
David S. Oliver

Hydrographer / Marine Geologist & Geophysicist



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|------------------------|-------------------|---------------------|--------------------|
| Date of Birth: | <i>On Request</i> | Nationality: | U.S.A. |
| Passport No. | 214425703 | Expiration: | 08 Aug 2015 |
| Visa No. | <i>On Request</i> | Expiration: | <i>On Request</i> |
| Security Level: | <i>On Request</i> | Expiration: | <i>On Request</i> |

Seafloor Investigations, LLC.
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EDUCATION (DEGREE AND SPECIALIZATION)

- Graduate Studies, Univ. of Boulder, Colorado 1999
- B.S. Physics, Minor in Geology, Cal State Univ., Fullerton, 1998
- Nuclear, Biological & Chemical Warfare School, Ft McClellan 1987 (Diploma)

TRAINING / CERTIFICATES / PROF CERTIFICATIONS

- OSST Open Sea Survival Training & Certification
- OPITO Certified-BOSIET/HUET & EST Training (2013)
- UKOOA Medical (2013)
- SafeGulf/RigPass (2012)
- Mariner Medical Certification (2008-2012)
- TWIC Certification (2010-current)
- Advanced Caris HIPS/SIPS Processing (2010)
- UNB-OMG / UNH-CCOM Multibeam Sonar Training (2010)
- LTR Land Survival Training (2009)
- Caris HIPS/SIPS Training (2008)
- Chesapeake Training (2007)
- Caris S-57 Notebook Training (2006)
- HAZWOPER training - 40 Hr.
- Helicopter Underwater Egress Training (H.U.E.T.)
- North Slope Training Co-Operative 8 Hour Course

SUMMARY OF EXPERIENCE

Mr. Oliver has over 25 years of work experience in the geotechnical and geophysical industries. Recent work has focused on the development of hydrokinetic and tidal renewable energy feasibility programs. These investigations have included resource assessment, site characterization, and hazard evaluation. He is expert at program design, field data collection, as well as the precise management and spatial analysis of remotely sensed data. Mr. Oliver has knowledge of a wide variety of geophysical tools, investigative techniques, and an in-depth understanding of physical science as applied to the Earth geomorphology and it's subsurface.

PROFFESIONAL EXPERIENCE

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| 2012 – current | Position –Hydrographer, Marine Geologist, & Geophysicist Company – Benthic GeoScience Inc., P.O. Box 556, Sutton, AK |
| 2011 – current | Position – Marine Geologist & Geophysicist Company – Seafloor Investigations LLC, 93 S Jackson St., No.28990, Seattle, WA 98104 Supervisor – Greg Kurras |
| 2007 – 2011 | Position – Geophysicist Company – TerraSond Ltd., 1617 S. Industrial Way, Palmer AK 99645 Supervisor – Karl Woods, email: kwoods@terrafond.com (please do not contact without prior consent) |
| 2003 – 2007 | Position – Field Staff Geophysicist Company – Fugro Pelagos Inc., 3738 Ruffin Rd., San Diego, CA 92123 Supervisor – Bob Richards, Mr. Richards now works for Aero-Metric. |
| 2000 – 2001 | Position – Marine Geologist & Geophysicist / Hydrographer Company – Arctic GeoSciences, 1000 O'Malley Rd, Anchorage, AK 99515 Supervisor – Mike Schlegal, Mr. Schlegal now works for British Petroleum. |
| 1998 – 1999 | Position – Flood Control Mapper Company – GE Capital Flood Services Contact – Human Resources |
| 1997 – 1998 | Position - Field Geophysicist/Seismic Analyst Company – Western Geophysical Contact – Human Resources |

Additional employment records are available upon request

MARINE SURVEY SYSTEMS EXPERIENCE

Reson 81xx & 71xx Multibeam Series, Simrad EM 60, 710, & 1002 Sonar Systems, R2Sonic 2024 MBES, Odom SBES Systems, Odom ES3 MBES Edgetech Side scan Sonars, Edgetech Sub-Bottom (Chirp) Profilers, Applanix POS-MV INS, Applanix POSAV INS, Klein Side scan Sonars, AAE Sub-Bottom (Boomer) Profiler, Coda Octopus DA-1000 Recording System, Coda Octopus F-185 INS, SHOALS LiDAR, Marine Magnetism Magnetometer/gradiometer, Teledyne RDI Acoustic Doppler Current Profiler, Nortek Acoustic Doppler Current Profiler, Sontek Acoustic Doppler Current Profiler, and Rutter X-Band Slick Detection Radar

