



# ***BOAT CREW TRAINING***

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**U.S. Coast Guard  
Auxiliary  
DYRA WINTER  
SERIES 2016**

**Helicopter Operations  
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# HELICOPTER OPERATIONS

## Skipper and Crew Training



# HH-65 DOLPHIN

- Top speed 165 kts
- Hoist capacity 600 lbs
- Carries two pilots, flight mechanic & rescue swimmer
- Replaced HH-52





# HH-65 DOLPHIN

- Pilot sits in right seat
- Pilots cannot see vessels they are hoisting from
  - Flight mechanic directs pilots during hoists
- Always stay clear of tail rotor
  - Approach in view of pilot





# First Contact

As the Helo Approaches they will be in contact with you on the radio if possible. They will be doing a GAR on your vessel and use TCT Training to make a plan on how to move forward with the eveloution





# GAR

**GAR IS BASED ON A TEAM DISCUSSION TO UNDERSTAND AND EVALUATE THE RISKS ATTENDANT TO A MISSION AND HOW THEY WILL BE MANAGED.**

- **RISK MANAGEMENT IS WHAT IS IMPORTANT; NOT THE ABILITY TO ASSIGN NUMERICAL VALUES OR COLORS TO RISK ELEMENTS.**



# GAR

- **Assign a risk code of 0 (For No Risk) through 10 (For Maximum Risk) to each of the six elements below. The discussion should start with the junior (least experienced) members first on each category.**



# GAR

- **Supervision -qualifications / experience / communications**
- **Planning – details / clarity / vessel selection and condition**
- **Team Selection – qualifications / experience**





- **Team Fitness – physical / mental state**
- **Environment - seas / visibility / wind / current / temperatures**
- **Event/Evolution Complexity –details / tasks**



**Green- -----10-20**

**Amber ----- 21-40**

**Red -----41-50**

- If the total falls in the green zone, risk is at a minimum. If the total falls in the amber zone, risk is
- moderate and you should consider adopting procedures to minimize risk.



# May Have to Wait

- During the initial contact the helo may instruct you that they may have to wait to perform the hoist and they will give you a time frame.
- This is caused by the necessity to burn off fuel per the hoisting standards and weight standards they have.



# RESCUE BASKET

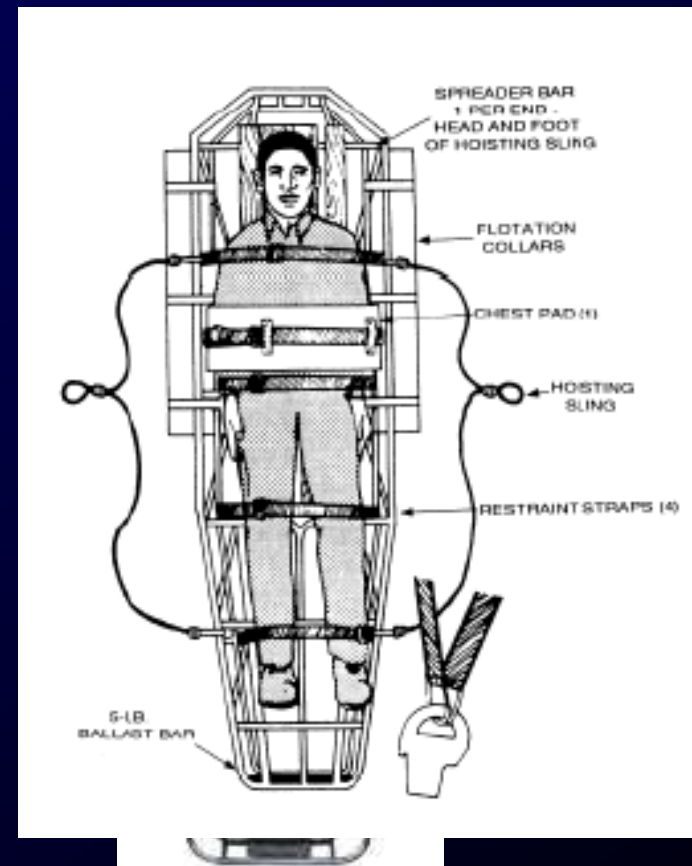
- Most rescues will use the basket
- Occupant is protected from striking objects when hoisted
- Basket will float
  - Occupant wears PFD
  - Supports fold when unhooked





# STOKES LITTER

- Stokes litters are only carried when mission indicates it will be needed
- Must be supplied by helo
  - Flotation collar, spreader bar, and restraining straps
  - Requires weight testing





