Over Water Rescue

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WITH DARKNESS quickly falling, you begin to wonder if you'll ever be found. If only you had seen that fire on your boat before it had gotten too large to contain. Now with the boat sunk and no radio available to call for help, your only hope is that someone will pass by and see you, or that your friends will notice you are late and begin a search. With no land in sight and only a life preserver to comfort you, the alternatives of being found aren't very pleasant.

Hundreds of situations similar to this one occur every year. Many victims survive, but many do not. And because of the increase in rescues required every year, more and more skilled personnel are being utilized to find, treat, and extricate the victims of these accidents.

Along with increased personnel requirements comes the increasing use of helicopters in the rescue and transportation of these victims to safety. Many counties, states, and organizations are relying more and more on the speed and versatility with which helicopters can deliver patient care. And it is in rescuing victims from accidents in and around the water that the helicopter (helo or chopper) has truly proven its worth.

Because of its hoisting capabilities at low elevations, internal space and fuel range, the Sikorsky Pelican (HH-3F) and Sea King (SH-3A) are today the helos of choice for water rescue and are utilized by the Coast Guard, Navy, oil companies, state organizations responsible for law enforcement, forestry or emergency medical care, and various other agencies. Because of their high purchase price, operating cost and maintenance time, many smaller organizations such as police, fire, and ambulance companies prefer a smaller, more economical helo. Examples of these are the Bell Jet Ranger (Model 206) and Iroquois (KH-1H). Because the majority of these departments' rescues occur over land, these helos are entirely satisfactory. But for an overwater rescue at any distance from shore, hoisting capability and range such as that of the Sea-King are advantageous.

A usual crew for a water rescue consists of a pilot, co-pilot and two other crew members. The first crewman (also known as the flight crewman) normally handles the hoist during a rescue and remains in the helo. This person is usually the more experienced of the two crew members in helicopter operation and controls much of the rescue. It is this same crew member who maneuvers the aircraft over and around the victim's position by using a control in the cargo area called Hover-trim, and is actually flying the craft while a rescue is in progress. This is because of the restricted visibility of the pilot while hovering around the victim. In addition to controlling the helo and monitoring the rescue operation, the flight crewman also sends any necessary equipment into the water.

The second crewman (EMT/crewman) effects the actual rescue and it is this person who goes into the water after the survivors and cares for them until they are safe.

For the EMT/crewman the preparation for the rescue begins as the helo is en route. If the combined air/sea temperature is below 120° a wet suit is worn. A rescue harness is also worn over the wet suit along with an inflatable life vest. (The rescue harness is a webbed harness running over both shoulders, the chest and back and has a "D" ring for attaching to a sling or the victim to keep them together during the hoist. Signaling day/night flares are attached to the harness.

As the victim is spotted, the EMT/crewman prepares to enter the water by checking all equipment, donning fins and mask, and waiting for the signal from the flight crewman to jump. The pilot will sweep low near the victim and when the helo is moving approximately 10 knots and approximately 10 feet off the water's surface (10 for 10) the crewman will be signaled to jump when ready. The EMT/crewman then sits in the cargo doorway holding a mask against his face with one hand and laying the other arm over the top of the rescue harness. (In case the now-secured harness should loosen during the jump, the "D" ring will not trail upward and hit the face). Then, crossing his legs at the ankles and looking straight out at the horizon, he jumps out the cargo door. It is important to look straight ahead when jumping in order to avoid hitting the water off-balance and causing injury.