SURVEY SOFTWARE EXPERIENCE

CARIS HIPS & SIPS, IVS-3D Fledermaus, ESRI ArcGIS, Echoview, Hypack/Hysweep Acquisition System, QPS QINSy software, Edgetech Discover Software, Chesapeake SonarWiz, Optech SHOALS GCS, Coda Octopus DA-1000 Processing System, Leica ERDAS, WinFrog Navigation, Applanix POSpac, Marine Magnetism SeaLink, and StarFix Post-Proc

OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Training, Awards, etc.)

Member of the Board of Advisors for Alaska Hydrokinetic Energy Research Center (AHERC, an institution of University of Alaska Fairbanks), Geophysical Society of Alaska (GSA), Alaska Geological Society (AGS), Organizational Member for Renewable Energy Alaska Project (REAP), Alaska Energy Authority (AEA) Hydrokinetic Working Group for Alaska Energy Authority, Alaska Energy Authority (AEA) Geothermal Working Group for Alaska Energy Authority, Marine Technology Society (MTS), International Electrotechnical Commission's Hydrokinetic Resource Assessment, American Geophysical Union (AGU).

RECENT PROJECTS

Bay Marchand Asset Detection Survey (2013)

Chevron

Bay Marchand, Gulf of Mexico, vicinity of Port Fourchon, LA

David Oliver performed Geophysicist (both acquisition and processing) duties for this project. Project utilized Edgetech 4100 Side scan, Geometrics Gradiometer, & Edgetech 516 Chirp. Data was processed in SonarWiz.

Bay Marchand Asset Detection Survey (2012)

Chevron

Bay Marchand, Gulf of Mexico, vicinity of Port Fourchon, LA

David Oliver performed Hydrographer (both acquisition and processing) and Navigator duties for this project. Project utilized a Reson 7125 and was processed in Caris. Navigation was accomplished using QINSy.

Resource Reconnaissance for False Pass Tidal Power Project (2012)

Aleutian Pribilof Island Association

Unimak Island, AK

David Oliver performed Geophysicist, Oceanographer, & trainer duties for this project. This project deployed one ADCP, one AWAC, and two tide gage pressure sensors all mounted within high discharge moorings. Mr. Oliver programmed ADCP for persistent reconnaissance deployment. Prior to deployment for each mooring, Mr. Oliver deployed Seaking Scanning Sonar to evaluate the seafloor for mooring entanglement hazards.

Cosmo-C Hazard Survey and Drill Site Clearance (2012)

Buccaneer

Cook Inlet, vicinity of Anchor Point, AK

David Oliver performed Geophysicist and trainer duties for this project. Project utilized Reson 7101, Edgetech 4200 Side scan, Geometrics Gradiometer, AEE Boomer/GeoSurvey Sub-Bottom Profiler, & Edgetech 516 Chirp. Data was processed in Caris & SonarWiz.

Cosmo-B Hazard Survey and Drill Site Clearance (2012)

Buccaneer

Cook Inlet, vicinity of Anchor Point, AK

David Oliver performed Geophysicist and trainer duties for this project. Project utilized Reson 7101, Edgetech 4200 Side scan, Geometrics Gradiometer, AEE Boomer/GeoSurvey Sub-Bottom Profiler, & Edgetech 516 Chirp. Data was processed in Caris & SonarWiz.

Middleground Shoal Hazard Survey and Drill Site Clearance (2012)

Escopeta

Cook Inlet, vicinity of Anchor Point, AK

David Oliver performed Geophysicist and trainer duties for this project. Project utilized Reson 7101, Edgetech 4200 Side scan, Geometrics Gradiometer, AEE Boomer/GeoSurvey Sub-Bottom Profiler, & Edgetech 516 Chirp. Data was processed in Caris & SonarWiz.

Cosmo-A Hazard Survey and Drill Site Clearance (2012)

Buccaneer

Cook Inlet, vicinity of Anchor Point, AK

David Oliver performed Geophysicist and trainer duties for this project. Project utilized Reson 7101, Edgetech 4200 Side scan, Geometrics Gradiometer, AEE Boomer/GeoSurvey Sub-Bottom Profiler, & Edgetech 516 Chirp. Data was processed in Caris & SonarWiz.

