



**TIMOTHY W. HOGAN**  
Principal and Owner



**PRESENT POSITION**

Mr. Hogan is principal and owner of TWB Environmental Research and Consulting where he oversees all aspects of the business. Mr. Hogan has been working for 22 years at the intersection of the natural and engineered worlds. He has worked to protect aquatic life at industrial water intakes, preserve efficient operation of intake and discharge equipment, and communicate with permitting authorities about the compliance of such facilities with state and federal regulations. He works closely with the seawater desalination, thermal power generation, and aquaculture industries to develop environmentally-responsible industrial projects. Mr. Hogan works with clients on a holistic approach to project development and impact minimization. Potential environmental impacts can be minimized through careful facility design; impacts that cannot be designed out can be quantified and mitigated for.

He has particular expertise in the California Ocean Plan Amendment (affecting seawater desalination facilities in CA) and in section 316(b) of the Clean Water Act (affecting the design and operation of cooling water intake structures in the steam electric power industry). He often functions as the lead investigator managing complex, multi-disciplinary water and energy projects and acts as the bridge among the regulatory, engineering, hydraulic, and biological disciplines.

**EXPERTISE**

- Seawater desalination environmental impacts (intake and discharge)
- Intake technology feasibility assessment
- California Ocean Plan Desalination Amendment compliance
- Section 316(b) alternative cooling water intake technology evaluation
- Impingement and entrainment study planning
- Evaluations of fish protection intake technologies for desalination and power facilities
- Operation and maintenance of intake screening facilities
- Marine renewable energy technologies
- Upstream and downstream fish passage at hydroelectric power facilities
- Sustainable aquaculture

**PREVIOUS EMPLOYMENT**

**Senior Scientist/Project Manager, HDR Inc., 2016 – 2017.** Mr. Hogan assessed impacts associated with industrial water withdrawals, developed environmental compliance strategies, completed required environmental reporting, managed/coordinated multidisciplinary teams of engineers and scientists, business development, and client service management. Primary industries served were seawater desalination, steam electric power, marine renewable energy, and international government. The majority of Mr. Hogan's time was spent assisting seawater desalination clients navigate the environmental permitting process in CA.

**Principal Biologist, Alden Research Laboratory, 2000 – 2004, 2007 – 2016.** Mr. Hogan assessed methods and technologies to minimize adverse environmental impacts at large industrial water intakes. Worked included desktop, laboratory, and field research. Primary industries served were seawater desalination, steam electric power, marine renewable energy, hydroelectric power, oil and gas, and international government. Mr. Hogan directed the development of the seawater desalination service group, coordinating among biologists, civil engineers, and numeric modelers/hydraulic engineers.

### **SELECTED PROJECTS IN SEAWATER DESALINATION**

#### ***Poseidon Carlsbad Desalination Plant, California***

Supporting Poseidon in the Water Code section 13142.5(b) process for the 50 MGD (190,000 m<sup>3</sup>/day) Carlsbad Desalination Plant as it moves into stand-alone operation. Efforts include interacting with regulatory staff (State Water Resources Control Board and Regional Water Quality Control Board), responding to information requests from Board staff, conducting a pilot-scale test of 1-mm wedgewire screen technologies, participating on the intake design team, developing intake debris management approaches, vetting intake technology alternatives, and ensuring that the compliance strategy agrees with the design and regulatory requirements of the OPA. Efforts require collaboration with multiple other disciplines. Efforts completed under previous employment included commenting on the Substitute Environmental Documentation for the OPA, assessing the feasibility of conceptual intake and discharge designs, estimating intake-related impacts to impingeable-sized fish, determining the best location and maintenance approach for the fish return system, coordinating computational fluid dynamics studies of the proposed intake and discharge, presenting results of analyses to the RWQCB and SWRCB.

#### ***Poseidon Huntington Beach Desalination Plant, California***

Supported Poseidon in the Water Code section 13142.5(b) and Environmental Impact Report (EIR) processes for the proposed 50 MGD (190,000 m<sup>3</sup>/day) Huntington Beach Desalination Plant. Efforts include evaluating alternative project sites, responding to information requests from the CEQA lead agency (CA State Lands Commission) and the RWQCB, responding to EIR comments, and providing feedback on how to implement the neutral third-party review process for applicant-submitted studies. Efforts completed under previous employment included assessing the feasibility of conceptual intake and discharge designs and intake locations, evaluating offshore larval fish abundances, developing maintenance plans for wedgewire intake screens, developing intake debris management approaches.

