



The newsletter  
for AMSEA's  
community-based  
cold water & boating  
safety training network



# Marine Safety UPDATE

## Washington, Oregon & California Commercial Fishing Fatalities Studied

by Devin Lucas

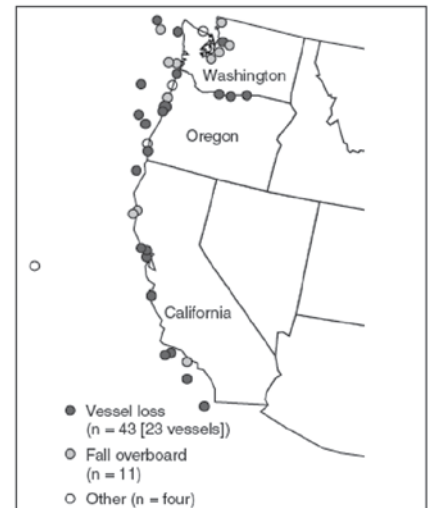
National Institute for Occupational Safety and Health, Alaska Pacific Regional Office

Commercial fishing is the most dangerous occupation in the U.S., with a fatality rate almost 36 times higher than the rate for the average U.S. worker. The National Institute for Occupational Safety and Health (NIOSH) has studied safety problems in the Alaska fishing industry since 1990 and has worked to make the industry safer. Efforts in Alaska have

been successful. From 1990 to 2006, there was a 51 percent decline in the annual fatality rate. This decline is attributed to increased usage of survival equipment, safety training and tailored prevention strategies for specific types of fishing operations.

Very little research has been done in other parts of the country to identify high-risk fisheries and understand their unique problems, so NIOSH has developed a new research project to identify high-risk fisheries in the U.S. and the risk factors that contribute to fatalities. The first area studied was the West Coast, and the findings were published in **Morbidity and Mortality Weekly Report** on April 25, 2008. Some of the major findings were:

- From 2000 to 2006 there were 58 commercial fishing fatalities off the coast of Washington (17), Oregon (21), and California (20).
- All victims were male, with an average age of 39.
- The majority of deaths result-



Locations of commercial fishing fatalities on the west coast, 2000-06

ed from the loss of a fishing vessel due to capsizing and/or sinking (74%) or from falling overboard (19%).

- The shellfish fishery (primarily crab) had the most fatalities (23), followed by salmon and other pelagic fisheries (15), and the groundfish fishery (10). The type of fishery was not identified for 10 fatalities.
- The most prevalent risk factors for vessel loss were: adverse weather conditions

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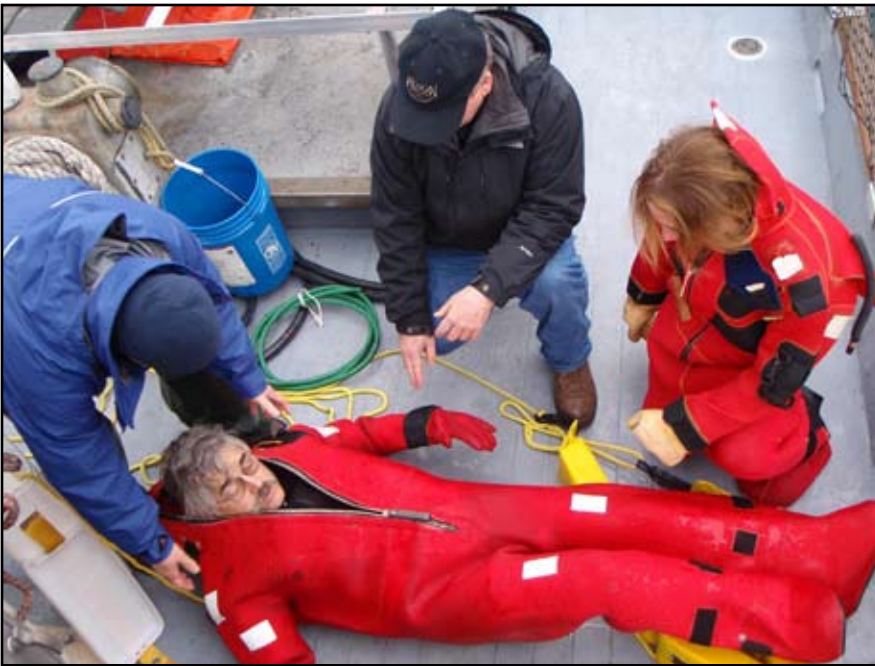
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## Marine Safety Instructor Training Scheduled for Sept.

