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the Northwest Atlantic Fisheries

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Canadian paper on helicopter transfers to fishing vessels

INTRODUCTION

For more than twenty years Canadian naval helicopters have conducted hoisting operations from non-military vessels in the Atlantic marine areas. These operations have included rescue of personnel from ships in distress, evacuation of medical cases, supply of spare parts or fire fighting equipment to disabled ships and even passing tow lines. At the 1975 annual ICNAF meeting, Canada proposed that Canadian helicopters be used to transport ICNAF inspection officers.

The film you are about to see has been prepared to demonstrate, under actual conditions, the techniques available to transport personnel to fishing vessels from helicopters. Two methods will be shown; first, the free hoist which has been employed when transferring personnel to military vessels, and second, a recently developed technique, the steadying line hoist. Either of these methods could be used quite successfully with most fishing vessels. It will become apparent, as this film progresses, that a standardized procedure is required to ensure that helicopter hoisting operations can be conducted in a safe and efficient manner. It is also important that full cooperations be given to the helicopter by the vessel crew. Without this cooperation a helicopter transfer could be hazardous to personnel, and both ship and aircraft, and would not be attempted.

The aircraft being used is the 2-engine CH124 "Sea King" of the Canadian maritime forces. This is the helicopter normally carried by Canadian destroyers when designated as ICNAF inspecting vessels. The crew flying the aircraft is a standard operational crew. They have not received any special training for the purpose of producing this film.

NARRATIVE TO FILM

The film begins with a helicopter from HMCS Saguenay hovering near the Canadian trawler Cape York, a 150 ft trawler. The helicopter could also be flying from an airfield ashore. When a destroyer is present it would be standing by to provide any assistance required.

A message board is placed in the cargo door of the helicopter which informs the trawler that a man will be lowered to the deck, and requests that a steady course be maintained and communications be attempted by radio.

The master of the vessel has complied with the requests and has established radio communications with the helicopter.

Once the aircraft Captain is satisfied that the hoist transfer can be conducted safely, he positions the helicopter over the deck of the trawler, hovering into the relative wind. His crew members prepare the first man to be hoisted, and when the aircraft is positioned they begin lowering the man. He is being lowered to the forecabin of the trawler, which has a free area of approximately 100 square feet, bounded by a bollard, a bulkhead, the forward hatch, and a windlass.

Once this man touches down he will ground the hoist cable to discharge the static electricity which has built up in the aircraft. He then removes the personnel sling and it is returned to the aircraft for the second man.

The helicopter is moved clear of the hoist area until the second personnel transfer is to be commenced.

The helicopter crew prepare the second man for his descent to the deck, and once the aircraft is again in position, the hoist is commenced. The pilot is maintaining his position both by visual reference with the wheelhouse, and verbal directions from the crewman in the door of the helicopter operating the hoist. A possible hazard with this technique is that the man being lowered may strike an object on deck, as happens here.

Once on the deck the sling is removed and returned to the helicopter.

The two men on deck are returned to the aircraft using a similar procedure.

The hoist cable is lowered to the deck of the trawler where it is allowed to drop to the deck to discharge the static electricity.

The first man puts the sling on and gives the aircrew a thumbs up signal to indicate that he is ready to be lifted. After receiving the signal and ensuring the aircraft is directly overhead, the hoist operator raises the man off the deck and returns him to the helicopter. After the man is free of the deck the aircraft moves clear of the vessel and completes the hoist.

The sling is then returned to the deck for the second man.

He puts the sling on, gives his thumbs up signal and is lifted off the deck. Good positioning of the aircraft will allow the hoist operator to lift the man from the deck and maintain clearance from all nearby objects. When the man is in the helicopter the hoisting sequence has been completed.

The remainder of this film will demonstrate the steadying line hoist, another hoisting technique available to helicopter crews. The first step of this sequence is an inspection of the vessel to which the personnel will be transferred. The aircraft captain picks out an area of the deck upon which two men could be placed.

The aircraft identifies itself by holding an ICAF pennant to signify the intention to inspect the vessel. A message board is shown to the vessel crew which indicates the aircraft's intention to lower a man to the deck, and indicates a steady course and a radio frequency to tune. The opposite side of this board reads "hold line, do not secure to ship, pull in easy when I lower man." ICAF markings on the aircraft can be seen to the right of the open door. The message board would be in a language appropriate to the nationality of the vessel being boarded.

Once radio contact is established, further clarification can be passed if required. Helicopter HF radio frequencies are compatible with most fishing trawlers, and the destroyer may be able to relay messages if a communication problem exists.

Here we can see, from the aircrew's view, the area to which the transfers will be conducted. Loose articles which are not tied down could be lost overboard or become airborne and strike the helicopter. Therefore, it is important to remove or secure such items.

Once the men on deck are prepared and the vessel is on a steady course, the aircraft lowers a one and a half inch nylon line to the deck. This is caught by the deck crew and handled on deck as the aircrew pay it out. A man is lowered from the helicopter.

As the camera moves around the stern of the trawler, the relative positions of the vessel and the aircraft can be seen. Aircraft clearance from the vessel is apparent. Once the man is on the deck the sling is removed and returned to the aircraft for the second man.