#### ***Oneka Wave-Powered Seawater Desalination, California***

Supporting the developer of a wave-powered seawater desalination technology in the permitting of projects in California. Includes an effort to pilot test a unit in collaboration with a northern California city. Efforts include defining the permitting pathway, engaging regulators, securing requisite permits for pilot testing, and ultimately collecting and analyzing environmental performance data. This wave-powered desalination technology has potential to provide remote coastal communities access to critically needed drinking water without the need for grid power (and associated greenhouse gas emissions).

***Ocean Spring Offshore Seawater Desalination, California***

Supporting the developer of an offshore seawater desalination technology in the permitting of projects in California. Includes assessing potential challenges, considering design alternatives, developing a permitting strategy, and initial regulator engagement.

***West Basin Municipal Water District Ocean Water Desalination Project, California***

Supporting West Basin in determining the costs and benefits of implementing a seawater desalination project in light of the new OPA regulations. The project objective is to evaluate the economic impacts (effect on water rates) associated with permitting, operating and maintaining (O&M), and mitigating for impacts associated with the seawater intake and diffuser discharge. TWB is focused primarily on the intake and discharge O&M.

***Swansea Desalination Plant, Massachusetts***

Supported the assessment of intake technologies to reduce intake capacity issues. Efforts included the review of potential intake modifications and the associated regulatory effort to implement them.

***Moss Landing People's Desalination Plant, California***

Supported project developer in the EIR/EIS process. Efforts included coordinating with all disciplines to respond to questions/comments from the QEQA lead agency (Moss Landing Harbor District) and NEPA lead agency (Monterey Bay National Marine Sanctuary). Comments were germane to the design of the intake and discharge facilities proposed for the project. Responses incorporated details that are designed to streamline future permitting efforts (Regional Water Quality Control Board and State Water Resources Control Board) once the EIR/EIS is certified. Efforts completed under previous employment included the development of conceptual-level intake and discharge designs for the proposed SWRO. Efforts included coordination with process design engineer and consultant developing the Administrative Draft EIR/EIS.

***King Abdullah Economic City Desalination Plant, Kingdom of Saudi Arabia***

Task leader for the development of a concept design for the marine structures of a proposed 8 MGD (30,000 m<sup>3</sup>/day) seawater desalination plant. Objective was to design environmentally-protective structures that require minimal maintenance in a very saline source waterbody (Red Sea). Unique project elements included the offshore location of the intake and discharge structures in an area that would preclude impacts to coral reefs and endangered sea turtles.

***Santa Cruz/Soquel Creek (SCWD2) Seawater Desalination Project, California***

Project manager providing technical guidance on biological and engineering concerns associated with an ocean intake for a proposed 2.5 MGD (9,500 m<sup>3</sup>/day) seawater desalination facility. Included preparation of report summarizing critical biological and engineering issues, presentation of critical data and concepts to regulators, preparation of requests for proposals for entrainment study, and review of entrainment study approaches.

***Bay Area Regional Desalination Project, California***

Provided technical guidance on the potential biological and engineering concerns of various intake technologies in an effort to design a pilot-scale desalination intake that was protective of locally-important (federally-listed) species. Included detailed evaluation of potential biological and engineering performance of an aquatic filter barrier intake system for a pilot-scale desalination project in northern California.

***Intake System Improvements to Minimize Impingement and Entrainment at Desalination Intakes, WaterReuse Research Foundation***

Project manager for the development of a guidance manual for the desalination industry. The objective was to identify improvements that can be made to existing seawater intake structures in order to minimize impingement and entrainment of marine life. The final guidance manual provides a comprehensive review of literature that focuses on the modification of intakes for impingement and entrainment reduction: case studies evaluating the performance of intakes that have been modified, a description of the various intake technologies used to reduce impingement and entrainment, methods to measure the biological effectiveness of modified intakes, cost considerations, recommendations on how to select the proper intake for minimizing impingement and entrainment and a template for the permitting process. [Link to report](#)

***Evaluation of the Biological Efficacy of Cylindrical Wedgewire Screens for a Hudson River Desalination Intake Screening, New York***

Project manager for a field study to estimate the potential efficacy of 2.0-mm cylindrical wedgewire screens for reducing entrainment of larval fishes. Field samples were collected from a purpose-built sampling vessel designed specifically to evaluate the biological effectiveness of cylindrical wedgewire screens. The project scope included study design, field sampling coordination, quality control and quality assurance, and reporting of results.

