

## Consortium for Risk Evaluation with Stakeholder Participation

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### Press Release- Amchitka Assessment Results

## Researchers Find Amchitka Seafood Safe for Now, Clarify Concerns about the Future

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*Anchorage Alaska* - An independent consortium of university-based environmental scientists announced today the results from three 2004 expeditions to Amchitka Island in the western Aleutians to assess radionuclides in that marine environment. Three nuclear test shots were set off under Amchitka by the U.S. Government during a six-year period beginning in 1965. The study can be found at [www.cresp.org](http://www.cresp.org)

**Seafood Safety** “The findings should provide assurance to both those who depend on the Island’s marine environment for subsistence food and for the significant commercial fishing interests of the region,” said Charles W. Powers, principal investigator for the consortium. He noted that expedition scientists sampled and analyzed for radionuclides many types of biota in the seas at Amchitka and a reference site, nearby Kiska: “Rutgers’ Joanna Burger developed a program that has assessed these two marine regions as completely as has any previous single-year study of a defined marine area.” In fact, the university consortium found that all levels of radionuclides were “far below” any human health food safety standard and were similar to levels found in other marine sites in the Northern Hemisphere. Further, the levels in these organisms are lower now than they were immediately following the nuclear test shots. These biological analyses may now form a baseline for future testing of biota.

The consortium conducting the study was the *Consortium for Risk Evaluation with Stakeholder Participation (CRES P)*, an interdisciplinary multi-university organization that for a decade has independently studied and reviewed risk issues associated with the cleanup and long-term stewardship of legacy wastes at US Department of Energy sites. Its principal investigator Powers, is Professor of Environmental and Occupational Medicine at Robert Wood Johnson Medical School-UMDNJ. CRES P-related Universities whose scientists participated in the Amchitka study in addition to the University of Alaska-Fairbanks were: Rutgers, the State University of New Jersey, Vanderbilt University, the University of Medicine and Dentistry of New Jersey, University of Pittsburgh, and University of Alberta. (see box)

**What is CRESP?** It is interdisciplinary multi-university organization through which senior scientists and their laboratories have, for ten years, studied and reviewed risk issues associated with the cleanup and long-term stewardship of legacy wastes at sites involved in the nation's nuclear weapons production process that began in the 1950's. CRESP was specifically created to address the recommendation by the National Academy of Sciences that the U.S. Department of Energy's Environmental Management Office needed an independent academic mechanism to research and review risk problems related to nuclear waste management. Its PI, Powers, is also President of IRM, a non-profit whose current work is to administer the Consortium.

#### **Who developed the Science Plan for this study and edited this report?**

Joanna Burger, Ph.D., Rutgers University Professor of Biology, head of the CRESP Ecological Health Center of Expertise and leader of CRESP's Amchitka biological studies;

David Kosson, Ph.D., Professor and Chair, the Department of Civil And Environmental Engineering, Vanderbilt University, head of the CRESP Remediation Center of Expertise and leader of CRESP's Amchitka geophysical and radiological analysis studies.

Michael Gochfeld, M.D., Ph.D. Professor of Environmental and Occupational Medicine at RWJMS-UMDNJ, is an occupational physician who was responsible for approving and implementing the Health and Safety Plan for this rigorous expedition.

David Barnes, Ph.D., Associate Professor /PE, Civil and Environmental Engineering Department has coordinated The University of Alaska-Fairbanks' participation in CRESP

Powers and these four researchers led the Science Plan effort and edited the draft report. Arthur Upton, M.D., a noted radiobiologist and former Director of the National Cancer Institute, now clinical professor at RWJMS-UMDNJ, led a subcommittee of the CRESP Peer Review Committee he chairs in issuing a review of the draft. The Amchitka report editors amended their draft in response and issued a final report.

These reports and other Information about CRESP can be obtained from its web site [www.cresp.org](http://www.cresp.org)

**Collaboration** A distinguishing characteristic of the CRESP study was the collaborative process that generated it and then shaped the actual work. Prior to its undertaking the study, four diverse entities (the State of Alaska, DOE, the Aleutian/Pribilof Island Association and the U.S. Fish and Wildlife Service) had to agree on the plan developed by CRESP. And that plan specifically called for involvement of affected groups in the study. "It was the most rewarding and productive collaboration in my 30 years of marine research to have the honor of working with Aleut fishermen and other colleagues in the expedition itself", Burger said.

**The Physical Data:** Analysis of current biological contamination was linked to other studies. The group's geophysical studies present no evidence that the nuclear test materials have entered the seas there. Although its work was limited in scope, the team directed by University of Alaska's Mark Johnson did not clearly locate near-shore seepage of the island's own groundwater. Exploration of the island itself by University of Alberta's Martyn Unsworth turned up additional new information. By using advanced remote sensing to explore the rock substructure, it has found clear evidence that the likely path to the sea of any nuclear material that leaves the cavities created by the nuclear test shots will travel more slowly than previously thought.

