

Summary of selected projects and services

| ID | Prime Contractor* | Client | Years | Location | Brief description of project and services provided |
|-----------|--------------------------|-----------------------------------|--------------|----------------------|--|
| 90 | Keta Waters | Quinault Indian Nation | 2019-ongoing | Tahola, WA | Provide technical analysis and advice related to watershed planning in WRIs 23 and 24 associated with the Streamflow Restoration Act. |
| 89 | DOF | Port of Tacoma | 2017-ongoing | Tacoma, WA | Provide groundwater flow modeling expertise related to site remediation at the former Arkema industrial site. |
| 88 | Keta Waters | Native American Rights Fund | 2015-2017 | Anchorage, AL | Review hydrologic data and groundwater modeling work associated with the Supplemental Environmental Impact Statement for PacRim Coal's Chuitna Coal Project. |
| 87 | Keta Waters | City of Tacoma | 2015-2017 | Mason County, WA | Develop groundwater flow model for the lower Skokomish River watershed in Mason County, Washington to evaluate groundwater/surface water interactions. |
| 86 | Keta Waters | Squaxin Island Tribes | 2011-2015 | Shelton, WA | Develop groundwater flow model for the Goldsborough Creek watershed in Mason County, Washington to evaluate groundwater/surface water interactions. |
| 85 | Keta Waters | Muckleshoot Indian Tribe | 2011-ongoing | King County, WA | Assist in estimating effects of land use changes and water resources development on stream flow and temperatures in the Soos Creek watershed as part of a temperature TMDL. |
| 84 | Keta Waters | Washington Department of Ecology | 2009-ongoing | Tacoma, WA | Provide groundwater modeling expertise and technical analysis and advice regarding remediation of groundwater contamination in the vicinity of the Occidental Chemical Company site near the Hylebos waterway. |
| 83 | Keta Waters | Swinomish Indian Tribal Community | 2010-ongoing | La Connor, WA | Provide groundwater modeling and technical analysis and advice regarding stream flows and groundwater/surface water interactions. |
| 82 | Keta Waters | Crystal Mountain Ski Resort | 2012-2015 | Crystal Mountain, WA | Provide technical analysis and advice regarding transfer of water rights from surface water to groundwater. |
| 81 | Keta Waters | Water Access Now | 2011-2015 | Ghana, Africa | Provide technical advice for groundwater development in rural areas of northern Ghana. |
| 80 | Keta Waters | Muckleshoot Indian Tribe | 2010-2011 | King County, WA | Assist in estimating effects of land use changes and water resources development on stream flow and temperatures in the Newaukum Creek watershed as part of a temperature TMDL. |
| 79 | Wilcox Family Farms | Wilcox Family Farms | 2010-2017 | Roy, WA | Provide technical analysis and advice regarding water rights and groundwater water metering. |
| 78 | Ridolfi Engineering | City of Yakima | 2012 | Yakima, WA | Evaluate the expected thermal effects of infiltrating water from the City's waste-water treatment plant to develop and enhance riparian fish habit along the Yakima River. |
| 77 | Keta Waters | Muckleshoot Indian Tribe | 2011 | King County, WA | Assist in estimating effects of land use changes and water resources development on stream flow and temperatures in the Bear Creek watershed as part of a temperature TMDL. |
| 76 | Keta Waters | Tulalip Tribes | 2010 | Camano Island, WA | Evaluate potential impacts of tidal flooding on Leque Island to the Camano Island Sole Source Aquifer and Camano Water Systems Association water supply |

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| 75 | Ridolfi Engineering | Yakama Nation | 2009-2012 | Hanford, WA | Provide technical analysis and advice regarding groundwater modeling and remediation of groundwater contamination on the Hanford site. |
| 74 | Keta Waters | Kalispel Tribe of Indians | 2009-2014 | Usk, WA | Provide technical support on modeling work associating with the Pend Oreille River TMDL |