***Biological Evaluation of Filtrex Filtration System, Massachusetts***

Assisted in a laboratory study examining impingement and entrainment of American shad and river herring eggs and larvae exposed to a Filtrex Filtration system. The goal of the study was to determine if the Filtrex system had potential to protect ichthyoplankton at the intake of a desalination plant being constructed on the Taunton River in Massachusetts. Included consultation with MA Department of Environmental Protection and MA Division of Marine Fisheries.

**SELECTED PROJECTS IN STEAM ELECTRIC POWER**

***Field Demonstration of Remote Technologies for Cleaning of Biofouling from Trash Racks***

Co-principal investigator for implementing a field demonstration of two remote technologies for removing biofouling from trash racks. The objectives are two-fold: 1) to eliminate human safety risks (e.g., working in hostile environments and manually operating tools such as water jet guns) and 2) to avoid costs associated with plant downtime required for the deployment of skilled diving teams. TWB is working with various ROV service providers to identify the best technology for the tasks. Two demonstration sites have been selected in the eastern US: one large fossil-fueled thermal power plant and one large nuclear power plant. In-situ testing is planned for 2023.

***Intake System Maintenance Guide, Electric Power Research Institute***

Co-principal investigator developing a three-volume series of reports focused on maintenance of cooling water intake screening and debris removal equipment. Report volumes will focus on stop gates, trash racks, trash rakes, fine screens (traveling water screens and drum screens), and debris disposal systems. Information is being collected from equipment vendors and operators to identify common maintenance challenges and provide recommendations.

### ***Remotely Operated Vehicle Use for Submerged Maintenance***

Co-principal investigator for a report assessing ROV technologies for potential use in power plant intake inspection and cleaning tasks. Report reviewed ROV technologies from other industries (oil and gas, offshore aquaculture, marine shipping) and assessed the potential for technology transfer to the power industry as a means to reduce diving operations (considered risky from a human health and safety perspective).

### ***Fish Holding Design for Optimization Studies, Electric Power Research Institute***

Co-principal investigator for a report describing the factors that should be considered when designing a fish holding facility for a screen optimization study. Report reviews previous fish survival studies and interviews with scientists conducting studies, an assessment of the critical considerations in design of such facilities (study design, fish biology, engineering, operation and maintenance, permit and regulatory). Five case studies are presented for previous studies that used fish holding facilities.

### ***Air Bubble Curtains for Early Life Stage Fish Entrainment Reduction, Electric Power Research Institute***

Project manager for a proof-of-concept laboratory study focused on evaluating the efficacy of air bubble curtains for reducing entrainment of early life stages of fish at cooling water intake structures. The research team tested an air bubble curtain set at a 45° angle to the flow in a 6-ft (1.8-m) wide flume. Surrogate eggs and larvae were tested at 0.25–1.0 ft/s (7.6–30.5 cm/s) approach velocity to determine whether their vertical and horizontal distribution could be influenced by the bubbles. Based on this proof-of-concept testing, an air bubble curtain does not appear to be an effective technology for reducing the entrainment of fish eggs; however, it may have greater potential for fish larvae.

