

William R. Wiley

EMSL In Brief

Environmental Molecular Sciences Laboratory

Beck Honored for Improving Communications on Troublesome Rivers

Environmental Molecular Sciences Laboratory's Ken Beck received the U.S. Coast Guard Achievement Award for enabling maritime patrols to reliably communicate in the gullies and gorges of the Columbia and Snake rivers. Beck received the award for superior performance of duty while serving as USCG Auxiliary Flotilla 85 Communications Staff Officer from February 2007 to November 2007, in direct support of USCG Aids to Navigation.

"This award is very rarely given to civilians," said Beck, a member of the Coast Guard Auxiliary. "I'm honored to have received it."

For 45 years, U.S. Coast Guard patrols have dealt with spotty communications along sections of the Columbia and Snake rivers, especially on 130 miles of the Upper Snake River and 140 miles of the Lake Roosevelt/Spokane River arm. In these areas, steep cliffs block satellite phones, and cell phone reception is intermittent at best and nonexistent at worst. So, patrol teams maintaining the navigational aids for barges and others river traffic may be out of touch with their home base for hours, constituting a dangerous situation.

As the newly installed Communications Staff Officer for USCG Flotilla 85, Beck took on this problem. He developed and implemented a protocol using a Near Vertical Incident Skywave system, developed in the 1970s. The NVIS system sends high-frequency transmissions into the ionosphere. The signal is reflected and refracted back to earth, creating a circular communication zone with a radius of 25 to 250 miles. Beck designed and assembled the NVIS and extensively field tested the prototype. Further, he modeled the radiofrequency emitted to make sure the field team's exposure was within permissible environmental exposure limits. The NVIS system that Beck designed is now a model for USCG stations where communications are blocked by the local topography.

Beck also was awarded the President's Volunteer Service Award in June 2007 for his volunteer service to the USGC.

For more information, contact Mary Ann Showalter (509-371-6017).



Ken Beck received the U.S. Coast Guard Achievement Award for his work on improving communications along troublesome sections of Northwest rivers.

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