AMSEA's U.S. Coast Guard approved, six and one-half day Marine Safety Instructor Training (MSIT) will be held in Sitka, Alaska from September 23 through 29, 2008. An AMSEA MSIT course will also be held in Woods Hole, Massachusetts, September 9 through 15 for NOAA/NMFS personnel. Another session will be offered Spring 2009 in Seward.

This is AMSEA's premier train-the-trainer course. Almost 900 people have completed it since 1986. Although it is most well known for preparing instructors to teach commercial fishermen, others who teach boating or cold-water safety to professional mariners, teachers, children, government agency personnel or anyone will find this course useful. AMSEA's MSIT classes have attracted people from as far away as Europe and Asia.

To learn more, or to register visit [www.amsea.org](http://www.amsea.org) or contact AMSEA's Sitka office.



*Above, AMSEA executive director and instructor, Jerry Dzugan plays a man-overboard victim during an MSIT class in Seward, Alaska in April 2008.*

Contact AMSEA at 907-747-3287 to inquire about training in your community and visit [www.amsea.org](http://www.amsea.org) for an always-up-to-date calendar of upcoming AMSEA training.

Marine Safety Update is published quarterly by the Alaska Marine Safety Education Association to provide information that furthers the safety of everyone who spends time on the water. Subscriptions are free with paid memberships in AMSEA. Sustaining, supporting and donor memberships receive recognition in this publication.

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## AMSEA Hosts AmeriCorps Member Jaquette Carroll

AMSEA is happy to welcome AmeriCorps member, Jaquette Carroll to the staff. Jaquette is an alumna of Sheldon Jackson College in Sitka, where she completed Marine Safety Instructor Training in 2005. She will serve an 11-month term as a Cold Water Safety Specialist, supporting AMSEA's instructor network and co-teaching safety classes.

Jaquette comes on board as part of the Connections Program, a project of the Juneau-based Southeast Alaska Guidance Association (SAGA). SAGA recruits and oversees large groups of AmeriCorps members serving in Southeast Alaska. To read more about SAGA, please visit [www.servealaska.org](http://www.servealaska.org).

AmeriCorps members may



*Jaquette Carroll enjoys a recent sunny day by paddling on Sitka Sound.*

be compared to Peace Corps members working within the United States. Members enroll in the program, compete for placement in organizations, and serve communities in need. They earn a very modest living allowance, and upon completion of their term of service, they earn an educational stipend for higher learning. Jaquette plans to use her stipend to help reach her goal of becoming an elementary teacher.

## Ergonomics To Be Topic of Workshops For Commercial Fishermen

Back problems, tendonitis, carpal tunnel and other musculoskeletal problems are widespread in commercial fishermen. The Fisherman's Fund of Alaska reports these problems as the most frequent cause of medical treatment for fishermen.

Dr. Don Bloswick, professor of ergonomics at the University of Utah, in cooperation with AMSEA and Alaska Sea Grant, is planning a number of ergonomic workshops for commercial fishermen. Bloswick is keenly interested in commercial fishing and in learning more about the issues, problems and solutions in ergonomics from fishermen themselves.

He will present workshops in Cordova, Sitka and perhaps another community in Southeast Alaska in October. Dates and further information will be posted on the AMSEA training calendar at [www.amsea.org](http://www.amsea.org) as they become available.

## Safety Orientation Tip Provided

Have a new crewmember this year? Test his or her skill at risk recognition by planting 10 hazards, such as an upturned gaff hook, open hatch, wet line, or blocked scupper opening, on deck. Ask the crewmember to identify them within a brief time period (15 minutes). The number of hazards identified will provide an idea of the general awareness of the new crewmember. The new crewmember will also be put on notice that risk assessment is part of his or her business as a member of the crew. It's a great way to remind the crew that risk identification is everyone's responsibility!

