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THE RISKS OF MARINE DEBRIS MEGA-PULSE EVENTS: LESSONS FROM THE 2011 GREAT JAPAN TSUNAMI

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This session is dedicated to researchers and managers working on large-scale marine debris issues and will highlight many novel advances, applications, and lessons learned from Japanese Tsunami Marine Debris study in the North Pacific that can be used elsewhere.

The Great East Japan Earthquake and Tsunami of March 2011 resulted in a unique mega-pulse marine debris event that became the subject of many long-term intensive research programs around the North Pacific Ocean. In addition to the sheer magnitude of this event, Japanese Tsunami Marine Debris (JTMD) became an important vector for many Japanese species to reach the shorelines of North America and Hawaii. This session will focus on exciting advances in marine debris research that have arisen from efforts to characterize and understand JTMD behavior, including higher resolution ocean modeling of marine debris movement, the development of novel surveillance and monitoring tools for marine debris landfall and accumulation, and the application of bioforensics and risk assessments to determine the potential threats from exotic species transported by long-lasting anthropogenic rafts. Although tsunamis and other large-scale natural disasters will remain difficult to predict, lessons learned from the research arising from the 2011 Great Japan Tsunami provide a framework for other mega-pulse events, including predicting the potential fate and impacts associated with the sudden appearance of huge debris fields in the ocean, that can inform management decision-making or policy development around marine debris. It is estimated that the human population will to grow by 2 billion people over the next 25 years, with approximately 40% living within 100 km of the world's coastlines, suggesting the amount of anthropogenic material available for ocean-entry will rise significantly in the coming decades. In turn, global climate change is already affecting the frequency and scale of storm activity, including hurricanes, typhoons, and monsoons, which increases the probability and magnitude of future mega-pulse debris events. This session welcomes submissions related to JTMD and other mega-pulse debris events. Further, the trans-oceanic movement of species on marine debris is an emerging issue in invasion research, and submissions on this are also welcome.