

Times Standard

Not My Fault: Thank you, Troy Nicolini, a local tsunami hero

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Troy Nicolini installs the final screw in Samoa's Tsunami Ready sign. In 2007, Samoa became the first Humboldt County Community to achieve National Weather Service Tsunami Ready status after conducting the county's first full-scale tsunami evacuation drill and demonstrating the ability to receive and disseminate tsunami alerts.

Troy Nicolini stepped down from the National Weather Service (NWS) this month after a career spanning 28 years with the Eureka Forecast Office. HE served in three different positions, led West Coast efforts to recognize sneaker wave hazards, promoted studies of tidal currents in Humboldt Bay, and made the Eureka arguably the most pro-active forecast office in the tsunami arena on the West coast. Troy was not only a valued colleague, he became a very close friend.

Troy and his wife Francis came to Humboldt county in 1998. After completing a degree at Davis in engineering, he worked for the Army corps of Engineers but missed being close to the ocean. After noting the staff hydrology position posting at the Eureka Weather Forecast office, he put his name in the hat. It was a successful bid, allowing them to settle in Fairhaven with the bay in their backyard.

My connection to the Weather Service began several years earlier when the Redwood Coast Tsunami Work Group (RCTWG) was formed. The 1992 Cape Mendocino Earthquake had

triggered a modest tsunami, which then spurred a study of what a larger earthquake might produce. It was a crude modeling effort but did, for the first time, underline in official terms that we had a big tsunami problem and that areas of our coast could be flooded within minutes following a great quake on the Cascadia subduction zone. There were no protocols or outreach materials in place for a major near-source tsunami at the time and so our group got together on an ad-hoc basis to address the issue.

The RCTWG consisted of university people, emergency response and public safety representatives, Red Cross, Cal Trans, and other organizations with coastal and infrastructure jurisdiction. John Lovegrove of the Eureka NWS office was an important participant at those early meetings. He was Eureka's Warning Coordination Meteorologist (WCM) at the time, the person responsible for communicating with partners and the public about weather-related hazards. I used my connection with John to add a field trip for my Natural Disaster class to the Eureka office. I first met Troy when he assisted the class on how to properly fill sandbags.

One WCM responsibility was managing Tsunami Ready designation for communities in their forecast office's jurisdictional area. The NWS launched Tsunami Ready in 2001 to promote community ability to receive and disseminate tsunami alerts from the tsunami warning centers. It was initially focused on distant source events and under John's guidance, Crescent City became the first California city to earn the designation in 2002.

In 2003, John became Meteorologist in Charge of the Medford NWS office and Troy moved into the Eureka WCM slot. It's not an automatic promotion, and in Troy's case, it was unusual. Troy had not come through the conventional meteorology pipeline, with a degree focused on weather. But his engineering hydrology background was well-suited to the North Coast region where river flooding is our number one weather-related hazard. He had been steadily taking meteorology classes in his off hours to qualify for the position.

Troy was very different than John Lovegrove and my first interactions with him when he began participating in RCTWG meetings did not go smoothly. Anyone who has ever worked with Troy knows he is passionate, holds strong opinions, and is never content to stay in the background. He is a born problem solver, questioning everything we had been doing and came onto the scene guns a blazing. Needless to say, we clashed.

Fortunately, we are both scientists and driven by data and facts. It took about two weeks to listen to each other's perspectives, smooth our ruffled feathers, and tackle the tsunami issue with renewed and unified vigor. The times were also changing for tsunami science. Between 1966 and 2004, the largest earthquake anywhere in the world was M8.4. There were a number of locally damaging events but nothing that affected large areas or our coast. The M9.1 Andaman-Sumatra earthquake and Indian Ocean tsunami put an abrupt end to nearly four decades of great earthquake quiescence.

After the Indian Ocean tsunami, U.S. funding for tsunami resilience soared more than ten-fold, driving a flurry of tsunami hazard mapping efforts, and mitigation projects such as signs, drills, emergency planning, and outreach. Troy was at the forefront working closely with the California Geological Survey as a new generation of tsunami zone maps were developed. Unlike the Oregon approach where mapping was conducted by the state with little local input, Troy made

sure that local officials and residents were part of the process, walking almost every step of the proposed new hazard areas.

Almost as soon as the new maps were completed, Troy and Dan Larkin, the Humboldt OES coordinator at the time, worked with Royal McCarthy of Cal Trans to get tsunami hazard signs on state highways. Personal relationships have always been Troy's strong point, and he used them to get temporary approval for the sign project. Troy, Dan, and Royal working together are the reason Humboldt and Del Norte counties were the first in California to be carpeted with ENTERING and LEAVING tsunami zone signs.

At the same time as signs were going in the ground, Troy had the radical idea of conducting a real tsunami warning communications test. Unlike the weekly and monthly emergency alert tests, Troy proposed using the live codes that would be used if an actual tsunami had occurred. The routing of the live codes is different than test codes and Troy felt we could only be sure of the system if the real codes were used. Only Alaska had ever used live codes in a test before because of the potential downside – someone thinking the test was a real event and hurting themselves in a panicky evacuation.

Troy was able to gain approval for the tests and Humboldt County held the first in 2008. Del Norte was added in 2009 and Mendocino in 2010. Del Norte County's successful evacuations during the 2011 Japan tsunami can be attributed in part to Troy's pushing through those live code tests that became a launch pad for local drills.

A M8.7 earthquake occurred in Chile in 2010. I was lucky to get funding to put together a post-tsunami field investigation team. It took me about two seconds to think of including Troy. Two weeks later Troy and I were off with three other team members for a ten-day study of the hardest hit areas of the central Chile coast. Troy had been interested in tsunamis before that trip, but the reality and complexity of tsunami impact made an indelible imprint. His presentations took on a far more personal air, carrying his audiences with him as he described the decisions people had to make in the earthquake/tsunami aftermath.

The WCM position suited Troy very well. He's a people person and working with varied constituents and sticky problems is his forte. A boater himself and always aware of what happens on the water, he drove efforts to develop tidal current models of Humboldt Bay. Our bay crossing is one of the most hazardous on the West Coast and the resulting bar forecast models provides guidance for safe transits. Sneaker waves have long been recognized as a coastal hazard, but it was Troy who folded them into an official NWS product.

Troy took over the reins of the NWS Eureka office in 2015 after Nancy Dean retired. It was unusual for a non-meteorologist to become a Meteorologist in Charge, although by that time he had completed all of the academic requirements and had taken on many stints as a forecaster. It's a very different position than WCM, focused primarily on the smooth running of the office, well-being of staff, and an enormous load of paperwork. We saw far less of him in the RCTWG, but his legacy continues in Ryan Aylward who took over the WCM slot.

All of us on the North Coast owe Troy a big THANK YOU for making this a safer place to live. Dan Larkin and Royal McCarthy both retired many years ago but still regularly attend RCTWG

meetings. We hope to see more of you too Troy – because once you are part of this group, you are always a member.

A day by day description of the Chile post-tsunami field survey is at

<https://kamome.humboldt.edu/sites/default/files/Chile%20Post%20Tsunami%20Survey%20Blog.pdf>

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