### ***Cooling Water Intake Screen Operation, Maintenance, and Optimization Interest Group, Electric Power Research Institute***

Project manager for the Intake Screen Operation, Maintenance, and Optimization Interest Group within the Electric Power Research Institute (EPRI, a power industry research consortium). The objective of the group is to provide guidance to power plant operators on how to manage/mitigate risks associated with water intake screens becoming clogged with debris and how to optimize intake screen performance per the 316(b) Rule. Efforts include an annual workshop for presentation of the latest research and case studies in the area, monthly technical webcasts, publication of technical briefs on topics of common interest, quarterly newsletters to keep members up to date, and maintenance of a Best Management Practices manual for preventing intake blockages. [Link to report.](#)

### ***316(b) 122.21(r) Reports for American Electric Power Cardinal and Conesville Steam Electric Plants, Ohio***

Project manager for preparation of 122.21(r)(2)-(8) reports for §316(b) compliance in the NPDES Permit renewal application process. The 122.21(r)(2)-(8) reports are relative to the facilities cooling water intake structures and address characterization of the sourcewater, design and operation of the intake, characterization of the aquatic resources in the sourcewater, the chosen compliance approach, and a summary of existing biological sampling data at the plants.

### ***Intake Regulation Development for Thermal Generating Stations, Chile***

Provided input as a subcontractor to Chile's Ministry of Energy in their effort to develop national standards for impingement and entrainment of marine life at cooling water intakes in Chile. Mr.



Hogan acted as project manager and provided technical input on intake-related environmental impacts (impingement and entrainment) and associated regulation through multiple technical memos. [Link to report](#) on best practices for use of cooling water; [Link to report](#) on the development of appropriate regulations for minimizing impingement and entrainment.

***Alternatives Analysis and Conceptual Intake Design for Akkuyu Nuclear Power Plant, Turkey***

Project manager for the alternatives analysis and conceptual design of the large seawater cooling water intake structure. Tasks included providing expertise on potential biological efficacy, debris management, and engineering feasibility.

***Impingement, Entrainment, and Thermal Monitoring Study Plans, Connecticut***

Project manager for developing study plans for a biomass thermal generating power plant in Connecticut. Involved developing site-specific study plans for a facility with a cylindrical wedgewire intake screen and a high-pressure diffuser. Study plan development was a state permit requirement.

***Impingement Sampler Design and Fish Return System Feasibility Analysis for the University of Massachusetts, Boston***

Project manager for the design and installation of an impingement sampling system for the University's modified traveling water screen and for the development of a fish return system feasibility analysis. The goal of these efforts is to assist the University in meeting their NPDES permit requirements for operating the cooling water intake structure.

***Event Forecasting for Nuclear Service Water Intakes, Electric Power Research Institute***

Project manager for desktop assessment of event forecasting approaches that can be used to predict incoming debris that can clog intakes. The resulting report is intended to be used as a resource with which to assess viable event forecasting approaches at various open cooling water intakes. It describes the tools and data resources available to intake operators for forecasting intake blockages. It also presents a number of case studies of power plant event forecasting programs and technologies.

***Field Evaluation of Wedgewire Screens for Protecting Early Life Stages of Fish at Cooling Water Intakes, Rhode Island and Ohio***

Assisted with a field evaluation of cylindrical wedgewire screens conducted in Narragansett Bay (Rhode Island) and the mouth of the Portage River (Ohio). Entrainment of resident ichthyoplankton was determined for 0.5 and 1.0-mm slot screens relative to entrainment through an open port. Testing with each screen was conducted with two slot velocities (0.15 and 0.30 m/s). The results of this study will be used to determine the efficacy of cylindrical wedgewire screens to effectively reduce entrainment of ichthyoplankton at cooling water intakes with respect to the design features tested and species and life stages collected.

***Laboratory and Field Evaluations of Behavioral Fish Deterrents for a Cooling Water Intake, New Jersey***

Assisted in laboratory and field testing with behavior deterrents and several estuarine species considered at risk to impingement at a cooling water intake. Laboratory studies examined responses of four species to strobe lights, sound, and an air bubble curtain. Field studies conducted near the Salem intake evaluated responses of naturally-occurring fish to selected sound signals during an eight-month testing period.

***Evaluation of Aquatic Filter Barrier for the Protection of Early Lifestages of Fish at Cooling Water Intake Structure, Electric Power Research Institute***

Assisted in a study examining retention and survival of eggs and larvae on AFB. Results will assist scientists and engineers in designing suitable AFB installation on a site- and species-specific basis to meet requirements under the proposed new EPA rulemaking relative to section 316(b) of the Clean Water Act.