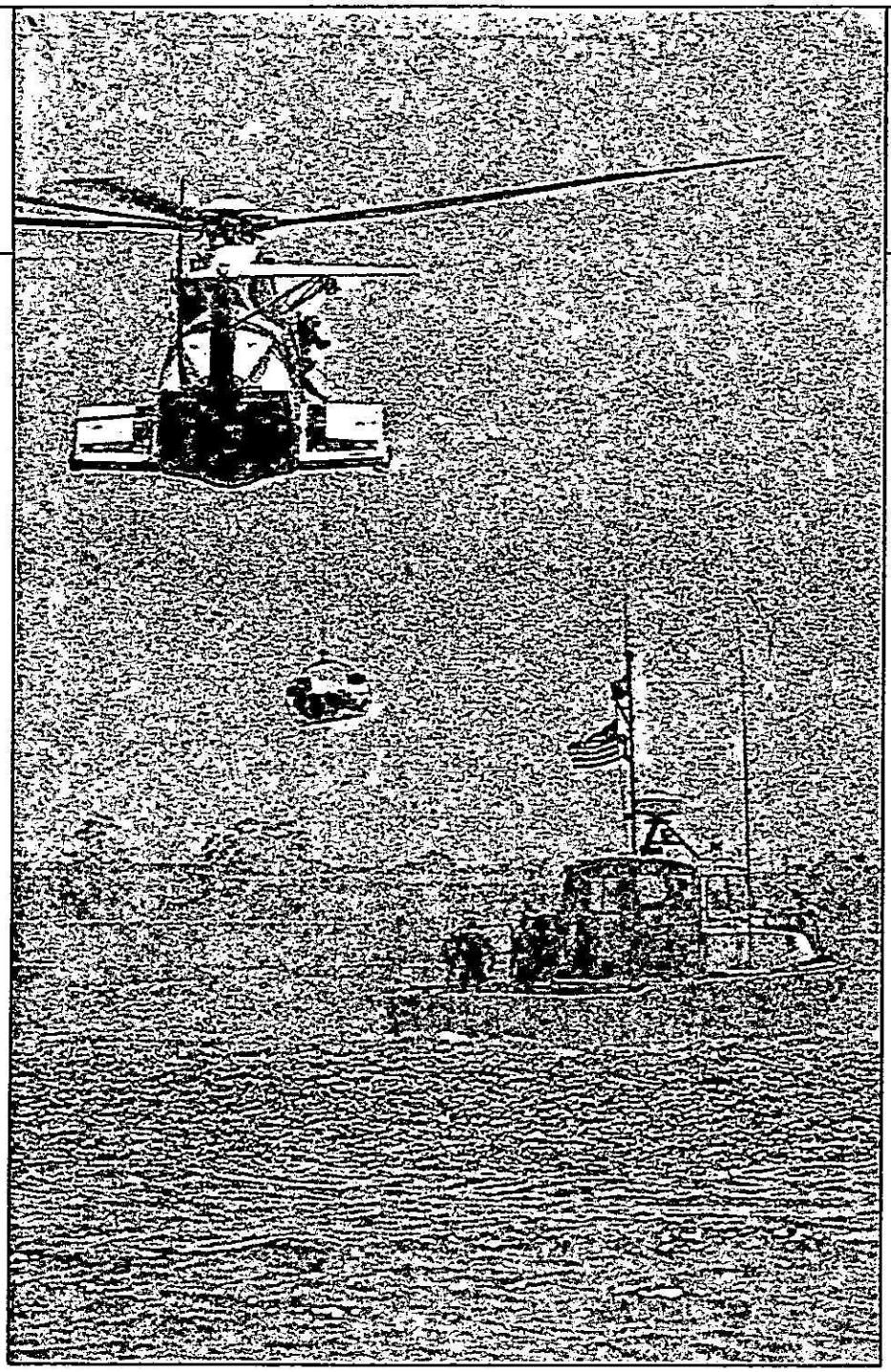
At night the procedure is radically altered in that the crewman is first attached by sling or horseshoe collar to the hoist and lowered to the victim. The flight crewman has hover-trim control at this time and maneuvers to stay near the victim. At no time should the EMT/crewman detach from the harness, because of the great possibility of being lost in the dark. An EMT/crewman should be very cautious in his approach toward the victim as many of them may be panicky and could injure the crewman in their haste to get to safety.

