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Engineering & Scientific Consulting

Thomas C. Ginn, Ph.D.

Principal Scientist | Ecological & Biological Sciences
23445 North 19th Ave | Phoenix, AZ 85027
(928) 282-3168 tel | ginnt@exponent.com

Professional Profile

Dr. Ginn specializes in natural resource damage assessment (NRDA) and ecological risk assessment (ERA). He has conducted studies of the effects of inorganic and organic chemicals on aquatic and terrestrial organisms at sites nationwide. Dr. Ginn has specialized expertise in assessing the fate, exposure, and effects of substances such as PCBs, PAHs, dioxins, arsenic, cadmium, copper, lead, and mercury. He has provided scientific consultation regarding the design field and laboratory studies for ERAs and NRDAs and he has provided technical support during negotiations with state and federal agencies.

Dr. Ginn has provided support to industrial clients for NRDAs in Alaska, Arizona, California, Idaho, Indiana, Missouri, Montana, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Oklahoma, South Carolina, Tennessee, Texas, Washington, and West Virginia. In these projects, he has worked closely with legal counsel during scientific assessments and settlement negotiations with state, federal, and tribal trustees. Dr. Ginn has performed detailed technical assessments of injuries to terrestrial and aquatic resources, including vegetation, benthic macroinvertebrates, fishes, birds, and mammals, and has also developed innovative and cost-effective restoration alternatives. He has provided deposition and trial testimony concerning injury to aquatic and terrestrial resources. Dr. Ginn has evaluated remedial alternative at contaminated sediment sites and has conducted state-of-the-art studies of the sources and distribution of trace metals. He has also developed site-specific sediment quality values based on the empirical relationships of chemical concentrations to biological effects.

Dr. Ginn has authored many publications in the area of applied ecology. He has given numerous presentations and CLE seminars on risk assessment and natural resource damage assessment. Since 1983, he has co-authored the annual literature review of marine pollution studies published by the Research Journal of the Water Environment Federation. Dr. Ginn has served as an expert witness concerning the effects of waste discharges and chemicals in sediments on aquatic organisms. He has also served on scientific advisory committees concerning management of contaminated sediments for Puget Sound, San Francisco Bay, and New York/New Jersey Harbor. Dr. Ginn testified to the U.S. House of Representatives, Commerce Committee, concerning the natural resource damage provision of Superfund reauthorization.

Academic Credentials & Professional Honors

Ph.D., Biology, New York University, 1977

M.S., Biological Sciences, Oregon State University, 1971

B.S., Fisheries Science, Oregon State University, 1968

Licenses and Certifications

Certified Fisheries Professional, American Fisheries Society, #2844

Professional Affiliations

Society of Environmental Toxicology and Chemistry

American Chemical Society

American Institute of Fishery Research Biologists

Publications

Mearns AJ, Reish DJ, Oshida PS, Ginn T, Rempel-Hester MA, Arthur C, Rutherford N. Effects of pollution on marine organisms. Water Environ Res 2014; 86(10):1869-1954.

Mearns AJ, Reish DJ, Oshida PS, Ginn T, Rempel-Hester MA, Arthur C, Rutherford N. Effects of pollution on marine organisms. Water Environ Res 2013; 85(10):1828-1933.

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Becker DS, Long ER, Proctor DM, Ginn TC. Evaluation of potential toxicity and bioavailability of chromium in sediments associated with Chromite ore processing residue. Environ Toxicol Chem 2006; 25(10):2576-2583.

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Sampson JR, Sexton JE, Ginn TC, Pastorok RA, Spielman A, Young DR, Taganov I. Content of metals and some organic contaminants in environmental media of Lake Baikal. Proc Russ Geogr Soc 2006; 1:52-58 (in Russian).

Nielsen D, Ginn T, Ziccardi L, Boehm P. Study: Proposed offshore gulf LNG terminals will have minor effects on fish populations. Oil Gas J 2006; 104(28), July 28.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2005; 77(7):2733-2919.

Dunford RW, Ginn TC, Desvousges WH. The use of habitat equivalency analysis in natural resource damage assessments. Ecol Econ 2004; 48(1):49-70.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2004; 76(7):2443.