# HOISTING

- Hoisting operations can present great hazards
- Safety is greatly enhanced when proper briefings precede the evolution
  - Listen to the helicopter pilot or station briefing
- Safety is a primary concern
  - Pilot or coxswain should stop evolution any time safety appears in doubt
- International community uses “winch” instead of “hoist”



# BOAT PREPARATION

- Arrange signal for emergency breakaway in case radio comms are lost
  - No Extra Lights or spotlights to be pointed towards the aircraft
- Skipper checks charts and boating traffic for hazards in anticipated area



# BOAT PREPARATION

- Communicate with approaching helo
  - Working radio frequencies to use
  - On scene weather
  - Total number of POB on your boat
  - Special conditions of hoist victims
- Crew in proper protective gear
  - PFDs and thermal protective gear
  - Head, eye, hearing, and hand protection





# BOAT PREPARATION

- Stow or secure all loose gear on deck
  - Remember the downdraft from the helo will be *tremendous*
- Lower and secure any masts, antennas, flag staffs, and outriggers that can be safely removed – secure the deck
- Designate one crew member to give hand signals to the hoist operator



# BOAT PREPARATION

- Brief crew before the helicopter arrives
  - Rotor noise will prevent conversation
- Caution crew about falling overboard when blown by downdraft
- Have people/equipment ready to hoist
- Explain emergency breakaway procedures



# EMERGENCY BREAKAWAY



- When indicated by either the pilot or the skipper etc. from the helicopter over the stern to be free of the helo
  - Boat veers to starboard
  - Helicopter alters course to port



# EMERGENCY BREAKAWAY

Causes for emergency breakaway –

- Mechanical failure on the helo
- Mechanical failure on the boat
- Surface traffic forcing boat to alter course
- Injury on the boat
- Divert to higher priority SAR



# STATIC ELECTRICITY

- Helicopters and aircraft build up a static charge and discharge when they are rotating.
- The static electricity must be discharged so crew members can safely use the equipment.
- Crew members should avoid touching the aircraft before grabbing it, or ...





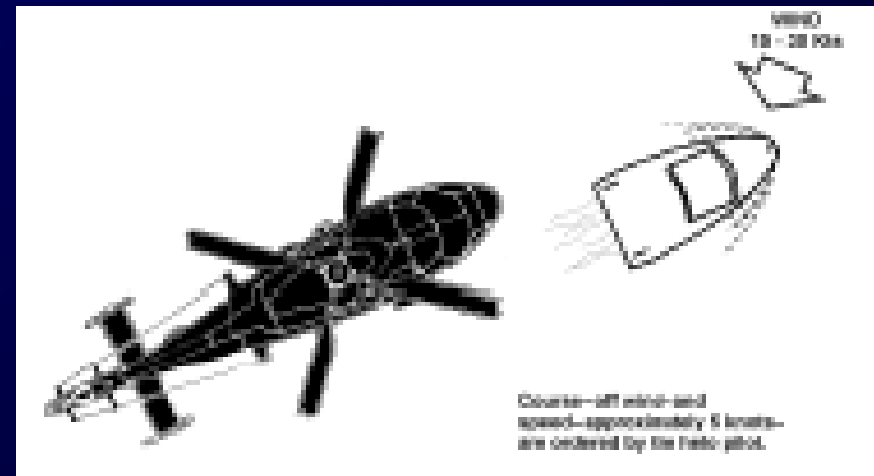
# STATIC ELECTRICITY

- Polypropylene trail lines do not (usually) carry static electricity
- Deadman's Stick may be used to discharge electricity – if you have one
- You have a few (30?) seconds to grab items after they ground out before the charge builds up again



# BOAT PREPARATION

- When the helo arrives on scene, the pilot will give the skipper a course and speed to maintain for the transfer





# Prop Wash

When the Helo approaches vessel will be moved about as a result of the Prop Wash . Usually a 1-2 foot difference in water displacement







# DIRECT DELIVERY

- For a direct delivery, the helicopter crew will do all the work
- Stay clear as the helo maneuvers over the deck and lowers the basket
- When the basket touches the deck, grab it to hold it steady as the person climbs in



# DIRECT DELIVERY

- When subject is ready, give “thumbs up” signal to helo
  - If there is going to be a delay getting the basket ready, disconnect the cable and let the helo move away
  - NEVER tie or attach the cable to the boat
  - Wait for hook to hit the deck before reaching to reattach it to the basket
- Stand clear as helo hoists basket