## Commercial Fishing Fatalities *Continued from page 1*

- (79%); flooding (37%); and vessel instability (26%).
- None of the 43 victims involved in a vessel loss (where a life-raft could have been present) entered a life-raft, either because the raft malfunctioned (28%), was unreachable (21%), was not present (28%), or was not able to be freed from the vessel (7%).
- Three of the victims involved in a vessel loss successfully donned immersion suits, but still died. Thirty-one victims did not use immersion suits, and immersion suit use was unknown for the remaining nine victims.
- None of the victims who fell overboard were wearing a personal flotation device.
- The average annual fatality rate for all fisheries in the West Coast region for the seven year time period was 238 deaths per 100,000 FTE fishermen.
- Within the shellfish fishery, the Dungeness crab fleet accounted for 17 of the 23 total shellfish fatalities. The average annual fatality rate for this specific fleet was very high, with 463 deaths per 100,000 FTE fishermen.
- Salmon and other pelagic fishermen had a fatality rate of 132 deaths per 100,000 FTE fishermen per year, and the ground-fish fishery had a fatality rate of 72 per 100,000 FTE fishermen per year.

The results showing the

lack of use of life-rafts and immersion suits is an area of concern. NIOSH determined in a previous study that survivors of vessel loss in Alaska were seven times more likely to have worn an immersion suit than decedents of those events and 15 times more likely to have used a life-raft. Emphasis to improve safety on the West Coast should be placed on training on the deployment and use of life-rafts and immersion suits.

The investigation also revealed that emphasis should be placed on improving safety in the Northwest Dungeness crab fishery. The Alaska Bering Sea crab fishery has been sensationalized as "The Deadliest Catch," by the popular television show on The Discovery Channel. However, we found that the Northwest Dungeness crab fleet not only had a higher number of fatalities than the Bering Sea crab fishery during 2000-2006

(17 versus 11) but also had a 50% higher fatality rate (463 per 100,000 per year as compared with 305 per 100,000 per year).

The findings for the West Coast region suggest that safety interventions should be tailored to specific groups of vessels and emphasis should be placed on the Northwest Dungeness crab fleet with targeted pre-season safety inspections and safety and stability training. Other areas of emphasis should include improved weather reporting, the prevention of hazardous river bar crossings in poor weather, training on the deployment and use of life rafts, and increased training in the use of immersion suit and personal flotation devices.

The full article on the findings of this study is available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5716a2.htm>, or email [dluca@cdc.gov](mailto:dluca@cdc.gov) to have a copy sent to you.

## CFIVSAC Meeting Recapped

The 28th meeting of the Commercial Fishing Industry Vessel Safety Advisory Committee (CFIVSAC) was held in New Orleans in May. The Committee received updates on the Global Maritime Distress Safety System (GMDSS) task force's recommendations for communications equipment on fishing vessels, House Resolution 2830 that would affect fishing vessel regulations, National Institute for Occupational Safety and Health (NIOSH) progress on assessing risk by fisheries type, and the sinkings of the F/V Alaska Ranger and F/V Pacific Glacier.

Discussion took place regarding the Advance Notice of Proposed Rulemaking on fishing vessel safety. (See next page.) Complete minutes of the meeting will be posted on the Coast Guard website at [www.fishsafe.info](http://www.fishsafe.info). Past minutes and much other information on fishing vessel safety are also available at that site.

## Kayak Safety Classes Offered In Sitka

Fourteen people participated in a three-day sea kayak safety course on July 8-10 in Sitka. AMSEA's Rick Petersen and Jaquette Carroll teamed up with volunteer instructor Laura Reynolds to deliver two pool sessions and one classroom lesson.

The pool lessons covered kayaking nomenclature, shoreline entry utilizing paddle bracing, wet exits, unassisted re-entry with and without paddle floats, assisted re-entry, T-rescue, H-rescue, sling rescue, scoop rescue, hand-of-God rescue, multiple forward strokes, back strokes, rapid stopping, pivot turns, draw strokes with out-of-water recovery and with in-water recovery, sculling draw strokes, j-lean, hip snaps, high bracing, low bracing, sculling bracing, rolling from a high brace, and Eskimo rolling.

The classroom session covered cold-water survival skills, including the effects of cold-water immersion on the human body such as initial cold shock, swimming failure, hypothermia, and post-rescue collapse. Students practiced mayday calls, built personal survival kits, experimented with fabrics to see how well they retained their insulating properties when wet, and discussed a variety of optional safety gear available to kayakers.

The class was offered in response to a current lack of kayak training opportunities in Sitka matched with high interest and need. Kayak safety classes had been offered in the past through Sheldon Jackson College (SJC), which closed its doors last summer. Petersen had taught a class in kayaking for SJC in recent years. Everyone in the class noticeably improved their skills and comfort level, and students expressed nearly unanimous interest in further training and opportunities to practice their skills.