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Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2002; 74, 78 pp.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Buchman M. Effects of pollution on marine organisms. Water Environ Res 2001; 73, 77 pp.

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Reish DJ, Oshida PS, Mearns AJ, Ginn TC, Godwin-Saad EM, Buchman M. Effects of pollution on saltwater organisms. Water Environ Res 1997; 69(4):877-892.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects of pollution on saltwater organisms. Water Environ Res 1996; 68(4):784-796.

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Pastorok RA, Butcher MK, Ginn TC. 1995. Thresholds for potential effects of mining-related trace elements on riparian plant communities. Proceedings, 12th Annual National Meeting of the American Society for Surface Mining and Reclamation, Gillette, WY, pp. 15-30, 1995.

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Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Fate and effects of pollutants: Effects on saltwater organisms. Res J Water Pollut Control Fed 1992; 62(4):577-593.

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Becker DS, Bilyard GR, Ginn TC. Comparisons between sediment bioassays and alterations of benthic macroinvertebrate assemblages at a marine Superfund site: Commencement Bay, Washington. Environ Toxicol Chem 1990; 9(5):669-685.

Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. J Water Pollut Control Fed 1989; 61(6):1042-1054.

Ginn TC Assessment of contaminated sediments in Commencement Bay (Puget Sound, Washington). In: Contaminated Marine Sediments — Assessment and Remediation. National Academy Press, Washington, DC, pp. 425-439, 1989.

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Barrick RC, Pastorok R, Beller H, Ginn T. Use of sediment quality values to assess sediment contamination and potential remedial actions in Puget Sound. Proceedings, 1st Annual Meeting on Puget Sound Research, Volume 2. Puget Sound Water Quality Authority, Seattle, WA, pp. 667-675, 1988.

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Reish DJ, Oshida PS, Mearns AJ, Ginn TC. Effects on saltwater organisms. J Water Pollut Control Fed 1987; 59(6):572-586.

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Grieb TM, Porcella DB, Ginn TC, Lorenzen MW. Classification and analysis of cooling impoundments: an assessment methodology using fish standing crop data. Proceedings, Symposium on Surface Water Impoundments. American Society of Civil Engineering, Washington, DC, pp. 482-494, 1981.

Pastorok RA, Lorenzen MW, Ginn TC. Aeration/circulation as a control of algal production. Proceedings, Workshop on Algal Management and Control. Technical Report E 817. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS, pp. 57-97, 1981.

Pastorok RA, Ginn TC, Lorenzen MW. Evaluation of aeration/circulation as a lake restoration technique. Ecological Research Series, EPA 600/3 81/014. U.S. Environmental Protection Agency, Corvallis, OR, 1981.

Pastorok RA, Ginn TC, Lorenzen MW. Review of aeration/circulation for lake management. In: Restoration of Lakes and Inland Waters. EPA 440/5 81/010. U.S. Environmental Protection Agency, Washington, DC, pp. 124-133, 1980.

Ginn TC, O'Connor JM. Response of the estuarine amphipod Gammarus daiberi to chlorinated power plant effluent. Estuarine Coastal Mar Sci 1978; 6(5):459-469.

Haven KF, Ginn TC. A mathematical model of the interactions of an aquatic ecosystem and a thermal power station cooling system. Proceedings, 4th National Workshop on Entrainment and Impingement. Jensen LD (ed). E.A. Communications, Melville, NY, pp. 321-344, 1978.

Poje GV, Ginn TC, O'Connor JM. Responses of ichthyoplankton to stresses simulating passage through a power plant condenser tube. In: Energy and Environmental Stress in Aquatic Systems. J.H. Thorp and J.W. Gibbons (eds.). U.S. Department of Energy, Technical Information Center, Washington, DC, pp. 794-808, 1978.

Ginn TC, Waller WT, Lauer GL. Survival and reproduction of Gammarus spp. (Amphipoda) following short term exposure to elevated temperature. Chesapeake Sci 1976; 17(1):8-14.

