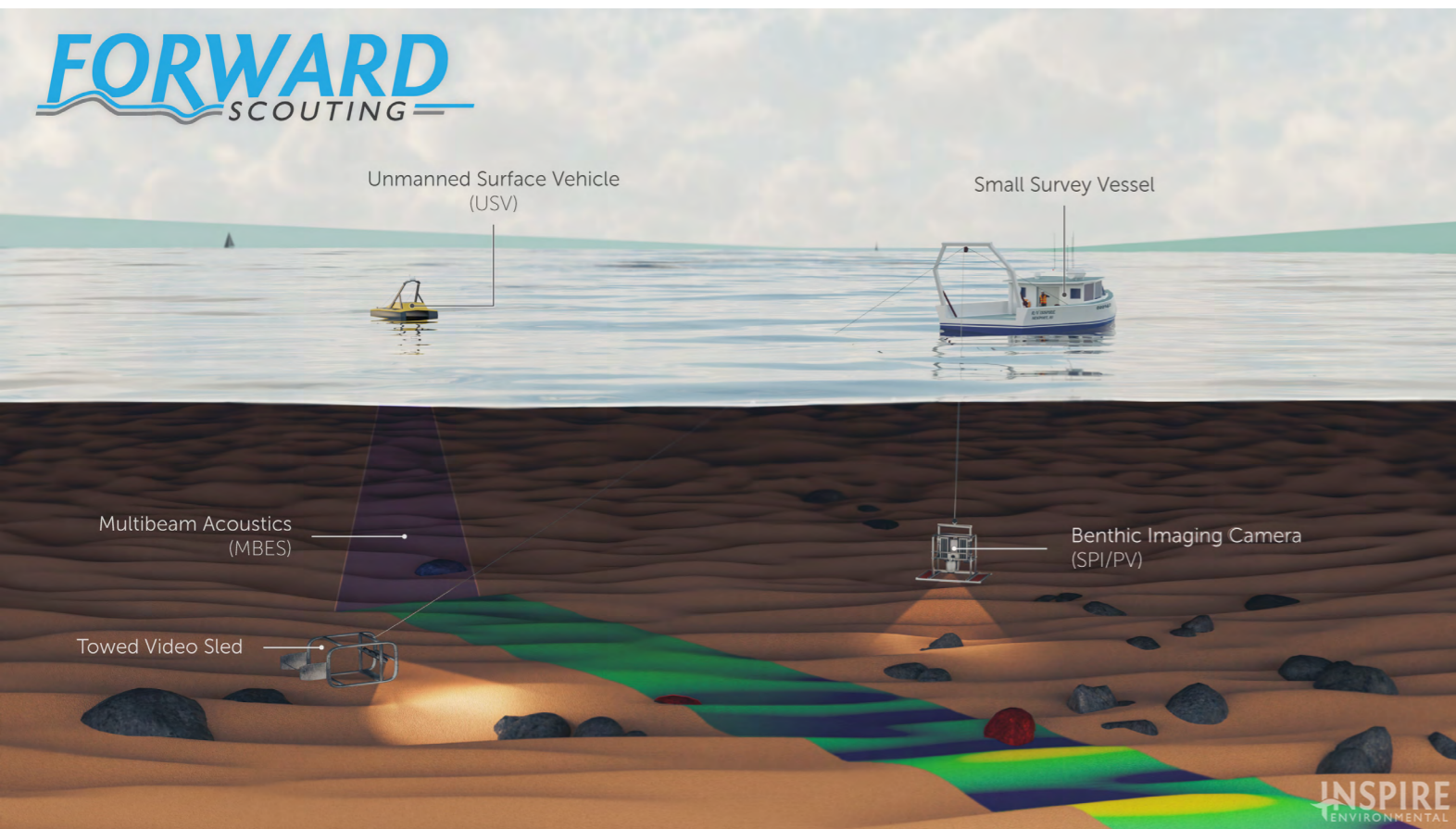
INSPIRE scientists supported the permitting strategy for BIWF, leading with innovative approaches for benthic assessment and fisheries monitoring. INSPIRE's SPI and PV imaging were used to assess the benthic habitat and to ground-truth the geological and geophysical survey results at the proposed wind farm; the first use of SPI and Forward Scouting® for offshore wind.