# TRAIL LINE

- A trail line is a polypropylene line weighted with a small sandbag that is attached to the hoist cable hook
- A trail line permits the helo to hover away from the boat and have the crew pull the cable over to the boat



# Trail Line





# TRAIL LINE

- Helo will drop the trail line to the boat deck, then back away from boat
- Boat crew takes in slack as helo pays out
- When basket and cable start to lower, crew pulls trail line in to bring basket over boat to appropriate point
- Allow basket to touch boat before grabbing it directly or use grounding wand



# Trail Line approaches Vessel





# TRAIL LINE

- One crew member should haul in trail line hand-over-hand
- Second crew member coils slack out of the way





# TRAIL LINE

- When basket is hoisted, tend trail line to keep slack out of line
- When helo has taken in all extra trail line, allow weight bag to drop into water in direction of helo (usually port quarter)





# TRAIL LINE

- A 5-lb. weight bag is attached to the trail line and lowered from the helicopter to the vessel. The helicopter will then back off to a safe hoisting distance while paying out the trail line. The non-weighted end of the trail line is attached to the rescue device (weak link first) and lowered to the vessel. Boat crew members will tend the trail line by hand-over-hand method, exerting enough strain to guide the rescue device to the delivery point on deck. A second crew member should back up and coil the line.



# Trail Line Basket





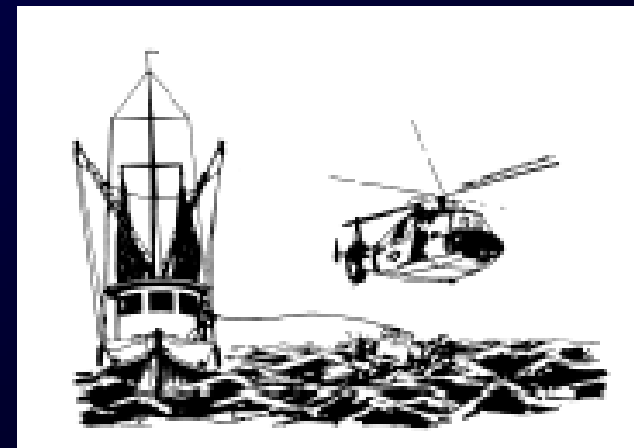
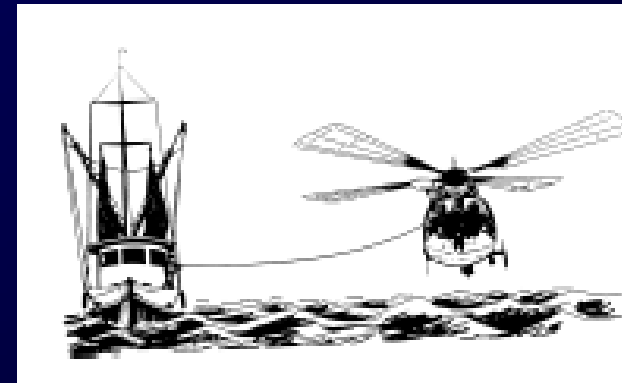
# Basket on Board





# INDIRECT DELIVERY

- Equipment can be delivered indirectly
- Helo lowers a line to the boat
- Helo moves aside and drops equipment into water
- Boat hauls equipment aboard





# DOW-- Dead On Water

- Helo will approach at 90 degree angle to vessel
- Vessel will have a tendency to spin due to prop wash
- Helo may rotate along with the vessel to keep hoist constant



# Approach of a DOW



Helicopter Ops & Dewatering



# REVIEW THE TASKS



# Review

- Causes of static electricity buildup on helicopter cables
- Safety requirements
- Use of trail line and situations where it is required
- Secured all loose gear, lowered antennas and outriggers





## Review 2

- Haul in trail line using hand-over-hand, keeping steady strain on line
- Ground basket to deck or Deadman Stick
- Place person in basket (wearing PFD)
- Reattach rescue cable hook
- Give “thumbs up” sign when ready to hoist
- Properly tend trail line for recovery



## Review 3

- Brief crew and assign duties
  - Emergency breakaway procedures
  - Safety equipment used
  - Personal Protective Equipment worn
- Boat made ready for hoist
- Establish comms with helicopter
- Conduct hoist briefing with helicopter



## Review 3

- Communicate number POB on helo and facility
- Maneuver boat to maintain heading and speed directed by aircraft commander
- Brought basket onto boat's deck by hand using deadman's stick or tag line
- Basket hoisted by helicopter
- Debriefed crew End Comms with Helo



# Thank You-Be Safe

- Questions and Debrief