Offshore Geophysical Prospect Survey (2012)

Aurumar

Vicinity of Nome, AK

David Oliver performed Geophysicist duties and served in both acquisition and processing capacities for this project. Project utilized dual head Kongsberg EM3002, Single-channel & Multi-channel Shallow Seismic using AEE triple boomer system, & Edgetech 4200 Side Scan Sonar, and Edgetech 516 Chirp. Data was processed in-field using Caris & SonarWiz. In addition, Mr. Oliver established a navigation system on board

Geophysical Site Characterization Study E. Forelands Tidal Power Project (2012)

Ocean Renewable Energy Company

E. Forelands, Cook Inlet, vicinity of Nikiski, AK

David Oliver was Project Manager/Geophysicist. This survey was accomplished using Kongsberg EM3002 recorded in SIS, while navigation used Hypack. Data was processed in Caris and Fledermaus. The products accomplished for this project were high density bathymetric surface, hazard classification, backscatter acoustic intensity mosaic, slope analysis, and geologic interpretation. Project was delivered on time and on budget.

BP Macondo Spill Response: Geophysical Mid-water Hydrocarbon Seep Detection & Surface Slick Survey (2011)

EGS Americas

Gulf of Mexico (GoM), Vicinity of LA USA

While working for Seafloor Investigations, David Oliver operated and interpreted a collaborative set of data from Rutter X-Band Radar, RDI 78 kHz ADCP, Simrad EM 60 (38kHz & 120kHz) Backscatter Echosounder. The products were used to identify naturally occurring mid-water hydrocarbon plumes in GoM at 3000 -6000 m of water, direct the ROV dive for visual inspection and chemical sampling, ultimately, predicting and hunting the surface slick expression for chemical sampling team. The expedition was funded by BP Oil, reviewed by NOAA and met all legal requirements for the Macondo Spill Investigation.

Geophysical Site Characterization Study Kvichak River RISEC Project (2011)

Alaska Energy Engineering, Representing the Village of Igiugig

Vicinity of Igiugig, Alaska USA

While working for TerraSond Ltd., David Oliver designed, managed, and interpreted the results of this high-resolution geophysical study. The survey included Multibeam bathymetry, Side scan sonar, Magnetometer, and Sub-bottom geophysical data. Mr. Oliver oversaw quality control for acquisition, processing, interpretation, and product delivery. Project was delivered on time and on budget.

Port Lions Ferry Terminal Geophysical Study (2011)

Village of Port Lion

Kizhuyak bay, Kodiak Island, Alaska USA

While working for TerraSond Ltd., David Oliver designed, acquired, and interpreted the results of this high resolution geophysical study. The survey included Multibeam bathymetry, Side scan sonar, Magnetometer, and Sub-bottom geophysical data. Mr. Oliver acquired the geophysical data for this survey, oversaw processing of the geophysical data, and interpreted the geophysical conclusions for this study. Project was delivered on time and on budget.

Resource Assessment East Forelands Tidal Energy Project (2011)

Ocean Renewable Power Company

Cook Inlet, Alaska USA

While working for TerraSond Ltd., David Oliver designed the oceanographic tidal power-density study for the East Forelands Tidal Energy Project. This study included the positioning of three (3) ADCP moorings to be deployed/ recovered/redeployed, and finally recovered completing a five-site survey over an entire lunar cycle. Moorings were not recovered on projected timeline and divers are expected to recover oceanographic instruments in the future. Mr. Oliver will complete data analysis and resource assessment upon data recovery.

Geophysical Mid-water Obstruction and Hydrocarbon Seep Survey (2010)

EGS

Gulf of Mexico - vicinity of Louisiana USA

While working for Seafloor Investigations LLC., David Oliver worked as a geophysicist for EGS. The project required the real time interpretation and evaluation of EK 60 sonar data for mid-water obstructions and hydrocarbon seeps. The survey identified three (3) obstructions and fourteen (14) naturally occurring hydrocarbon seeps. Mr. Oliver participated in all offshore operations, assisted with the development survey methodologies, and documented results through reporting efforts. Project deliverables were complete and on time.