**SELECTED PROJECTS IN OIL AND GAS**

***Entrainment Monitoring Procedure Design for Offshore Platforms, Texas***

Developed procedure for collecting entrainment samples at offshore oil and gas platforms. Included a review of the technical challenges associated with sampling at offshore platforms, conceptual design of an entrainment sampling system for collecting samples from a high-pressure pipeline, and development of standard operating procedures for sample collection. Entrainment monitoring is a permit-related requirement (EPA).

***Laboratory Testing of a Novel Entrainment Sampling System for High Pressure Intake Pipelines, Massachusetts***

Project manager for a comprehensive analysis of a novel entrainment sampling system designed to collect entrainment samples from high pressure pipelines. Scope of work included conceptual sampler design, proof-of-concept laboratory testing of a small-scale model with live fish eggs and larvae, and detailed design of the full-scale prototype.

**SELECTED PROJECTS IN MARINE RENEWABLE ENERGY**

***Intake System Evaluation for an Ocean Thermal Energy Conversion Facility, Hawaii***

Project manager for a desktop and field effort providing technical guidance on biological and engineering concerns associated with a warm water intake for a potential OTEC facility in Hawaii. Included intake technology evaluation, selection, conceptual design, preliminary cost estimation, biological evaluation, and field sampling at the proposed project site on Kauai to determine potential impacts to fish and marine life. The project was funded by the U.S. Department of Energy. [Link to report](#)

**SELECTED PROJECTS IN HYDROELECTRIC POWER**

***Upstream Fish Passage Evaluation Using Three-dimensional Acoustic Tags, Massachusetts***

Project manager for a field evaluation of upstream passage success of American Shad at a hydroelectric project in the Northeast U.S. Involved gastric implantation of 3D acoustic tags and tracking of behavior in the project tailrace. Detailed behavior data will aid in determining how to improve passage in the future.

***Evaluation of Upstream Passage Feasibility on the Saint Margaret's Bay Hydropower System, Nova Scotia***

Lead biologist on a comprehensive assessment of the feasibility of and approach to providing upstream passage for migratory species on a river in Nova Scotia. Involved site visit, reviewing existing barriers to passage, swimming abilities of target species, and appropriate fishway designs.

***Evaluation of the Need for Upstream Fish Passage Technologies on the Mousam River, Maine***

Lead biologist on a review of the need for upstream passage at three small hydroelectric projects on a small coastal river in Maine. Involved reviewing historical fish distributions, biological sampling data and water quality reports to determine the presence of passable fish, the quality of upstream spawning habitat, and anticipated stakeholder concerns.

***Fish-Friendly Turbine Market Analysis, New York***

Project manager for an evaluation to develop an estimate of the market potential for the fish-friendly Alden hydroelectric turbine in New York State. This project involved systematic evaluation of all publically-available hydropower and dam databases.

***Evaluation of Downstream Passage Alternatives for Protecting Sturgeon and American Eel, Massachusetts***

Assisted in an evaluation of a bar rack structure and bypass with shortnose and white sturgeon and American eel. The bar rack structure and bypass system were installed in Alden's large flume and tested under various velocity conditions with juvenile shortnose sturgeon (federally-listed endangered species), young-of-the-year white sturgeon, and silver American eels. Downstream movement, bar rack entrainment, and bypass use were monitored for all fish with a PIT tag system. Underwater video and a DIDSON acoustic camera were used to observe fish behavior immediately upstream of the bar rack and at the bypass entrance. Data and information from this study are being used by the client to develop an effective downstream fish passage system for a hydro project on the Connecticut River in Massachusetts.

***Biological Evaluation of Alden Turbine, Massachusetts***

Assisted in the biological evaluation of a new turbine runner designed to minimize fish injury and mortality. Approximately 40,000 fish were evaluated during a 2-year laboratory study to assess the ability of various species and size classes of fish to safely pass through the new runner. Fish injury and survival were evaluated for several operating conditions (operating head, turbine rotational speed) and to determine the effects of wicket gates. This study was sponsored by the U.S. Department of Energy as part of their Advanced Hydro Turbine Systems Program (AHTS).

**SELECTED PROJECTS IN AQUACULTURE**

***City of Fort Bragg, California***

Supporting the assessment of intake technologies for ocean intake and discharge infrastructure. Infrastructure is to support an economic development goal in the Blue Economy business sector (e.g., aquaculture, marine research, education). Efforts include review of potential intake designs, engaging regulators in preliminary discussions, and support of future development roadmapping.