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Ginn TC, Bond CE. Occurrence of the cutfin poacher, Xeneretmus leiops, on the continental shelf off the Columbia River mouth. Copeia 1973; 4:814-815.

Project Experience

Natural Resource Damage Assessments

Deepwater Horizon Oil Spill. Consulting expert for assessments involving potential injuries to benthic habitats in the Gulf of Mexico, including deep water sediments, coral reefs and fish communities. Scaling of injuries for each resource and evaluation of cost-effective compensatory restoration alternatives.

Silvertip Pipeline Oil Spill (Yellowstone River, Montana). Consulting expert participating in assessment of available information on aquatic and riparian resources, including fishes, benthic macroinvertebrates, and birds. Participation in negotiations with state and federal trustees.

St. Croix Alumina Site. (U.S. Virgin Islands). Expert witness concerning alleged injuries to terrestrial resources from upland disposal of bauxite ore processing wastes for the case: Commissioner of the Department of Planning and Natural Resources, Alicia V. Barnes, et al. v. Virgin Islands Alumina Company et al. District Court of the Virgin Islands, Division of St. Croix, Civil Case No. 2005-0062.

Tar Creek Superfund Site (Oklahoma). Expert witness concerning alleged injuries to terrestrial plant communities resulting from mining wastes for the case: The Quapaw Tribe of Oklahoma et al. v. Blue Tee Corp, et al. United States District Court, Northern District of Oklahoma, Case No. 03-CV-0846-CVE-PJC.

Illinois River and Lake Tenkiller (Oklahoma). Assessment of the status of benthic macroinvertebrates and fishes in the aquatic environment and relationships of biotic characteristics to habitat factors and potential effects of poultry operations.

Bayway and Bayonne Refineries (New Jersey). Evaluation of marine, wetland, and terrestrial communities at the refinery sites. Expert witness in the case and testified at trial (July 2014): New Jersey Department of Environmental Protection and Administrator, New Jersey Spill Compensation Fund v. Exxon Mobil Corporation, Superior Court of New Jersey, Law Division/Union County.

Tittabawassee and Saginaw River/Bay (Michigan). Assessment of potential injuries to aquatic and terrestrial resources caused by releases of dioxins/furans and other substances. Negotiations with state, tribal, and federal trustees.

Pine Bend Refinery (Minnesota). Key issues involve injuries to groundwater, surface water, and wetland resources resulting from releases of petroleum products. Negotiations with state and federal trustees.

FAG Bearing site (Missouri). The claim focused on potential injuries to groundwater resources and federally-listed aquatic species resulting from releases of trichloroethene. Negotiation with trustees and successful settlement.

Ohio River (Ohio and West Virginia). Claim related to alleged releases of carbamate-metal complexes from a manganese smelter at Marrietta. Key issues involve the causes of mortalities in populations of freshwater mussels and fishes and restoration alternatives for important species. Negotiations with state and federal trustees and deposition.

Ashtabula River/Harbor site (Ohio). Key issues include potential effects of PCBs and PAH on fishes and invertebrates in the harbor ecosystem.

White River (Indiana). Alleged injuries included a major fish kill associated with releases of carbamate-metal complexes from an industrial facility. Participant in technical negotiations with state and federal trustees.

Koppers site in Charleston Harbor (South Carolina). Assessment of PAH and metals in the estuarine environment and development of restoration alternatives. Negotiations with state and federal trustees.

Coeur d'Alene River (Idaho). Provided expert testimony concerning potential injuries caused by metals at deposition and trial (U.S. v. Asarco et al).

Saginaw River/Bay (Michigan). Key issues involve bioaccumulation and effects of PCBs in fishes, aquatic birds, and terrestrial wildlife. Participated in settlement negotiations with state and federal trustees.

Three industrial sites on the St. Lawrence River (New York). Negotiations with federal, state, and tribal trustees on injuries related to PCBs and PAH and identification of restoration alternatives.

Duwamish River (Washington). Claim related to releases of PCBs in the estuarine environment and potential injuries to fish, benthic, and bird resources. Participated in settlement negotiations with state, federal, and tribal trustees.