| 73 | Keta Waters | Water for People | 2007-2009 | Malawi, Africa | Evaluate water supply systems in rural areas along the shores of Lake Malawi and advise on activities to improve these systems. |
| 72 | Keta Waters | LOTT Alliance/Brown and Caldwell | 2006-2009 | Olympia, WA | Perform hydrogeological investigations and groundwater modeling necessary to evaluate the groundwater recharge potential of sites that may be considered for groundwater recharge facilities for reclaimed water. |
| 71 | Keta Waters | Squaxin Island Tribes | 2006-2012 | Shelton, WA | Provide hydrogeologic conditions and water rights evaluation services |
| 70 | Keta Waters | Tulalip Tribes | 2005-ongoing | Tulalip, WA | Provide assistance as an expert to assist the Tribes in developing, negotiating, and implementing strategies to protect tribal treaty and reserved water rights. |
| 69 | Keta Waters | Suquamish Tribes | 2005-2013 | Suquamish, WA | Provide hydrogeologic conditions and water rights evaluation services. |
| 68 | Keta Waters | Center for Justice | 2004-2010 | Spokane, WA | Provide technical support on modeling work associating with the Spokane River TMDL |
| 67 | Keta Waters | Muckleshoot Indian Tribe/U.S. EPA | 2002-ongoing | Auburn, WA | Provide technical analysis and modeling for the White River Total Maximum Daily Load (TMDL) assessment. This TMDL involves limiting phosphorus input to the White River to address issues related to periphyton growth and high pH. |
| 66 | Keta Waters | Muckleshoot Indian Tribe | 1995-ongoing | Auburn, WA | Provide technical analysis, advice, and expert testimony related to groundwater resource development and interactions between groundwater and surface water. |
| 65 | MGS Engineering Consultants | WSDOT | 2008 | Olympia, WA | WSDOT Agreement DP00871, Amendment 8. Geotechnical Development of Infiltration Design Procedures for CAVFS, Ecology Embankments and Related BMP's. |
| 64 | Keta Waters | Suquamish Tribe Dept. of Natural Resources | 2008 | Kitsap County, WA | Review 3-dimensional groundwater model developed by the U.S. Department of the Interior, Bureau of Reclamation. The model was developed to simulate the groundwater flow system in the vicinity of the Port Madison Indian. |
| 63 | Pacific Groundwater Group | Port of Vancouver and Clark County PUD | 2006-2008 | Vancouver, WA | Provide peer review of the groundwater flow and transport models developed to assess contaminant migration |
| 62 | Pacific Groundwater Group | City of Camas, WA | 2007-2008 | Camas, WA | Develop saturated/unsaturated groundwater flow model to estimate seepage rates from the Washougal River. |

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| 61 | Keta Waters | Friends of the San Juans | 2007-2008 | Friday Harbor, WA | Review and evaluate groundwater pumping tests and groundwater model developed to assess impacts of a proposed development on San Juan Island. |
| 60 | Keta Waters | Azure Green Consultants | 2007-2008 | Puyallup, WA | A MODFLOW groundwater flow model was developed to evaluate water level elevations in a natural channel. The groundwater model was used to estimate stage-storage-discharge relationships for the natural channel and to evaluate likely changes in groundwater levels due to the filling activities at a nearby gravel mine. |
| 59 | Parametrix | Port of Illahee | 2007-2008 | Bremerton, WA | Development of the Illahee Creek aquifer protection plan. The objective of this project was to identify specific measures to protect and enhance groundwater resources in the Illahee Creek watershed. These protection and enhancement measures relate to both groundwater quality and groundwater quantity and specifically focus on the role of groundwater in supporting stream flow in Illahee Creek. |
| 58 | Keta Waters | Cascade Water Alliance | 2007-2008 | Bellevue, WA | This study was aimed at identifying the types of hydrogeological conditions or scenarios that may result in significant improvements to in-stream flow and temperature conditions through seasonal pausing of groundwater extraction from wells. Included converting a steady-state, 3-dimensional MODFLOW model developed by the USGS to a transient model. |