#### **Clarifying the Challenge for the Future**

Vanderbilt's David Kosson drew an implication from the geophysical work he coordinated for this project: "In one sense, these findings pose a difficult challenge for those responsible for protective monitoring of the remote Amchitka Island since the presence of long-lived radioactive materials will require long-term attention to a site that may eventually pose potential risk to future generations." There is no currently known technology to address the radioactive shot cavities themselves; hence future surveillance is needed and the study serves to provide baseline data for that effort.

**What was the catalyst?** In 2000 the Governor of Alaska specifically requested that DOE agree to fund and to ask that group, the Consortium for Risk Evaluation with Stakeholder Participation (CRESP) to do such an analysis. After the Secretary of Energy agreed and a 2002 CRESP/UAF workshop suggested a technical path forward, the State and the Department signed a Letter of Intent that assigned the four party team (see above) to approve a plan for the needed research and to help assure the independence of the CRESP study. 18 months after CRESP was given partial funding and the actual go-ahead in February 2003, it is reporting these substantive results.



Aleut fishermen, with Amchitka biological expedition leader Joanna Burger, display their catch before converting it into samples for radiological testing. Participation of these Aleuts in the biological collection helped assure that CRESP Scientists would analyze fish and other biota caught as subsistence peoples would typically catch their own food.

**Interpreting complicated data** One of CRESP's challenges was to analyze biological samples for a long enough time to know what levels of radionuclides were actually there (since some radionuclides are present in any marine system). It had then to distinguish whether what it did find might have come from the nuclear tests – or was from other sources such as fallout, or even was naturally-occurring. For example, CRESP wrestled with what it meant to have more algae samples showing plutonium from Amchitka and more fish samples showing Cesium-137 from the reference site at Kiska. In all these cases the data was consistent as levels were both safe and what would have been expected anywhere in oceans in the Northern Hemisphere. CRESP PI Charles W. Powers says: "CRESP people are committed to explaining how we thought through all of the complicated issues posed by the data since the public deserves to have the same peace of mind that we have about what we found."

**How is the CRESP Amchitka study distinctive?** In a variety of other ways:

It is voluminous (300 pages of direct report and more than 1000 pages of appendices), many of which will now go directly into the academic literature.

It required recruitment and coordination of unusually diverse scientific talent. Fourteen senior scientists from 6 major universities were involved in the work.

It did its field work in a very remote and taxing environment: Six of those senior scientists leading 18 additional researchers and 4 members from A/PIA, launched into the Bering Sea toward Amchitka and Kiska from Adak Island, already the western most settled community in the Western Hemisphere, and worked in cold seas and heavy winds most of the time.

CRESP people, including those from UAF, made clear and unambiguous efforts consistently to reach out to affected Aleut communities as they defined their scientific plan and then included Aleuts on the expedition itself to aid in collection of samples.

### **Additional quotes about the Report from CRESP people:**

**Peer Review of the Draft:** Before releasing the report, CRESP did, as it typically does with important studies, ask its distinguished peer review committee to review its draft report so it could improve the final version. Arthur Upton, former director of the National Cancer Institute and chair of the CRESP Review Committee on behalf of its sub-committee on Amchitka said of that draft: “The methods were well conceived, expertly applied and have produced results that are definitive and thereby enable conclusions that should be meaningful to all concerned.... In view of the high quality of the studies reported, and their failure to find evidence of the release of radioactivity from the shot cavities into the surrounding environment, the results that are presented should be reassuring to concerned stakeholders.”

**Complexity from beginning to end:** “I continue to be in awe of the persistence and skill of the CRESP people. We sent them with every protection we could reasonably devise, but the fact that the expedition was executed safely and successfully in this forbidding environment is quite extraordinary. And then we found that the challenge of analyzing our data proved every bit as difficult as the expedition itself. Intellectually honest and nimble people – when they are really competent – will find a way to find out the facts. This is a study of which we are all very proud,” said Charles W. Powers, CRESP Principal Investigator and Professor of Environmental and Occupational Medicine, Robert Wood Johnson Medical School-UMDNJ

**Project Efficiency:** “I am excited by the fact that we were able, within the very short single season of work, to add so significantly to the geophysical understanding of Amchitka and its marine environment. I worked with excellent teams from four good research universities.” David Kosson, head of the CRESP Remediation Center of Expertise and Professor and Chair, the Department of Civil And Environmental Engineering, Vanderbilt University.

**Collaboration and Productivity:** “It was the most rewarding and productive collaboration in my 30 years of marine research to have the honor of working with Aleut fishermen and other colleagues on this important project to determine that our commercial and subsistence foods are safe, free from radionuclide damage for us, the sea lions, halibut and the eagles of Amchitka.” Joanna Burger, Rutgers University Professor of Biology, head of the CRESP Ecological Health Center of Expertise and leader of the CRESP Amchitka biological studies.