**EDUCATION**

B.S., Mary Washington College, 1997, Biology  
M.S., Northeastern University, 2007, Biology



## **ADDITIONAL EXPERIENCE**

Marine Fisheries Technician, Auburn University Marine Extension Lab. Fairhope, AL; 1998  
Technical Advisory Committee, Water Intake Structure Environmental Research (WISER), 2007  
Project Advisory Committee, WaterReuse Research Foundation, 2013

### **Additional Training**

Using Acoustic Tags to Track Fish - Hydroacoustic Technology, Inc., 2008

Fish Passage Training Course. May 18-21, 2010. Hadley, MA. Sponsored by the Northeast Regional Office of the U.S. Fish and Wildlife Service.

## **AWARDS**

### ***United States Bureau of Reclamation - Fish Screen Challenge***

Winner of a USBR prize competition seeking innovative methods to exclude fish from water diversions and intakes. The prize competition sought ideas for alternatives to fish screens or improvements to existing fish screens that could be applied to river and canal diversions or unscreened diversion pipes. The competition addressed the limitations in current technology to exclude certain fish species and size classes in a cost-effective manner. TWB submitted a concept based on the use of air bubbles to provide physical and hydraulic exclusion of early life stages of fish. [Link to announcement](#)

### ***United States Department of Energy, Water Power Technologies Office - Fish Protection Prize***

Finalist in a USDOE contest to develop solutions for protecting fish from water diversions and intakes. TWB submitted a concept based on the use of air bubbles to provide physical and hydraulic exclusion of early life stages of fish.

[Link to announcement](#)

## **PROFESSIONAL ACTIVITIES**

Member, American Fisheries Society  
Bio-Engineering Section, Fish Culture Section, Northeast Chapter  
Associate Member, CalDesal  
Associate Member, Texas Desalination Association  
Member, World Aquaculture Society

## **PUBLICATIONS/PRESENTATIONS**

*"How Can We Best Manage The Environmental Impacts of Desalination?"*, roundtable discussion leader at the American Water Summit, Los Angeles, California, January 24-26, 2023.

*"Environmental Impacts: Research Priorities"*, invited presentation at The Future of Desalination International Conference, Riyadh, Kingdom of Saudi Arabia, September 11-13, 2022.

*"Intake Fouling: Operator Challenges"*, invited presentation at The Future of Desalination

International Conference, Riyadh, Kingdom of Saudi Arabia, September 11-13, 2022.

*“Automating Compliance with Optimized Screen Operation”* the American Fisheries Society Annual Conference, Spokane, WA, August 2022.

*“Environmental Implications for High Recovery SWRO”*, invited presentation at the Global Water Intelligence Seminar: The Future of High Recovery, March 29, 2022

*“Innovations in Desal”* session moderator at the 2022 Virtual CalDesal Annual Conference, February 9-10, 2022.

*“Carlsbad Desalination Plant: Intake Screen Pilot Study Update”*, invited presentation at the 2022 Virtual CalDesal Annual Conference, February 9-10, 2022.

Hogan, T., M. Bruijs, and J. Black. 2021. Water Intake Reliability in the Age of Environmental Uncertainty. Power Magazine, October. [Link to paper](#)

*“Intakes, Outfalls, and SWRO in the US”*, invited industry expert for roundtable discussion at GWI Desalination and Reuse Roundtable Session, February 23, 2021.

*“Carlsbad Desalination Plant Intake/Discharge Modifications”*, invited panelist at the 2021 Virtual CalDesal Annual Conference, February 10-11, 2021.

*“Design of Fish Holding Facilities for Optimization Studies”*, invited panelist at the EPRI Generation Program Advisory Meeting, Virtual, September 21, 2020.

*“Carlsbad Desalination Plant OPA-required Intake Modifications”*, invited panelist at the 2020 CalDesal Annual Conference, Santa Barbara, CA, February 6-7, 2020.

*“Innovative Technology Review”*, invited panelist with a focus on seawater intake innovation at Texas Desal 2019, Austin, TX, September 2019.

