Clean Wake Project: Monitoring Radiation in the Pacific

Submitted by: SV *Growltiger*, and SV *Carina*

Other boats currently in project:

Basjako – Neli Brankovic and Nenad Tolmacevic

Brick House – Rebecca and Patrick Childress

Carina – Leslie Linkkila and Philip DiNuovo

Renova – John Fremont and Naomi Tabata

Hawkeye – John Kelly

Sloepmouche – Jackie Lee and Luc Callebaut

In March 2011, Japan's Fukushima nuclear plants were damaged by earthquake and tsunami. Four nuclear reactors suffered severe damage, explosive events and core melting. Radioactivity was released into the air, onto land and into the sea. Ongoing problems at the plants have resulted in continued contamination of the region. The exposure that cruisers, including SSCA members, might be subjected to as the result of this contamination is not known.

To our knowledge, no systematic monitoring of radiation has been done in the Pacific since this event. This concerns cruisers who will transit through these waters, who collect and use materials from the sea (such as fish or shellfish), who obtain water via reverse osmosis of seawater or by catching rainwater and who experience tsunami debris. Boats may discover large tsunami debris fields, fields reported to be spreading across the Pacific. This debris has already been discovered on December 15, 2011 east of Midway Islands, and is reported landing in British Columbia, Canada, December 16, 2011. The Canadian media reports the public should take care in regards to what is in the debris (remains, radiation, etc.) and to utilize a dosimeter when in contact with items. We assume the same for boats on passage or in harbor.

Because there is no easy way for cruisers to monitor their exposure to radiation, this Clean Wake Program was started. In discussions with several SSCA members in the Pacific, we have concluded that they too were concerned with radiation exposure and wanted a simple way to monitor this.

In June 2011, after some research on possible systems, a RADSticker (a small stamp with chemical indicators that records and warns of exposure) was identified which could at least offer an “early warning system“ for cruisers in the affected areas of the Pacific. The stickers were small, were designed for use by early responders in nuclear events, and were suitable for shipping via UPS regular mail in a standard envelope.

Vessels *Carina* and *Basjeko*, SSCA CS Host Randy Reeves, and contacts in Australia and Hawaii were sent these stickers by s/v *Growltiger* as a test. When tested in the Marshall Islands by s/v *Brick House* (*Carina’s* sticker was given to them), we were able to detect some radiation when the vessel visited one former atomic test site. This indicates that the device was effective, but indicated a need for a more robust device.

We then contacted JP Laboratories, the manufacturer. They provided five samples of the new-style RADTriage badges at no charge. These are larger badges that had just been developed to address the issue we had identified, that is of need for better robustness of the smaller product. RADTriage badges have now been sent and received by s/v *Carina*, in the Marshall Islands. The badges went in regular priority USPS mail, taking about a week for receipt by the boat.

For this data collection/project, s/v *Carina* will provide one of five RADTriage badges to boats who will cruise or transit critical areas such as transpacific to the West Coast of USA, to Hawaii and other locations. The boats will log any sightings of materials or debris as well as document any change to the indicators on the badges. All guidelines for the usage of the badges will be followed.

SV *Growltiger* will be the contact for these boats via email; boats are to report their location by lat/long, date and response of the badges. It will be important to map boat passages (such as by Shiptrak, Yotreps or Winlink records), as well as to document where debris is or is not; and any changes to the indicators on the badge.

Should a badge trigger, it will be the decision of the captain on each boat as to procedure to follow, such as backtracking to a known safer location from intelligence provided by other boats or from ship’s logs. It is hoped the badges will alleviate some fears that radioactive contamination might be affecting cruisers in the Pacific, while offering a simple verification.

Should a badge trigger, an immediate contact (if possible) is to be made to s/v *Growltiger*, who then will contact JP Laboratories. Use of marine and amateur HF Radio Nets, in addition to email, could also be used to keep boats in contact with others. When possible, a digital photograph of the badge should be made to determine the level, if any, of radiation exposure.

Boats who would like to become part of this project need to obtain a JP Labs RADTriage badge (tel 732 469 6670 or email sirad@jplabs.com), then notify s/v *Growltiger* of their intent. In collaboration with s/v *Carina*, we will log results and provide to interested parties as requested.

On return to home port or on completion of passage, each boat will provide a written commentary on their experiences to be reported as a letter in the SSCA *Commodores Bulletin*. The goal, we hope, is to ensure boats are able to stay out of danger areas (if they exist). We hope that what we find is that cruisers are not affected by these radiation releases, but our monitoring will provide a degree of security not currently available. The most dangerous scenario is ignorance.

Information On The Badges Used Follows:

Badges cost approximately $30 USD each. SV *Carina* has five samples of the new RADTriage. The manual for the current RADTriage is at **http://jplabs.com/wp-content/uploads/2011/11/JP-Labs-RADTriage-Manual.pdf**. RADTriage dosimeters are provided with a manual on how to use in an envelope. For boats wanting to participate, contact distributor for purchase. SSCA member discount is TBD:

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From JP laboratory: RADTriage™, part of the **SIRADTM (Self-Indicating Radiation Alert Dosimeter) family of dosimeters**, is a dual sensor personal smart dosimeter that reliably monitors radiation exposure in the event of a radiological terrorist attack and/or nuclear power plant accident. The user-friendly RADTriage is designed to be carried with you at all times—in a wallet, purse, or on your identification badge at work. These always-on and affordable credit-card sized badges work without the need for batteries, calibration, or maintenance. Simply match the colors of the sensing strips with the adjacent color reference bars to instantly determine your dose.

RADTriage has two sensors to monitor radiation exposure, each developing color in proportion to the dose. The WARNING Sensor turns blue and monitors lower doses of radiation (2 to 50 rads), which may not require medical treatment. The CASUALTY Sensor turns purple and monitors higher doses (50 to 1,000 rads), which may require prompt medical treatment. Together, these sensors will help first responders in triaging potential victims.