| 57 | Keta Waters | Okanogan Highlands Alliance | 2006-2008 | Tonasket, WA | Review the report that describes the groundwater flow model used to support the Final Supplemental Environmental Impact Statement (FSEIS) for the Buckhorn Mountain Project. The model is described in the September 7, 2006 report prepared for the Department of Ecology by URS. |
| 56 | Keta Waters | Quinalt Indian Nation | 2006-2008 | Taholah, WA | Develop 3-dimensional MODFLOW model for simulating groundwater flow in the Chehalis River basin. |
| 55 | Keta Waters | Muckleshoot Indian Tribe | 2000-2008 | Auburn, WA | Provide technical analysis and related potential impacts of the Lake Tapps Reservoir Water Right. |
| 54 | Keta Waters | University of Washington | 2007 | Seattle, WA | Provide technical assistance to estimate nitrate loadings to Hood Canal via groundwater discharge. |
| 53 | Keta Waters | Squaxin Island Tribe | 2006-2007 | Shelton, WA | Develop 3-dimensional MODFLOW model for simulating flow in the Woodland Creek watershed. Derive opinions about the relationship between surface water, groundwater, and water withdrawals in the Woodland Creek watershed |
| 52 | Keta Waters | Muckleshoot Indian Tribe U.S. EPA | 2006-2007 | Auburn, WA | Assess feasibility of water supply from Coal Creek Springs for hatchery operations. Involved evaluating existing spring collection facilities and providing recommendations for locating new wells to increase yield. |
| 51 | GeoEngineers | WSDOT | 2006-2007 | Olympia, WA | On-Call Agreement Y-9967. Infiltration Pond Research Extension. Washington State Department of Transportation Technical Monitors. Glorilyn Maw/ Rocio (Rose) Peralta/Tony Allen |

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| 50 | Keta Waters | Washington Department of Ecology | 2006-2007 | Olympia, WA | Provide peer review of a groundwater flow model for the Spokane Valley Rathdrum Prairie (SVRP) Aquifer. The SVRP Aquifer study is intended to provide an improved scientific basis for evaluating water management alternatives for the SVRP aquifer and Spokane and Little Spokane Rivers. The SVRP Aquifer Study is a cooperative effort between the State of Idaho, Washington and the United States Geological Survey. |
| 49 | Keta Waters | Tulalip Tribes | 2006-2007 | North Bend, WA | Review North Bend Mitigation Forecasting Model developed by Golder Associates Inc. |
| 48 | Keta Waters | Tulalip Tribes | 2005-2007 | Tulalip, WA | Work with Tribal personnel and Indian Health Service to improve the water supply system for the reservation. This project involved evaluating existing supplies, recommending modifications to the existing system, and designing new water supply wells. |
| 47 | Aspect Consulting | Lewis County Department of General Administration | 2006 | Lewis County, WA | Provide technical support for flow and transport modeling that was conducted to evaluate plume dynamics, and to provide reliable predictions of restoration timeframes for a set of remediation alternatives. The site is defined by a groundwater plume of chlorinated solvents. Included 3-D MODFLOW, MODPATH, and MT3D models. |
| 46 | Keta Waters | Swinomish Indian Tribal Community | 2006 | La Conner WA | Evaluate proposed amendment to the Instream Resource Protection Program in the Skagit River Water Resource Inventory Areas. Estimate of aquifer recharge from septic systems. |
| 45 | Keta Waters | The Trumpeter Swan Society | 2005-2006 | Maple Plain, MN | Evaluation of Ground Water and Surface Water Hydrology in the Vicinity of Hines Marsh, Long Beach Peninsula, Washington. January 7, 2006 |
| 44 | Keta Waters | Illahee Forest Preserve and the Port of Illahee | 2005-2006 | Kitsap County, WA | Evaluate impacts of development on groundwater and surface water resources in the Illahee Forest Preserve. |
| 43 | Keta Waters | Swinomish Indian Tribal Community | 2005-2006 | La Conner WA | Effects of Groundwater Extraction from Exempt Wells on Stream Flow in the Lower Skagit River Basin. January 27, 2006. |