Marine Operations Management, Facilitation, and Deployment for Acoustic Moorings (2010)

Ocean Renewable Power Company

Vicinity of Fire Island – Cook Inlet, Alaska USA

While working for TerraSond Ltd., David Oliver designed the mooring modifications for high energy ocean environments, planned and managed the deployment of Passive Acoustic Moorings for beluga whale identification, behavior, and proximity evaluation. Mr. Oliver designed the deployment strategy and managed marine operations for ORPC and subcontractors during DASAR deployments at Tidal Hydrokinetic Power Site. This project was completed on time and within budget.

Passive Acoustic Mooring Prototype design and production for High Energy Zones (2010)

Alaska Dept. of Fish and Game

Eagle Bay – Cook Inlet, Alaska USA

While working for TerraSond Ltd., David Oliver supervised the design and fabrication of prototype passive acoustic moorings for high current environments. The moorings are silent, economic, environmentally benign, and have consistently recovered both data and instrumentation for Dept. of Fish and Game. Production is beyond the prototype phase and is now an additional department service offered by TerraSond. Designed for Passive Acoustic Beluga observations in high energy zones.

Nenana Instream Hydrokinetic Site Characterization Study (2010)

Ocean Renewable Power Company

Tanana River - Nenana, Alaska USA

After the 2009 investigation revealed problematic river behavior, Mr. Oliver designed and managed the acquisition, processing, and oversaw project deliverables for the investigation of an additional stretch of Tanana River. Conducted the geologic interpretation and reporting for the project. This project included the acquisition of current velocities (static and roving) with an ADCP, bathymetry Multibeam Echosounder, Side-Scan imagery, and water column turbulence data (acquisition only). The products were processed in Caris, WinRiver II, MATLAB, and Chesapeake SonarWiz. Presentations included a comprehensive report, 3D Fledermaus presentation, Autodesk AutoCAD drawings, and Google Earth Presentation.

Mid-Cook Inlet Current Magnitude Reconnaissance for Hydrokinetic Potential Evaluation (2009)

Chevron

Trading Bay - Cook Inlet, Alaska USA

Mr. Oliver designed and managed roving ADCP current monitoring program as reconnaissance for optimal turbine installation site. The project deployed a pole mounted 1200 kHz Teledyne ADCP for one complete tide cycle and monitored the tidal current behavior.

Nenana Instream Hydrokinetic Site Characterization (2009)

Alaska Center for Energy & Power (ACEP)

Tanana River - Nenana, Alaska USA

David Oliver designed and managed the acquisition, processing, and oversaw project deliverables. Conducted the geologic interpretation and reporting for the project. This project included the acquisition of current velocities (static and roving) with an RDI 1200 kHz ADCP, bathymetry with a R2 Sonic 2024 Multibeam Echosounder, Side-Scan imagery, and water column turbulence data (acquisition only). The products were processed in Caris, WinRiver II, MATLAB, and Chesapeake SonarWiz. Presentations included a comprehensive report, 3D Fledermaus presentation, Autodesk AutoCAD drawings, and Google Earth Presentation.

Virtual Current Profiling Mooring Computation (2009)

Ocean Renewable Power Company

Vicinity of Fire Island - Cook Inlet, Alaska

David Oliver designed and managed MATLAB program development for the computation of current magnitude, current direction, and power density hindcast for a virtual mooring placement. These data sources were recomputed from other areas of the inlet. Data source include measurements from stationary ADCP moorings and roving ADCP efforts.

Tidal Power Pilot Site Characterization Study (2009)

Ocean Renewable Power Company

Vicinity of Fire Island - Cook Inlet, Alaska

David Oliver designed, managed, and executed a project to provide site characterization information for permitting and identification of Dangers to Navigation and Hazards for Construction obstructions. This project included the acquisition of current velocities (static and roving), Sub bottom Profiling, Multibeam DEM, Side-scan imagery, and Magnetometer data. The products include a comprehensive interpretation report, sea floor maps, 3D digital presentation, and spatial targeting of peak power density flows.

Resource Assessment for Tidal Pilot Project (2009)

Ocean Renewable Power Company

Vicinity of Fire Island - Cook Inlet, Alaska

David Oliver designed and managed the deployment of stationary mooring for monitoring the subsurface current vector profile for Tidal Hydrokinetic Power Conversion project. Deliverables were a detailed site specific tidal analysis, power density hindcast, and a current directional analysis for turbine orientation placement.