

Nomination for the Excellence in Leadership Award

**Patrick Barnard, Research Director, and Li Erikson, Modeling Director for CoSMoS, the Coastal Storm Modeling System
Pacific Coastal and Marine Science Center, Santa Cruz, California**

In recognition of the leadership exhibited by Drs. Patrick Barnard and Li Erikson in assessing California's coastal vulnerability to sea level rise and storms, we nominate Dr. Barnard and Dr. Erikson for the Excellence in Leadership Award.

One of the most vexing natural hazards facing California and the Nation is the challenge of sea level rise and storms on coastal flooding. Coastal communities have struggled with what to expect, previously relying on overly simplistic and incomplete models. Drs. Barnard and Erikson envisioned a better solution – the Coastal Storm Modeling System (CoSMoS): a novel and systematic approach using process-based oceanographic models driven from the latest Global Climate Models. CoSMoS analyzes and forecasts multiple storm conditions under a suite of sea-level rise scenarios. This tool enables communities to manage and meet their own planning horizons and specify degrees of risk tolerance.

This bold scientific vision could only succeed by bringing together a large and diverse team, getting them to adopt the vision, and then work together across scientific and organizational boundaries (including different agencies) toward the common goal. Drs. Barnard and Erikson built such a partnership by engaging Federal and state agencies, other USGS science centers, academics, and non-profits. They articulated the importance of the issue, the potential solution, and then fostered collaborations that strengthened all aspects of the development, implementation, and communication of CoSMoS. One of the main hurdles they overcame was how to apply CoSMoS at high resolution across vast extents of the California coastline. Solving this required partnering with USGS's Earth Resources Observations Science (EROS) Center to develop a state-of-the-art seamless topographic-bathymetric Digital Elevation Model for coastal California.

Creating powerful modeling results was a crucial first step; but Barnard and Erickson recognized that displaying and communicating the complex and highly detailed flooding projections in a clear and usable way was equally crucial. Toward that end, they partnered with Point Blue Conservation Science and Our Coast Our Future to design and deliver a new, award winning web-based viewer for CoSMoS products. Dr. Barnard also hired a science communications expert who brought aptitude and creativity communicating with managers, politicians, and the public about sea level rise impacts in a clear and effective manner. Drs. Barnard's and Erikson's unique outreach approach brought additional collaborators and partners to the project and the necessary funding to hire and foster a high performing team of experts with specialized skills to enhance the pace and breadth of CoSMoS science. This interconnected and organized team has been highly successful meeting the growing demand for CoSMoS science from cities, counties, state agencies and others.

Because Barnard and Erikson were able to so effectively create and communicate impactful science, CoSMoS modeling results have been used by many federal and state partners as well as

local communities throughout California. Similarly, California's major utilities use CoSMoS to assess their assets' vulnerability to sea level rise and coastal storms. Barnard, Erikson and the CoSMoS team are currently developing the next phase of models, and there are plans for expanding the project to other high-need coastlines around the U.S.

Drs. Barnard and Erikson have set the groundwork for sustained successful partnerships with Federal, State, academic, and private partners. Drs. Barnard's and Erikson's pioneering work and their ability to form strong connections are pivotal to the success of this project. They have greatly improved our understanding of the extent and response of the U.S. coast to sea level rise, which is vital to preparing and managing for the safety of coastal communities and critical infrastructure. The problem solving, development of collaborative working relationships, and focus on customer service skills exemplified by Drs. Barnard and Erikson are precisely the type of scientific leadership the USGS needs to maintain our excellence as the premier earth science agency.

The CoSMoS model and its web delivery have become the centerpiece of science-based decision-support tools for communities and other stakeholders. CoSMoS enables users to understand, visualize, and anticipate local coastal climate-change impacts and develop adaptation strategies for the bays and the outer coast of California. This helps address a key real-world problem and reflects well on the USGS. This extremely positive outcome would not have been possible but for the excellent and sustained leadership of Drs. Barnard and Erikson.