This cost effective and data intensive approach is now widely accepted by BOEM and other regulatory agencies. Seven years of fisheries monitoring at the site pioneered an approach that effectively produced defensible results that satisfied multiple stakeholders. Those results are now published and are the highest resolution fisheries results from any wind farm in the world. We have also designed and conducted technical studies to address concerns related to cable routing, sensitive eelgrass habitat, hard bottom habitat, lobsters, recreational boating, NEPA documentation and EFH mapping. With the current growth in offshore wind energy, INSPIRE is successfully applying this experience to projects along the U.S. eastern seaboard from Massachusetts to North Carolina and along the U.S. west coast.

Read our peer-reviewed research about BIWF and other offshore wind projects by scanning this code.



THE FORWARD SCOUTING APPROACH FOR OFFSHORE WIND

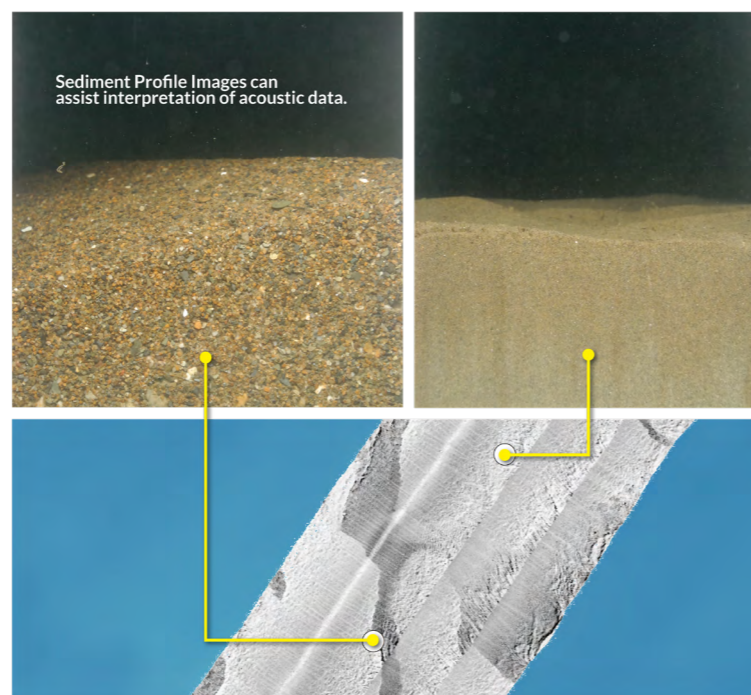


When limited site-specific data are available, cable routes can be de-risked from a construction and permitting perspective by conducting reconnaissance level surveys prior to full scale geophysical, geotechnical, and benthic field campaigns. Efficiencies, and substantial cost savings, can be realized using this Forward Scouting® approach to cable route optimization. Similarly, INSPIRE uses an adaptive sampling approach that is highly effective at characterizing complex habitat and supporting agency interactions.

The Forward Scouting® approach informs cable route evaluation, optimization, and selection for identifying the survey area for the full scale geophysical and geotechnical survey to support environmental permitting.

Expensive geophysical vessel time can be saved by using a collaborative Forward Scouting® approach.

INSPIRE has conducted numerous benthic surveys in support of offshore wind development and has successfully led two Forward Scouting efforts using SPI/PV in combination with geophysical data collection. INSPIRE led the 2017 New York State Energy Research and Development Authority (NYSERDA) multibeam echosounder (MBES) and benthic survey for development of the NYS Offshore Wind Master Plan; and in 2022 INSPIRE, in collaboration with the autonomous surface vessel company XOCEAN, conducted a Forward Scouting® benthic assessment survey along proposed export cable routes for a wind farm to be proposed within the Attentive Energy Lease Area (OCS-A 0538) in the New York Bight.



INSPIRE'S SERVICES IN SUPPORT OF OFFSHORE WIND SITE INVESTIGATION AND PERMITTING

Permitting

- Benthic Habitat Assessment and G&G Ground-Truthing
- Adaptive Field Sampling to Identify Sensitive Taxa and Critical Habitat
- Essential Fish Habitat Assessment (EFH)
- Commercial and Recreational Fisheries Assessment
- Benthic Habitat Mapping for EFH Consultation
- Subject Matter Expert Witness

Construction and Operations Plan

- Benthic and Shellfish
- Essential Fish Habitat
- Commercial and Recreational Fisheries
- EFH Mapping
- Acoustics

Stakeholder Engagement

- Data Visualization
- Community Outreach
- Agency Consultation

Monitoring

- Fisheries and Benthic Monitoring Plans
- Subsea Foundation Imaging and Analysis
- Fisheries Surveys:
 - Demersal Trawl
 - Lobster
 - Cod Spawning
 - Telemetry