*AMSEA staff members Mary Chambers and Amy Blair kayak just offshore downtown Sitka.*

## COMMENT PERIOD EXTENDED FOR PROPOSED F/V SAFETY REGULATIONS

Comments are requested on a proposed series of USCG regulations dealing with commercial fishing safety. Topics included are documentation of safety training, refresher training for Drill Conductors, stability of vessels between 50 and 70 feet, stability training, stability reassessment, vessel maintenance and self examination, survival equipment and crew preparedness. Comments were due by July 29, 2008. Despite the range of wide issues, as of July 17 only one comment had been received. Fortunately, the comment period likely will be extended until Dec. 15, 2008.

To read the proposal, submit comments or view others' submitted comments, go to <http://www.regulations.gov>, click on "Search for Docket." Enter docket number USCG-2003-16158 in the Docket ID box. You may also submit your comments and material electronically, by fax at 202-493-2251, or by mail to the Docket Management Facility (M-30), U.S. Department of Transportation, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590. Please submit comments and material by only one means.

Questions on this proposed rule may be directed to Michael M. Rosecrans, Chief, Fishing Vessel Safety Division (CG 5433), U.S. Coast Guard, at 202-372-1245 or [Michael.m.rosecrans@uscg.mil](mailto:Michael.m.rosecrans@uscg.mil).

## Water *Continued from page 10*

have water, don't eat. (At least don't eat foods unless they are high in water content.) Proteins are large, complex molecules that take more water to break down and digest than do other food types. That's why the food rations in liferafts do not contain protein.

Illnesses, such as fever, vomiting and diarrhea, also cause your body to lose fluids. While ill you should drink plenty of water. You may even need oral rehydration solutions. Prolonged seasickness can even be a life threatening condition due to dehydration.

Women who are expecting or breast-feeding need additional fluids to stay hydrated. The Institute of Medicine recommends that pregnant women drink 2.3 liters (about 10 cups) of fluids daily. Even larger amounts of fluid are required when nursing. Women who breast-feed should consume 3.1 liters (about 13 cups) of fluids each day.

So, how much water is enough? The National Research Council of the National Academy of Sciences calculates a minimum water requirement for human survival of 2 to 4.5 liters per day under typical temperate climate with normal activity and a diet of 2,000 to 3,000 calories. The Mayo Clinic notes that if you drink enough fluid so that you rarely feel thirsty and produce 1.5 liters (6.3 cups) or more of colorless or slightly yellow urine a day, your fluid intake is probably adequate. However, depending on thirst as a guide may be unreliable in a cold environment and due to other variables such as age and medical conditions.

Although clear urine of adequate volume is a good guide, a cold environment may induce cold diuresis, or the shifting of fluids from cold extremities to the trunk. The body, falsely sensing a fluid overload, will discharge fluid out through the kidneys in unusually large amounts. The result is a net loss of body fluid. Cold environments, then, are particularly tricky when trying to sense if one is properly hydrated.

So how are we going to get an appropriate amount of water? We get water from more than just drinks. Food also provides a significant por-

tion of your fluid needs. On average, food provides about 20 percent of total water intake, while the remaining 80 percent comes from water and other beverages. Many fruits and vegetables, such as watermelon and tomatoes, are 90 percent to 100 percent water by weight. Beverages such as milk and juice also are composed mostly of water. Even beer, wine and caffeinated beverages like coffee, tea and soda can contribute, but should not be a major portion of your daily total fluid intake. Water is always one of your best choices.

Can you drink too much water? Sure. In the year 2000, a 20-year-old Army trainee drank three gallons of water in a two to four hour period. She died from swelling in the brain and lungs as a result of low blood sodium. Just as you can die from not enough water, you can also die from insufficient sodium or salts. Be sensible and don't be a zealot. The U.S. Army in 1998 released fluid replacement guidelines that recommend a limit of one to 1.5 quarts per hour and 12 quarts per day even during strenuous activity (**Military Medicine** 2002; 167: 432-434).

Risks associated with even mild dehydration include urinary tract infection, headaches, fainting, bad breath, energy loss, and constipation. The risks of severe dehydration include shock, seizure, and heart arrhythmias. At the very least, one may suffer fatigue, reduced metabolic rate, and kidney dysfunction. Those with diabetes, cardiac and renal problems are especially vulnerable. Also, fine motor skills and critical thinking, which are important in a survival situation, are negatively impacted by dehydration. Even a healthy person under normal circumstances needs plenty of water to maintain long-term health. Balance your water and sodium intake, as both are needed for life. In terms of how much water to drink, error on the side of a bit too much (which the body knows how to deal with) than too little (which makes the body's work just a bit more difficult). After all, we are mostly made of water and we expect our body and brain to do a lot for us!