Clark Fork Basin Superfund complex (Montana). Served as technical lead for PRP negotiations with the trustee and developed supporting scientific reports. Provided testimony at trial in areas of water quality, sediments, and ecosystem-level effects of metals for terrestrial environments.

SMC Cambridge site (Ohio). Technical review and response to a natural resource damage claim associated with metals injuries to wetland resources. Participated in settlement negotiations with state and federal trustees.

Pools Prairie Superfund site (Missouri). Key issues include groundwater injuries and potential effects on a federally listed species.

Koppers site in Texarkana (Texas). Assessment of aquatic injuries and developed restoration settlement package for client. Leader of technical negotiations with state and federal trustees.

SMC Newfield site (New Jersey). Conducted technical review and response to a natural resource damage claim for groundwater resources at the. Participated in settlement negotiations with the state trustee.

Ecological Risk Assessments

Board of County Commissioners of the County of Kay, Oklahoma v. Freeport-McMoRan Copper and Gold Inc., et al. United States District Court for the Western District of Oklahoma Case No. CJ-2012-74. Expert witness for assessing effects of smelter materials containing arsenic, cadmium, lead, and zinc on aquatic

and terrestrial organisms, including benthic macroinvertebrates, plants, birds, and mammals.

NASSCO Shipyard (California). Expert and mediation support to resolve sediment remediation issues in response to a cleanup and abatement order. Issues involved the amount of dredging and other remediation required to reduce aquatic and human health risks at the site and the scope of post-remedial monitoring.

San Diego Bay Shipyard sites (California). Studies of sediment contamination and ecological risks of metals (e.g., copper, zinc, and butyltins) and organic substances (PAH and PCBs) at two major shipyards. Site-specific studies included sediment triad assessment and sampling of resident biota for bioaccumulation and histopathology analyses.

Hudson River (New York). Studies and agency presentations to support ecological risk assessment for the upper Hudson River. Technical leader for studies of the effects of PCBs on fishes, invertebrates, mammals, and birds of the upper Hudson River.

National Zinc site (Oklahoma). Participated in agency negotiations on RI/FS implementation. Assessed effects of metals on aquatic and terrestrial biota.

Lake Apopka (Florida). Ecotoxicological investigation of large-scale avian mortality at restored wetland habitats near the lake. The specific objective is to determine whether organochlorine pesticides or some other environmental factor was the causal agent of the mortalities.

Shelter Island Boatyard (California). Principal investigator for field and laboratory studies and an assessment of sediment cleanup levels for copper, mercury, and butyltin near a commercial marine maintenance operation in San Diego Bay, California.

PCB sites in Southeast. Principal-in-charge for ecological risk assessments conducted at several natural gas pipeline compressor stations located throughout the southeastern U.S. Led technical negotiations with EPA concerning the scope and interpretation of studies assessing risk of PCBs to aquatic and terrestrial biota.

Clark Fork River (Montana). Managed integrated ecological risk assessment studies at the Clark Fork River, Montana, Superfund site. Assessed the bioavailability and effects of metals in aquatic and terrestrial food chains.

Chikaskia River (Oklahoma). Managed field and laboratory studies of the effects of cadmium and the development of site-specific water quality criteria using the water effect ratio approach.

Campbell Shipyard (California). Directed an investigation of sediment chemical levels, biological effects, and human health risks at a major shipyard facility in San Diego Bay, California.

Commencement Bay Superfund Site (Washington). Managed RI/FS that included extensive field sampling of sediments and biota, assessing effects of toxic substances, assessing health risks, and identifying pollutant sources.

Puget Sound Estuary Program (Washington). Managed a multiyear, comprehensive field and laboratory investigation of the effects of chemicals in various sub-areas of Puget Sound. The study included numerous projects involving field and laboratory analyses, assessment of pollutant sources, assessments of human health and ecological risks, and development of sampling and analytical protocols.

Sewage Discharges (Alaska). Managed field and laboratory studies of benthic macroinvertebrates, bioaccumulation, and water quality at three sewage outfalls in southeastern Alaska.

Bering Sea (Alaska). Conducted study design, statistical analysis, and interpretation of results for a field

study investigating the effects of commercial harvesting operations on surf clams and other invertebrates.