*“Offshore Aquaculture Permitting”* session co-chair at the Northeast Aquaculture Conference and Exposition, Boston, MA, 2019.

*“How to Prevent a 316(b) Solution from Becoming an O&M Nightmare – The Importance of Pilot Testing”* at the EPRI Cooling Water Intake Operation, Maintenance, and Optimization Interest Group Annual Meeting, Gulfport, MS, October 2018.

*“Communication Challenges in the Implementation of Seawater Desalinations Regulations in California”* at the American Fisheries Society Annual Conference, Atlantic City, NJ, August 2018.

*“Seawater Desalination – The Use and Communication of Science in the Regulation of a Fledgling Industry”* session co-chair at the American Fisheries Society Annual Conference, Atlantic City, NJ, August 2018.

*“Debris Event Forecasting”* webcast to the EPRI Great Lakes 316(b) Interest Group, March 2018.

*“A Review of Cylindrical Wedgewire Screen Operating Performance in Seawater”* at the EPRI

Conference: Technical Challenges for Implementing Clean Water Act §316(b) at Power Plants Withdrawing Cooling Water from Estuaries, Briarcliff Manor, NY, May 2017.

*“Environmental Issues Associated with Intakes and Outfalls,”* invited presentation at the International Desalination Association International Energy and Environment Forum 2016, Miami, FL.

*“Seawater Intake: A Reality Focused Discussion,”* invited panel moderator. International Desalination Association World Congress 2015, San Diego, CA.

*“Traveling Water Screen and Fish Return Optimization Research Results”* at the EPRI Water and Ecosystems Area Summer Technical Meeting, Bar Harbor, ME, 2015.

*“Review of EPRI Laboratory Study for Optimizing a Ristroph Traveling Water Screen”* at the EPRI Water and Ecosystems Area Summer Technical Meeting, Bar Harbor, ME, 2015.

*“Optimization of Traveling Water Screens for Fish Protection”* at the EPRI Great Lakes Interest Group Meeting, Chicago, IL, 2015.

*“Potential for the Use of Electric Barriers at Cooling Water Intake Structures”* at the EPRI Great Lakes Interest Group Meeting, Chicago, IL, 2015.

Hogan, T. 2015. Chapter 4: Impingement and Entrainment at SWRO Desalination Facility Intakes. *In: Intakes and Outfalls for Seawater Reverse-Osmosis Desalination Facilities*, Missimer, T., B. Jones, R.G. Maliva, eds, Springer. [Link to chapter](#)

Missimer, T. and T. Hogan. 2015. Chapter 5: Design and Construction of Passive Screen Intakes for SWRO Desalination Facilities. *In: Intakes and Outfalls for Seawater Reverse-Osmosis Desalination Facilities*, Missimer, T., B. Jones, R.G. Maliva, eds, Springer. [Link to chapter](#)

Hogan, T. W., G.F. Cada, and S.V. Amaral. 2014. The status of environmentally enhanced hydropower turbines. *Fisheries* 39(4): 164-172. [Link to paper](#)

*“Protection of Marine Life at Seawater Intakes”* at Petro Environment 2014: The 7<sup>th</sup> Symposium and Exhibition on Environmental Progress in the Petroleum and Petrochemical Industry, Al Khobar, Saudi Arabia, 2014.

*“Seawater Desalination Intake Design Considerations to Meet Impingement and Entrainment Goals”* webcast for WateReuse Research Foundation, 2014.

*“OTEC Warm Water Intake Design and Potential Environmental Impacts”* at the OTEC Africa Conference, Boras, Sweden, 2013.

*“Biological Impacts of Conventional Seawater RO System Intakes: Impingement and Entrainment”* invited presentation at the KAUST Intake and Outfall Workshop, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, 2013.

Hogan, T., J. Withrow, C. Linebaugh, A. Harmer, J. Steinbeck, and S. Oney. 2013. A field

program for developing a baseline characterization of ichthyoplankton near a potential OTEC facility. Marine Technology Society Journal 47(4): 137-141. [Link to paper](#)

*“Baseline Characterization of Ichthyoplankton Near a Proposed Warm Water OTEC Intake”*, with S. Oney and J. Steinbeck at Energy Ocean International, Warwick, RI 2013.