# AMSEA Logs Busy Spring Training Season

From March 1 through June 30, 2008 4,097 individuals participated in 86 courses or educational events delivered by AMSEA-trained instructors who reported their activities to AMSEA. Instructors and the communities where they taught are listed below under the type of training provided. Classes were held in Alaska unless otherwise noted

## Six-day Marine Safety Instructor Training (MSIT):

- Jerry Dzugan, Rick Petersen – Seward

## Workshops for recreational boaters:

- Chris Bryner, Rick Petersen – Sitka
- Mike Morris (3 classes) – Sitka
- Marian Allen, Alison Dunlap, Mary Chambers, Amy Blair – Sitka
- Alison Dunlap – Juneau
- Charlie Bond – Portland, OR
- Jennifer Culbertson – Kodiak & Old Harbor

## Courses for children or children & their parents, teachers or caregivers:

- Jennifer Culbertson – Chiniak & Kodiak (2 classes)
- Rebecca Wells, Karissa Hauck – Palmer (2 classes)
- Jason Bjornstad – Sand Point
- Michael Jones – Anchorage
- Kristie Sherrodd, Steven Campbell, Jim Herbert – Anchorage
- Mike Morris – Sitka (4 classes) & Craig
- Anna Borland-Ivy – Homer
- Heidi Herter, Jason Hymer – Unalakleet
- Ward Jones – Dillingham
- Ron Bowers – Dillingham
- Chris Bryner – Sitka (2 classes)
- Josh Miller – Valdez
- Gary Leiter – Soldotna
- Alison Dunlap – Juneau
- Shasta Smith – Sitka

## Fishing Vessel Drill Conductor courses

(all courses included fishermen attending as refreshers):

- Steven Campbell – Kodiak (2 classes), Homer & Valdez
- Steven Campbell, Troy Tirrell, John Hawkins – Cordova
- Jerry Dzugan – Sitka (3 classes)
- Curtis Farrell & Mike Rudolf – Newport (3 classes) & Port Orford, OR
- Beverly Noll – Crescent City, CA & Brookings, OR
- Dug Jensen – Petersburg (2 classes), Seward & Juneau
- Rick Petersen – Sitka, St. George, Dillingham (2 classes), Naknek, King Salmon & Fairbanks
- Mike Morris – Thorne Bay
- Ron Bowers – Dillingham
- Ted Rogers – Kodiak
- Jason Bjornstad – Chignik Lagoon
- Robert Miller – Charleston, NC



*Mike Morris teaches children in Craig, AK how to right an overturned liferaft.*

## Short commercial fishing safety workshops:

- Alan Davis, Steve Harbell, Eric Olsson, Brian Mason – American Seafoods, Seattle, WA
- Rodney Avila – New Bedford, MA
- Robert Stanley – Maine
- Joe Chaszer – Anchorage, AK
- Michael Harrelson – Texas

## Customized courses for government agencies, organizations or groups:

- Michael Gentry – Alaska Department of Environmental Conservation. Seward
- Jerry Dzugan – Northern Arizona University, Flagstaff, AZ
- Dan O'Connor – Cruising Club of America/US Sailing, Newport, RI
- Rick Petersen – Sitka Rotary Club; Alaska Sea Kayak Symposium, Anchorage; United States Forest Service, Girdwood
- Sharon Miller – Virginia Institute of Marine Sciences, Williamsburg
- Ward Jones – Bristol Bay Area Health Consortium, Kakanak
- Greg Morgan – North Pacific Fisheries Observer Training Center, Anchorage
- Chris Bryner – Southeast Alaska Career Center, Sitka
- Torie Baker – United States Forest Service, Cordova
- Dug Jensen – NOAA/NMFS, Yakutat and Seattle, WA
- Shane Nicholson, Scott Carson – Alaska Public Safety Academy, Sitka