Poplar River (Montana). Managed a risk assessment for water quality, air quality, and socioeconomic impacts of a coal-fired power plant in the Poplar River basin in Montana. Managed an EIS for river flow apportionment alternatives and atmospheric emissions from the plant.

Klamath Lake (Oregon). Managed a project to evaluate water quality effects on fish populations in the Klamath River basin and to develop a modeling approach to assess the effects of flow apportionment alternatives on water quality and fish habitat.

Puget Sound (Washington). Project manager for an assessment of potential biological effects caused by the release of dichloromethane from an industrial facility. Prepared expert report for use in litigation.

Regulatory Programs

Project manager for technical support activities for EPA's Office of Marine and Estuarine Protection. Supervised data management, development of technical guidance, estuarine program support, monitoring program design, bioaccumulation analyses, and quality assurance reviews.

Served as one member of the five-member Technical Review Panel for the Long-Term Management Strategy for San Francisco Bay. The panel provided critical outside technical review of the program's conceptual approach, scientific rigor, and technical findings. Specifically assigned to sediment toxicology aspects.

Manager for a comprehensive review by EPA of sediment toxicity test methods and development of a resource document that is used to select appropriate test methods for use in NPDES monitoring programs at industrial facilities.

Served as a member of a six-member Biological Resource Assessment Group for New York Harbor. Specifically assigned as an expert in chemical contaminants in sediments and bioaccumulation.

For EPA multi-year project, served as chief biologist for technical evaluation of Clean Water Act Section 301(h) applications for permit modifications at marine sewage discharge sites throughout the United States.

Provided technical support to the Oklahoma Water Resources Board for the development of site-specific water quality criteria for metals.

For the Army Corps of Engineers, served as principal-in-charge for Puget Sound Dredged Disposal Analysis Phase I and II baseline biological surveys at dredged material disposal sites in Puget Sound, Washington.

Served on the Technical Advisory Committee for the Puget Sound Estuary Program. The committee provided technical review and program guidance to the various sponsoring agencies.

Other Water Quality Studies

Served as principal investigator and expert witness for an assessment of benthic biological effects and sediment chemical levels near the Pt. Loma, California, sewage discharge.

Assessment of the effects of offshore LNG terminals in the Gulf of Mexico on fish populations. Evaluated effects of fish egg and larvae entrainment of key species in proposed facilities at various locations.

Conducted a comprehensive assessment of bioaccumulation of inorganic and organic substances in marine organisms in the Southern California Bight.

Directed a comprehensive review and evaluation of the biological impacts of oil spill cleanup operations on marine ecosystems.

Conducted an evaluation of the role of soil and water bioassays for assessing biological effects of hazardous waste sites.

Principal investigator to evaluate the biological impacts of ocean disposal of manganese nodule processing wastes.

Managed a project to evaluate available cause and effect data and models to predict water quality and biological impacts for Puget Sound, Washington.

Developed the biological components of an ecosystem model to evaluate effects of multiple power plant discharges on a single water body.

Managed statistical analyses of benthic infauna data collected near the Waterflood Causeway in the Beaufort Sea.

Project co-manager and principal investigator for a review and analysis of biological impact data for all currently operating coastal power plants in the United States.

Principal scientist to evaluate responses of benthic invertebrates and fishes to lake aeration and circulation projects.

Principal scientist for a comprehensive limnological evaluation of the Lafayette Reservoir in California.

Evaluated the responses of benthic invertebrates and fishes to lake aeration and circulation programs and developed recommendations for applicable lake restoration techniques.

Principal investigator in analyzing water quality conditions at a hypereutrophic lake and conducting public workshops on alternative restoration measures.

Developed a method of predicting biological responses of new cooling lakes based on a deterministic ecosystem model and empirical fish production models.

Conducted field and laboratory investigations of the effects of power plant entrainment on macroinvertebrates in the Hudson River estuary. Determined relationship of entrainment effects to populations in the lower estuary.

Managed laboratory bioassay studies evaluating the combined effects of temperature, chlorine, and physical stress on estuarine ichthyoplankton and zooplankton.