*“Baseline Characterization of Ichthyoplankton Near a Proposed Warm Water OTEC Intake”*, with Oney, S. at the 4<sup>th</sup> Annual New England Marine Renewable Energy Center Technical Conference, Warwick, RI 2012.

*“Environmental Issues Affecting Small Hydropower”*, at the Environmental Business Council of New England, Small Hydropower in New England, 2012, Westborough, MA.

*“The Alden Fish-Friendly Turbine: A Status Update and Future Demonstration”*, with Perkins, N. and Dixon, D. at the 2012 American Fisheries Society 142<sup>nd</sup> Annual Meeting, Twin Cities, MN.

*“Use of 3D Acoustic Telemetry to Monitor Upstream Passage of American Shad on the Merrimack River in Massachusetts”* with Wright, C. and Medford, S. at the National Conference on Engineering and Ecohydrology for Fish Passage (Fish Passage 2012), Amherst, MA.

*“Intake Design for Minimising Debris Blockages and Impacts to Fish”* with Schowalter, D., at Water in Mining 2012, Santiago, Chile.

*“Environmentally Enhanced Turbines Allow for Safer Fish Passage”* with Dixon, D. and Sale, M.J. Hydro Review, June 2012, pgs 48-56.

*“316(b) and the Impingement and Entrainment of Marine Life at Seawater Intakes”* with Amaral, S. at the National Center for Excellence in Desalination Intakes and Outfalls Workshop, 2012, Adelaide, South Australia.

*“Water Limitations in Low Carbon Electricity Generation,”* invited panelist. MIT Energy Conference 2012, Boston, MA.

*“Environmental, Technical, and Economic Feasibility of a Land-based Warm Water Intake for an Ocean Thermal Energy Conversion Project in Hawaii,”* with Oney, S. at the 3<sup>rd</sup> Annual New England Marine Renewable Energy Center Technical Conference, Cambridge, MA 2011.

*“Laboratory and Field Evaluations of Wedgewire Screens for Protecting Early Life Stages of Fish at Cooling Water Intake Structures,”* with Dixon, D. Amaral, S. and Perry, E. at the 58<sup>th</sup> World Statistics Congress, Dublin, Ireland, 2011.

*“Environmental Feasibility of an Ocean Thermal Energy Conversion Project in Hawaii,”* with Oney, S. Hydrovision 2011, Sacramento, CA 2011.

*“Laboratory Evaluation of Fish Survival and Behavior Associated with Hydrokinetic Turbines,”* with S. Amaral, D. Giza, B. McMahon, P. Jacobson, and D. Dixon. Global Marine Renewable Energy Conference 2011, Washington, D.C.

*“Environmental Feasibility of an Ocean Thermal Energy Conversion (OTEC) Project in Hawaii,”*

with S. Oney. Global Marine Renewable Energy Conference 2011, Washington, D.C.

*"Methods to Improve the Design of Greenfield Plants and Operation or Mitigation of Brownfield Intakes Relative to Impingement/Entrainment and Chlorine Usage,"* invited presentation at Desalination and the Gulf: The Relationship between the Environment and Meeting the Region's Water Needs, Manama, Bahrain, 2010.

*"How to Select the Most Environmentally-Friendly Intake Technology,"* Desalination Intake/Outfall Workshop. El Segundo, CA, 2009.

*"Evaluation of Intake Approaches for Seawater Desalination in Santa Cruz, California,"* Todd Reynolds, Val Frankel, Tim Hogan, and Heidi Luckenbach. 2009 American Membrane Technology Association Conference, Austin, TX.

*"Entrainment and Impingement: Biological Efficacy of Intake Alternatives,"* Desalination Intake Solutions Workshop. Holden, MA, 2008.

*"Laboratory Evaluation of a Prototype Free Flow Power™ Hydrokinetic Turbine,"* with McMahon, B., Allen, G., Schowalter, D., and Williams, C. at The Future of Ocean Power: Executive Briefing, Cambridge, MA, 2008.

*"Evaluation of Downstream Passage Alternatives for Shortnose Sturgeon,"* with Amaral, S., Cook, T., McMahon, B., and Murray, R., Hydrovision 2008, Sacramento, CA 2008.

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