# Thanks To Our 2008 Members!

## Memberships help keep AMSEA's marine safety training programs afloat!

List current as of July 15, 2008

### 2008 Sustaining Members

Alaska Sea Grant, Marine Advisory Program  
 Life Raft & Survival Equipment, Inc. – Portsmouth, RI  
 NIOSH Alaska Pacific Regional Office – Anchorage, AK  
 S/V Alaska Wyldewind – Sitka, AK  
 Southeast Alaska Fishermen's Alliance – Juneau, AK  
 Tom & Mary Tougas, Seward Wildlife Cruises – Seward, AK

### 2008 Organizational Members

Alaska Chadux Corporation – Anchorage, AK  
 City & Borough of Sitka, Harrington Centennial Hall – Sitka, AK  
 Fish Safe BC – Richmond, BC, Canada  
 F/V Coral Lee – Sitka, AK  
 Learn To Return Survival Training Systems, Inc. – Anchorage, AK  
 Saltwater, Inc. – Anchorage, AK  
 Seattle Marine & Fishing Supply Company – Seattle, WA  
 Sitka School District – Sitka, AK  
 University of Alaska Southeast, Ketchikan Campus

### 2008 Supporting Memberships

Alaska Career Development Service – Anchor Point, AK  
 Rodney Avila, F/V Trident– New Bedford, MA  
 Torie Baker, F/V Chagvan – Cordova, AK  
 Candi Barger, Sitka Realty – Sitka, AK  
 John F. Bahrt, F/V Kristina – Sitka, AK  
 Bill Beebe – Juneau, AK  
 Tom Brayton, F/V Sounder – Juneau, AK  
 Steven Campbell, Day Dreamer Enterprises – Kodiak, AK  
 Chesapeake Marine Training Institute – Hayes, VA  
 Paula Cullenberg & Peter Crimp, F/V Matthew Arrid – Anchorage, AK  
 Dwight Downer, F/V Bavaria – Haines, AK  
 Aaron "Pat" Dye – Cooper Landing, AK  
 Dennis Early – Juneau, AK  
 Educational Training Company – Sitka, AK  
 Britt Elliott – Vallejo, CA  
 Curtis Farrell – St. Helens, OR  
 Jennifer Ferdinand – Kenmore, WA  
 Steve Fish, F/V Kariel – Sitka, AK  
 Misty Haffner – Juneau, AK  
 David & Maggie Herbert – Seward, AK  
 Charles & Christine Horan – Sitka, AK  
 H. Daniel Hull, F/V Gretchen S. – Anchorage, AK  
 Earl Jeffrey – Hydaburg, AK  
 Jennifer Lincoln – Anchorage, AK  
 Marine Surveyors of Southeast Alaska – Wrangell, AK  
 Felicia McAuley, F/V Amber J – Juneau, AK  
 Andrew Mezirow, Crackerjack Sportfishing – Seward, AK  
 William Miller – Ketchikan, AK  
 Amie Olson – Edmonds, WA  
 Pacific Ocean Producers – Honolulu, HI  
 Ralston Cunningham Associates, Inc. – Bellevue, WA  
 Mike Rudolph – Vancouver, WA  
 James Stegall, Seward Adventure Charters – Anchorage, AK  
 Eileen Swift – Olympia, WA  
 James Swift, F/V Ginny C – Olympia, WA  
 Troy Tirrell, Tirrell Marine Surveyors – Cordova, AK  
 Gail Trujillo – Sitka, AK  
 Kit Van Meter, KVM Associates – East Taunton, MA  
 Kathleen Warm– Sitka, AK  
 Wally Warm – Sitka, AK  
 Jeffrey Weborg – Ellison Bay, WI  
 Charles E. Wood & Suzanne West, F/V Talon – Petersburg, AK  
 Robert M. Whitcomb – Haines, AK

### Recent Equipment & Service Donations

Stearns, Inc. – PFDs: Two flotation coveralls, two type 3 vests, type 3 float coat, inflatable suspenders  
 Charles Wilber – 4 person liferaft with cradle  
 Monte McFarland – 5 person liferaft  
 Mike Morris – 2 immersion suits

Rafe Allensworth- 4 person liferaft  
 Capt. Barry Kallander, Sea Kits, Inc. – Damage control kit  
 Gus Skaflestad – 6 person liferaft with canister  
 Mark & Suzie Howey – 4 person liferaft with cradle  
 Saltwater, Inc. – 7 immersion suits