| 42 | Aspect Consulting | Gila River Indian Community | 2004-2006 | Gila River, AZ | Provide technical support to help plan strategic and operational delivery of water to meet agricultural, municipal, and industrial uses. Assist in developing a groundwater model to simulate both quantity and quality of groundwater resources, including potential effects of salt build-up due to irrigation practices. |
| 41 | Keta Waters | Black Hills Audubon Society | 2005,2012, 2017 | Thurston County, WA | Assist in developing a long-term groundwater monitoring plan to help protect wetlands adjacent to gravel mining at the Maytown Aggregates site. Review water right applications and Report of Exam for water rights associated with the mining operations. |
| 40 | Northwest Hydraulic Consultants | Shared Strategy for Puget Sound | 2005 | Olympic Peninsula, WA | Instream Flow Assessment Pilot Project aimed at assessing human impacts on stream flow and salmon populations within subbasins of the Stillaguamish Watershed. |
| 39 | Pacific Groundwater Group | Port of Seattle | 2004-2005 | Seattle-Tacoma, WA | Provide peer review of the groundwater flow and transport models developed for the Port of Seattle to assess contaminant migration at the SeaTac airport |

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| 38 | Keta Waters | Swinomish Indian Tribe | 2004-2005 | La Conner, WA | Evaluate groundwater-surface interactions in the Lower Skagit River basin, with particular focus on effects of exempt wells on flow in tributaries to the Skagit River. |
| 37 | Pacific Groundwater Group | Arkema (formerly Atofina Chemicals) | 2003-2005 | Tacoma, WA | Evaluate effects of upland groundwater contamination on sediment quality under tidally-influenced conditions. Work with state and federal regulators to gain approval for in-situ stabilization activities. Evaluate impact of inter-tidal habitat restoration activities on groundwater flow and transport. |
| 36 | Pacific Groundwater Group | City of Milwaukie, Oregon | 2003-2005 | Milwaukie, Oregon | Provide technical analysis, advice, and expert testimony related to groundwater contamination which has affected the City's municipal water supply system. |
| 35 | Aspect Consulting | Glacier Northwest | 2004 | Dupont, WA | Provide technical support in reviewing and revising a 3-dimensional MODFLOW model for simulating groundwater flow in the vicinity of North Sequelitchew Creek. The model was developed to evaluate the potential impacts of a gravel mine expansion. |
| 34 | J. Massmann | State of Washington Attorney General | 2003-2004 | Olympia, WA | Provide technical analysis, advice, and expert testimony related to a groundwater and surface water contamination site in Spokane, WA. |
| 33 | GeoEngineers | WSDOT | 2003-2004 | Olympia, WA | On-call agreements Y-7717 and Y-8319. An Approach for Estimating Infiltration Rates for Stormwater Infiltration Dry Wells. Involved use of computer models to derive regression equations for estimating infiltration rates from dry wells. |
| 32 | J. Massmann | Muckleshoot Indian Tribe | 2002-2004 | Auburn, WA | Assist in developing habitat models for WRIA's 8, 9, and 10. Dr. Massmann's responsibilities included developing models for simulating flow and temperature in main-stem channels and tributaries. |
| 31 | J. Massmann | American Public Works Association | 2003 | Olympia, WA | Teach short course on design of storm water infiltration facilities and implementation of the Washington Department of Ecology's 2001 Stormwater Manual |
| 30 | Inter-Fluve and Pacific Groundwater Group | Public Utility District #1 of Whatcom County. | 2003 | Bellingham, WA | WRIA 1 Multipurpose Storage Grant, Grant G0300131 awarded by the Washington Department of Ecology. Evaluated projects related to groundwater storage and groundwater/surface water interactions, including converting surface water diversions to groundwater withdrawals and augmenting flow with groundwater. |