However, during a day rescue, the EMT/crewman is free to swim to the victim and begin preparations for hoisting. The helo usually moves away a distance to allow the crewman to work with the victim without having to fight the rotor wash and engine noise. When ready to hoist, the crewman can signal the helo by hand signals, flares or dye.

The well-trained rescueperson should always take the time to evaluate the victim before hoisting. The situation, however, may be dictated by certain conditions. If the victim is in cold water (below 60° F) and appears to be deteriorating because of the cold, hoisting should occur immediately. Likewise, if the presence of sharks or a large surface fire (as from burning fuel) endangers the victim, immediate hoisting is necessary.

A victim who is able to be hoisted by sling, basket, or collar will be helped into the device. The crewman will then attach the "D" ring to the hoist and the helo will lift them. Unless a basket is used, the crewman will usually await a second hoist. A word of caution: when the hoist from the helo is first dropped, allow it to submerge in the water before touching it. This gives the static electricity that may have accumulated around the helo a chance to dissipate.

If a period of time is expected to elapse before an injured person can be safely hoisted (as while waiting for specialized stretchers) it would be wise to drop a life raft to protect the victim from exposure and other environmental hazards. The injury most often



A Sikorsky HH-3F of the San Diego Coast Guard Station hoists a patient. Photo by Ed Kessler.

connected with long in-water rescue is a spinal injury. In this case, the raft may be unrolled and floated under a victim before inflating. Then deflate before placing on or in a rigid stretcher.

Due consideration should always be given to injuries, but in the water only limited treatment can be effected. In evaluating victims, the same considerations apply as to checking the airway, breathing and circulation as done on land. If respiratory arrest, cardiac arrest or airway blockage is evident, immediate hoisting into the helo without further assessment is necessary. Although mouth to mouth/nose may be effectively applied in the water, it is difficult to maneuver oneself continually in the water while attempting the hookup. If a respiratory arrest progresses to cardiac arrest, a firm surface is an absolute in performing proper CPR. Once in the helo, CPR and patient assessment techniques can be performed.

Another problem requiring immediate hoisting is severe hemorrhage. To stop such hemorrhage while in the water is almost an impossibility and rapid exsanguination looms. If a tourniquet is available, it may be utilized to stop a large blood flow as in amputations or large arterial lacerations. Once in the helo, direct pressure should be applied in an attempt to stem smaller blood flows.

An area of much discussion concerns spinal injuries, for there is no more tedious an injury that may require handling in the water than that of trauma to the spine. When a spinal or head injury is suspect, the crewman responsible should signal for a Stokes stretcher. If one is not available and they must await delivery of one, a life raft will protect the victim from many environmental hazards. When the proper stretcher is obtained, it should be placed under the victim so that the victim can float onto it. Be certain a flotation device is attached. Lift, using a four-point blade bridle after securing the victim well in the stretcher. If storage space is a consideration within the helo, there is a very versatile orthopedic (break-apart) stretcher now being manufactured which can be mounted with wall brackets or, in a folding model, stored under a seat. This stretcher also uses a four-point bridle and is utilized as is the Stokes.

The above technique should also be performed in any case where the injury prevents hoisting, such as fractures of the clavicle, crushing chest injuries, etc. Note that these techniques may have to be modified in the event of some endangering considerations, as in surface fire from burning fuel. But, as with conventional rescues, the modifying factor is similar: a victim with injuries that could be aggravated with hoisting can only be justified in a situation that, in the crew's opinion, would itself cause futher injury or death to the victim.

Although there is not an abundance of opportunity to experience and participate in overwater rescue, every year the number of rescues by helicopter increases. More people are locating near the water and are using their leisure time for water-related activities. The U.S. Coast Guard predicts the number of recreation boats in the country to jump from the current figure of 13.6 million to some 18.7 million by 1982. Total responses of all kinds by the Coast Guard last year numbered over 82,000, with recreational boats accounting for some 76 percent. From all indications, overwater helicopter rescues will play an ever increasing role in the provision of emergency services.