## 2008 Donor Memberships

Adventure Alaska Wilderness Programs – Soldotna, AK  
Kari Anderson – Seward, AK  
Peggy Barry – Washington, DC  
Vicki Cornish – Washington, DC  
Bruce K. Cornwall – Solomons, MD  
Robin Dexter, F/V Deborah Ann – Bellingham, WA  
Deborah & Robert R. Eckley, Eckley Vessels – Cordova, AK  
Wayne Engle, Universal Training Systems – Chugiak, AK  
R. Brent Fagan, F/V Dipper – Sitka, AK  
Alan & Elizabeth Horoschak, S/V Jubilo – Sitka, AK

Jason Hymer – Nome, AK  
Molly Kemp & Nick Olmsted – Tenakee Springs, AK  
Maureen Knutsen, F/V Jenny O. Daun – Naknek, AK  
Kodiak Outdoor Adventures, Inc. – Kodiak, AK  
Beverly R. Noll – Crescent City, CA  
Kathy O'Gara – Sitka, AK  
Mark Severson, F/V Odin – Petersburg, AK  
James Skonberg, F/V Lorena Marie – Ouzinkie, AK  
Kristie Sherrodd – Sandpoint, ID

**THANKS ALSO to AMSEA'S many  
2008 individual members!**

*Please join the members listed above in  
supporting AMSEA!*

AMSEA membership benefits:

- Subscription to AMSEA's quarterly publication **Marine Safety Update**
- All members receive 15% off all retail price purchases from the AMSEA store: books, videos, survival kits and more!
- All members receive recognition at [www.amsea.org](http://www.amsea.org) & memberships of \$50.00 or more are given recognition in **Marine Safety Update**
- Memberships of \$100.00 or more receive a thank-you gift (For 2008, receive a 16 ounce Thermos™ stainless steel travel bottle imprinted with the AMSEA logo)
- Organization and business members are eligible for AMSEA training at special rates
- Contributions to AMSEA are tax deductible (less the value of thank-you gift)

**Membership information available at [www.amsea.org](http://www.amsea.org)  
or by calling 907-747-3287**

## Imperial International Sold to Revere

Formerly Seattle-based Imperial International immersion suit company has been bought out by Revere Supply of Jacksonville, Florida. Kari Gud-dal, former second-generation owner of Imperial, will work the immersion suit side of Revere's business from Seattle. However, suits will no longer be available directly from her Seattle office; they will ship out of Florida.

Imperial suits may still be serviced in the Seattle area at Puget Sound Inflatable and Marine Safety Services. Kari can be reached at 206-783-5362 or [kari.g@reveresupply.com](mailto:kari.g@reveresupply.com).

Revere Supply can be reached in Florida at 904-786-0033 or via their web site at [www.reveresupply.com](http://www.reveresupply.com). AMSEA wishes Kari the very best during this transition.





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# WATER: How Much Is Enough?

*by Jerry Dzugan, AMSEA*

It wasn't many years ago that people were urged to drink more water and other hydrating fluids. This helped give birth to a booming bottled water and electrolyte sports drink industry. Recently the pendulum has swung the other way and the media has picked up on reports that we have made too much of this hydration thing and we do not need to go through life tethered to a bottle of water or a sippy cup. So, what to think?

As with most controversies, the pendulum of truth is somewhere between the extremes. Your water needs depend on many factors, including your health, how active you are, your diet and environmental conditions. Therefore, how much water you need . . . depends.

First, let's take a look at how you lose water. A huge amount of water is lost through sweating. In a hot climate, a 154-pound person can lose between four and six liters per day from sweat alone. Larger people lose even more volume. During long bouts of intense exercise, it's best to consume a sports drink that contains sodium. This helps replace electrolytes lost in sweat and reduces the chances of developing the electro-

lyte disturbance hyponatremia, which can be life threatening. Hikers, marathon runners and others involved in long stretches of exercise are now encouraged to consume high sodium foods along with water. You can have salty junk food and feel good about it . . . as long as you are exercising.

Humans lose almost a liter of water each day through respiration doing normal activity. In a cold, dry environment we can lose almost another liter. Water loss through respiration also increases with altitude due to low humidity and hyperventilation associated with reduced oxygen in the atmosphere (**Nutrition In Exercise and Sport**, 3rd edition). At all activity levels we use about twice as much water at high altitudes (above 5,570m) than at sea level (Milledge, J. **Newsletter of the International Society of Mountain Medicine**, 2, 5, 1992).

Digestion also takes water. The more you eat the more water you need. In a survival situation water is more necessary than food. Thus, when water is in short supply, the rule is if you don't

*Continued on page 6*