| 29 | Keta Waters | WSDOT | 2002-2003 | Olympia, WA | Implementation of Infiltration Ponds Research. Included development of 3-dimensional MODFLOW model for evaluating groundwater infiltration facilities. Lump Sum Agreement Number Y8265. |

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| 28 | Brown and Caldwell | Orange County Sanitation District and Santa Ana Watershed Project Authority | 2001-2002 | Irvine, CA | Member of an expert panel convened to evaluate alternatives for the Santa Ana River Interceptor Expanded Alternatives Study. This project looked at various alternatives for constructing an interceptor sewer line along the Santa Ana River. My role was as an expert in hydrology and applications of decision analysis. |
| 27 | J. Massmann | Thistledown Farms | 2001 | Eugene, OR | Evaluate effects of dewatering activities associated with a proposed gravel mine and evaluate proposed mitigation of these de-watering activities through the use of infiltration trenches. |
| 26 | Planning and Management Consultants, Ltd. | U.S. Army Corp of Engineers | 2000-2001 | Norfolk, VA | Evaluate the risk of water shortages in the Lower Peninsula, Virginia, including a review of future water use in the service area of a consortium of water utilities representing Newport News, Hampton, Poquoson, Williamsburg, York County, and James City County, Virginia. It was my responsibility to review and evaluate studies aimed at estimating the groundwater yield for these utilities |
| 25 | Farella Braun & Martel, San Francisco | Nestle Waters of North America (Perrier Water) | 2000-2001 | San Francisco, CA | Evaluate the hydrogeology and groundwater flow systems at several sites that provide spring water. Assessed compliance with regulations established by the Food and Drug Administration for spring waters |
| 24 | J. Massmann | Muckleshoot Indian Tribe | 2000 | Auburn, WA | Evaluated impacts of the White River Amphitheater on groundwater resources and water supply. Interacted with representatives from the National Marine Fisheries Services to obtain necessary approval and permits related to water resource impacts. |
| 23 | University of Washington | U.S. Department of Energy | 1999-2000 | Richland, WA | Use decision analysis techniques to determine if a partitioning interwell tracer test (PITT) at the Z-9 Trench in the Hanford Reservation. This project involved quantifying the value of information related to site remediation activities. |
| 22 | Boateng Associates | Atofina Chemicals | 1999-2000 | Tacoma, WA | Assess the performance of groundwater remediation activities along the Hylebos Waterway. These remediation activities include a barrier wall and groundwater extraction system. |
| 21 | J. Massmann | Westinghouse Savannah River Co. | 1995-2000 | Aiken, SC | Provide technical review and recommendations for groundwater remediation activities at the F- and H-area seepage basins on the Department of Energy's Savannah River site. |
| 20 | Robertson, Monagle, Eastaugh | Homer Electric Association | 1999 | Anchorage, AK | Review analyses aimed at estimating impacts of groundwater contamination on construction costs at adjacent properties. |
| 19 | J. Massmann | Portland Water Bureau | 1998-1999 | Portland, Oregon | Provide technical advice related to assessing the vulnerability of their South Columbia Wellfield to surface contamination. This is a 100 MGD system that is located beneath an industrialized area. |
| 18 | University of Washington | City of Seattle, Office of Economic Development | 1997-1998 | Seattle, WA | Duwamish Coalition Hydrogeologic Pathways Project. Developed three-dimensional groundwater flow model for the Duwamish River industrial corridor |

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| 17 | Foster-Wheeler | Washington Department of Ecology | 1996-1997 | Olympia, WA | Assist in developing risk-based clean-up standards at contaminated sites for the Washington Department of Ecology, including development of soil cleanup standards to protect in-door air quality. |