Nominated by: Guy Gelfenbaum, Center Director, Pacific Coastal and Marine Science Center,
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Supported by: Mark Sogge, Regional Director, USGS Pacific Region, 916-278-9550

Nomination for the 2018 Early Career Excellence in Leadership Award

Brian Pellerin is a USGS early-career leader working for the Water Mission Area (WMA) Observing Systems Division. Since transferring to WMA offices in Reston from the California Water Science Center in 2016, Brian has brought his intellect, his humor, interpersonal skills, and his professional aspirations to the challenges of national leadership during a time of organizational change. As one of the newest members of the new WMA management team, he is helping the WMA usher in a new generation of mission-driven success during a time of significant reorganization.

Brian demonstrated his leadership skills as a scientific leader prior to moving to WMA Office of Water Quality in Reston in October 2016. As a research-grade equivalent (RGE) hydrologist working for the Office of Water Quality at the California Water Science Center, Brian developed and advanced the use of continuous nutrient sensors in the USGS by not only conducting and leading a WMA work group, but by developing cooperative working relationships with other interagency workgroups in promoting continuous sensing of nutrients. He has been and is an active member of National Ecological Observatory Network (NEON) Aquatic Instrument Working Group (2013 to present), and was a member of the Nutrient Sensor Challenge Technical Advisory Committee (2014- 2017) that promoted the development of nutrient sensors for continuous monitoring. An effective network of these sensors will help the USGS and the Nation assess the quality of the nation's water resources at the high time resolutions society now need for real-time decision making.

Brian's outstanding technical competence is demonstrated by his publication record of numerous journal articles and USGS Techniques and Methods reports on optical water-quality sensors as well as his participation with groups outside of the USGS as an Affiliate Investigator, Alliance for Coastal Technologies; Associate Editor, Biogeosciences; Lead PI, USGS CRADA with Xylem Analytics and as a recent member, Integrated Ocean Observing System Quality Assurance of Real-Time Oceanographic Data (QARTOD) Dissolved Nutrients Subcommittee(2015-2016). Brian has continued to maintain his RGE credentials amid all of the new requirements of management and leadership, demonstrating his dedication to the water sciences.

Brian is a skilled collaborator and continuously looks for collaboration opportunities. In 2016 he presented "A Vision for water quality data visualization on the web." It offered several innovative ideas to improve how USGS water data are shown to the public on the web, and it helped inspire the product owner of this water-data web presence to think more broadly about the worth of these data. While working in his national WMA position in the Office of Water Quality (2016-2017) Brian looked for opportunities to collaborate with USGS WSCs to improve water-quality measurement efficiency and methods. An example of his collaborations during this period was his work with three USGS WSCs to standardize their approaches in the use of

turbidity calibration and standards, resulting in consistent reproducible sensor calibration methods.

Brian is supportive of WMA organizational change. He upended a comfortable life in California for the promise and uncertainty of USGS headquarters during a generational changing-of-the-guard in the Office of Water Quality to take a national technical leadership role. When the new WMA organization was announced, he showed his willingness to lead during a time of substantial change by applying for a new management position in 2017 for the reorganized WMA of 2018. His vision for the newly formed Branch, the Hydrologic Networks Branch (HNB) in the new Observing Systems Network, resulted in his selection for the position of Chief of the HNB. During this time of rapid change for WMA staff, Brian has demonstrated his interpersonal skills and management of change. On his own initiative, in advance of the new organization operating, he began meeting with his new branch team. Even as many were concerned with the mere mechanics of management of their new branches, Brian worked with his team to aspirationally define their purpose. Brian always keeps a positive attitude in this work toward his team, even when a quarter of them were transferred to another branch and disrupted the HNB nascent team plans. He espouses an ethic of openness and honesty with his team, and refuses to compromise on this ideal. This ethic is an important aspect of what makes Brian an outstanding leader.

Nominated by: Janice Fulford, Chief, Hydrologic Instrumentation Facility, 228-688-1501

Supported by: William Guertal, Deputy Associate Director for Water, 703-648-5060