It is important at this point that the steadying line be handled with caution so that it doesn't snag on the deck fittings while the hoist is being reeled in. The line is attached to the hoist hook with a small loop of twine which will break if the line is pulled too hard.

Another man is now being prepared to descend to the deck. The first man on the deck is supervising the handling of the steadying line to assist the man on the hoist. The line is coiled so that when the sling is returned to the aircraft the line will feed out smoothly. The man is guided to a point on the deck well clear of any obstructions.

The sling and steadying line are then returned to the aircraft. The deck crew handle the line until it finally leaves the deck.

The helicopter would now return to its ship (or shore base if applicable) or conduct other tasks. It would return on call or at a predetermined time.

When the aircraft pilot is notified that the personnel are ready to be picked up, he once again contacts the vessel master to verify the ship's readiness, or hovers nearby and looks for a thumbs up signal.

Once the trawler is on a steady course and the men on deck are ready, the helicopter is positioned alongside the vessel. The line is lowered to the crewman below who retrieves it as it is passed to him. The line is used to guide the sling to the deck. As before the steadying line is handled with care.

One man puts the sling on and when he is ready the other signifies this to the hoist operator.

The man is lifted off the deck while being assisted by the deck crew using the steadying line. Once clear of the trawler, then he is allowed to move below the aircraft.

The sling is lowered to the deck of the trawler, where the deck crew uses the line to guide it down.

After the man is on the hoist he signals to the aircraft and is transferred to the helicopter, and the steadying line is retrieved.

Because the helicopter is hovering, a large range of relative wind directions and speeds are acceptable for hoist transfers. The main objective of the pilot is to keep the right side of the helicopter facing the vessel and to maintain visual contact with the vessel's superstructure. In general, almost any relative wind from the right side of the vessel is suitable for a transfer to the forecastle, and similarly, most relative winds from the left side of the vessel are acceptable for hoisting from the stern. The important point is that once the actual hoisting has commenced, the vessel must maintain a steady course.

#### CONCLUSIONS

This film has shown that transferring personnel by helicopter is quite practical, and that it can be a safe operation. The vessel was relatively small, and the range of obstructions was certainly representative of most fishing vessels.

The film clearly showed that the helicopter was always able to maintain adequate separation from all obstacles. The film also showed that in most instances the helicopter was not directly over the vessel. Even in the rare case of a severe mechanical problem the helicopter would be fully able to move clear without any hazard to the vessel. The aircraft itself is capable of floating upright in the water and the crew is well equipped with survival gear.

The Cape York and its crew had never before conducted operations with a helicopter and had no prior briefing as to what would be expected of them. They had no difficulty in grasping the essentials of the operation. It is not expected that seamen from other nations would have any difficulty.

Although the film was produced in very good environmental conditions, experience has shown that the hoisting procedures, and, in particular, the steadying line procedure, can often be used in sea states or ice conditions that could preclude the transfer of personnel by small boat. In addition, for a rescue operation in severe environmental conditions, the steadying line greatly simplifies the operation.

Communications are based on the premise of "keep it simple." Plain language can be used on radios, but radios are not essential. Plain language or a message on a message board in various languages, plus basic hand signals, would be completely adequate.

As seen in the film, when the steadying line is used the requirement for a large clear space is reduced. A small area near the rail would be sufficient.

It is no longer considered essential to have areas for hoisting specially marked with paint. The location could change with changes in relative wind direction and speed.

Manoeuvring requirements were discussed in the narrative to the film. Results of trials have shown that the relative wind restrictions are not as severe as originally thought. It would often be possible to conduct a transfer while the vessel is towing its fishing gear. When the vessel is free to maneuver, a more convenient course could be agreed upon between the helicopter pilot and vessel master.

A visual survey of a variety of vessels, ranging in size from 100 to 300 feet in length, has been conducted by helicopter crews over the last several months. It was concluded that a helicopter hoist transfer, using one of the techniques shown in the film, could have been conducted with complete safety in each case provided the seas were reasonably calm and the vessel crews cooperated with the helicopter crews.

#### RECOMMENDATION

Canada hopes that ICNAF member countries will give serious consideration to its proposal to use transfer by helicopter as one method of conducting inspections. Canada recognizes that, before the Commission can take such a decision, very careful consideration must be given to this new approach. It is for this reason that we prepared this film so as to ensure Commission members clearly understand the procedure involved. Canada considers that the steadying line technique overcomes many of the reservations that have been expressed during previous meetings.

In considering this proposal, Canada requests that member countries bear in mind that this procedure, if accepted and practiced, would lead to more effective coordination when a helicopter is available to assist in humanitarian purposes such as rescue at sea or other tasks as mentioned in the introduction.

Accordingly Canada invites member countries to consult, as necessary, with their technical experts prior to the next annual meeting in Havana in June 1976, as Canada expects at that time to be making a formal proposal for the adoption of this procedure as part of the ICNAF scheme of joint international enforcement. If any member country desires further information on the procedure, it is requested that such requests be forwarded to Canada by 15 April 1976 so that they can be taken into consideration when preparing the proposal.