| 16 | Parametrix, Inc. | Kitsap County | 1996 | Bellevue, WA | Provide technical review and design recommendations for landfill gas control system at the Hansville Landfill. |
| 15 | J. Massmann | U.S. Department of Justice | 1996 | Washington D.C. | Provide expertise regarding groundwater movement and contaminant transport from the Whidbey Island Naval Air Station, Washington |
| 14 | Landau Associates | Boeing | 1995 | Seattle, WA | Provide technical review and advise on gas extraction activities at the Boeing facility in Gresham, Oregon. |
| 13 | J. Massmann | Baltimore Gas and Electric | 1993-1995 | Baltimore, MD | Provide technical review of subsurface contaminant transport modeling activities associated with site-remediation at Spring Gardens gasification facility. Evaluation included interactions between groundwater and the Chesapeake Bay. |
| 12 | R. Allen Freeze Consulting | Swedish Fuel and Waste Management Co. | 1994 | Stockholm | Present a five-day short course entitled "Hydrogeological Decision Analysis." This course focused on design of waste management facilities in uncertain hydrogeologic environments. |
| 11 | Jacques Whitford | Government of Newfoundland and Labrador | 1994 | Gander, New Foundland | Provide technical review and advise on gas extraction activities for cleaning soils beneath the Trans-Canada highway. |
| 10 | J. Massmann | GATX Transportation | 1994 | Chicago, IL | Facilitate implementation of decision analysis and observational approaches for conducting remedial actions at Saegertown Industrial Site, Pennsylvania |
| 09 | Tampere University | Finnish Ministry of the Environment | 1993-1994 | Helsinki, Finland | Provide technical review of field characterization activities at a site with chlorinated solvent contamination in Hattulla, Finland. |
| 08 | Riddell, Williams, Bullitt & Walkinshaw | Confidential | 1993 | Seattle, WA | Provide expertise regarding groundwater and contaminant transport for a CERCLA hazardous waste site contaminated with dense non-aqueous phase liquids. |
| 07 | Geraghty-Miller, Inc | U.S. Department of Energy | 1989-1993 | Reston, VA | Application of decision analysis and groundwater modeling techniques in groundwater extraction design for the Savannah River site, Aiken, South Carolina |
| 06 | Hart Crowser, Inc. | City of Anchorage | 1990-1992 | Anchorage, AK | Provide technical review and design recommendations for landfill gas control system at the Merrill Field Landfill. This landfill underlies an airport and light-industrial developments. |
| 05 | U.P. Engineering | Baraga County | 1988-1989 | Houghton, Michigan | Evaluation of regional groundwater flow systems for municipal groundwater supply. |
| 04 | Heller, Ehrman, White & McAuliffe | Confidential | 1988 | Seattle, WA | Provide expertise regarding groundwater and contaminant transport for a CERCLA hazardous waste site. |

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| 03 | Hart Crowser, Inc. | Aluminum Company of America (ALCOA) | 1986-1987 | Vancouver, WA | Design and implement a remedial investigation and feasibility study for groundwater contamination from waste piles contaminated with arsenic. |
| 02 | Hart Crowser, Inc. | Washington Department of Ecology | 1985-1987 | Kent, WA | Develop and implement a sampling and work plan for completing the remedial investigation and feasibility study for the landfill, including evaluating procedures and methods used to assess landfill gas migration and design emergency gas control activities.* |
| 01 | Hart Crowser, Inc. | Shell Oil Company | 1986-1987 | Tacoma, WA | Design and install a petroleum recovery system to clean groundwater contaminated with petroleum products. This site is located along the City Waterway and was influenced by tidal fluctuations. |
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*The prime contractor is identified for those projects where Keta Waters was a sub-consultant. For those projects that list Keta Waters as the prime contractor, they contracted directly with the client.