PROVIDING EXPERTISE ACROSS THE WORLD

Services Available:

- › Sediment Profile and Plan View Imaging
- › Statistical Analysis and Survey Design
- › Environmental Baseline Surveys
- › Siting Suitability Consulting
- › Fish and Fisheries Impact Surveys
- › Benthic Habitat Assessments
- › Construction Impacts Monitoring
- › Data Visualization and Reporting
- › Bioacoustic Monitoring
- › Community Stakeholder Outreach
- › Dredged Material Mapping and Management
- › Sediment Collection and Analysis
- › Computer Modeling of Environmental Conditions
- › Construction and Operations Plan Support
- › Database Development and Management
- › Water Resources Planning
- › Support for Risk Assessment Studies



Our Clients Include:

- › AECOM
- › Alpine Ocean Seismic Survey, Inc.
- › American Petroleum Institute (API)
- › Attentive Energy
- › Battelle
- › Bluepoint Wind
- › British Petroleum (BP)
- › Chevron-Texaco
- › Community Offshore Wind
- › Continental Shelf Associates (CSA)
- › Dominion Energy
- › Environmental Design and Research (EDR)
- › Environmental Resources Management (ERM)
- › Equinor
- › Eversource
- › ExxonMobil
- › Fugro Marine GeoServices, Inc.
- › Golder Associates
- › Haley and Aldrich
- › HDR, Inc.
- › Imperial Oil Ltd.
- › International Seabed Authority
- › Jacobs
- › Lloyds Register
- › Massachusetts Clean Energy Center
- › New York State Energy Research & Development Authority (NYSERDA)
- › Oceaneering
- › Ocean Winds (OW)
- › Ørsted / Deepwater Wind
- › Pacific Gas & Electric
- › PEMEX
- › Petrobras
- › Pine Tree Offshore Wind
- › Ramboll
- › Regional Wildlife Science Collaborative
- › Rise Light & Power
- › RWE
- › Shell
- › Siemens Gamesa Renewable Energy (SGRE)
- › SouthCoast Wind
- › Stantec
- › Trident Seafoods
- › U.S. Army Corps of Engineers (USACE)
- › U.S. Environmental Protection Agency (USEPA)
- › Vanasse Hangen Brustlin, Inc (VHB)

THE INSPIRE STORY



Drew Carey, PhD - Founder and Principal Scientist



Joe Germano, PhD - Founder and Principal Scientist Emeritus

An environmental consultancy based in Rhode Island, **INSPIRE Environmental** was founded by Dr. Drew Carey and Dr. Joseph Germano in 2015. With over thirty years of experience in the application of Sediment Profile and Plan View Imaging (SPI/PV), Drs. Carey and Germano assembled and trained a team of dedicated scientists to continue their legacy of expert assessment of seafloor health. Through INSPIRE Environmental, this offering has been enhanced with new and innovative data processing techniques that deliver scientifically defensible results in visual, intuitive formats as well as expanding to encompass research related to resources that depend on the seafloor (e.g., fisheries). INSPIRE is the only company to include SPI/PV in a seamless view of seafloor topography to provide detailed information on the nature and health of the seafloor and the resources that depend on it.

INSPIRE has offices and facilities in Rhode Island, Massachusetts, Colorado, and Washington, and employs 30 full time scientific and technical staff. With three sets of Sediment Profile and Plan View camera systems, including full spares, no other provider of SPI services can field as many simultaneous surveys or demonstrate our record of data return. By leveraging our ‘best in class’ expertise and innovative presentation tools, the principals of INSPIRE have been delivering critical services to the U.S. Offshore Wind industry since its inception at Rhode Island’s Block Island Wind Farm.

In 2022, INSPIRE was acquired by the Venterra Group, an offshore wind services company dedicated to supporting the world’s energy transition. As a Venterra Group member company, INSPIRE will scale to support global demand while applying the legacy of excellence conveyed by the founders to meet the world’s energy challenges.

Mission Statement

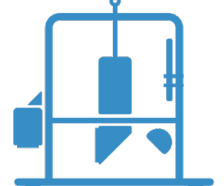
INSPIRE Environmental’s mission is to illuminate and expand our understanding of the seafloor. We work creatively and collaboratively with clients worldwide to clarify their questions, choose appropriate tools to answer them, and present clear and compelling results to support the best decision-making possible.

Statement of Qualifications



A Venterra Group Plc
Member Company

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