

Technical Rescuer; ***Water Rescue***

Water Craft Operations

Objectives

- Demonstrate ability to:
 - Deploy
 - Launch
 - Operate
 - Anchor
 - Recover the watercraft
 - Demonstrate watercraft-based rescues and recovery techniques.

Objectives

- Demonstrate the process for :
- Inspecting proper hook-up of trailer
- Towing vehicle when towing a watercraft
- Demonstrate proper driving techniques.
- Demonstrate the proper pre-deployment
- Inspection procedures of trailer and watercraft.

Objectives

- Launch and recover watercraft used by (AHJ).
- Ability to handle watercraft in challenging conditions and during different rescue situations.
- Demonstrate techniques used during a watercraft-based search / rescue on open water & rivers.
- Demonstrate the techniques for extricating a victim from the water when using a watercraft.

Trailer



Inspecting Hook-up Of Trailer

- Hitch and ball assemblies of towing vehicle secure.
- Electrical connections secure and usable.
- Trailer hitch secure and locked on ball.
- Safety chains criss-crossed and securely attached.
- All trailer lights functioning.

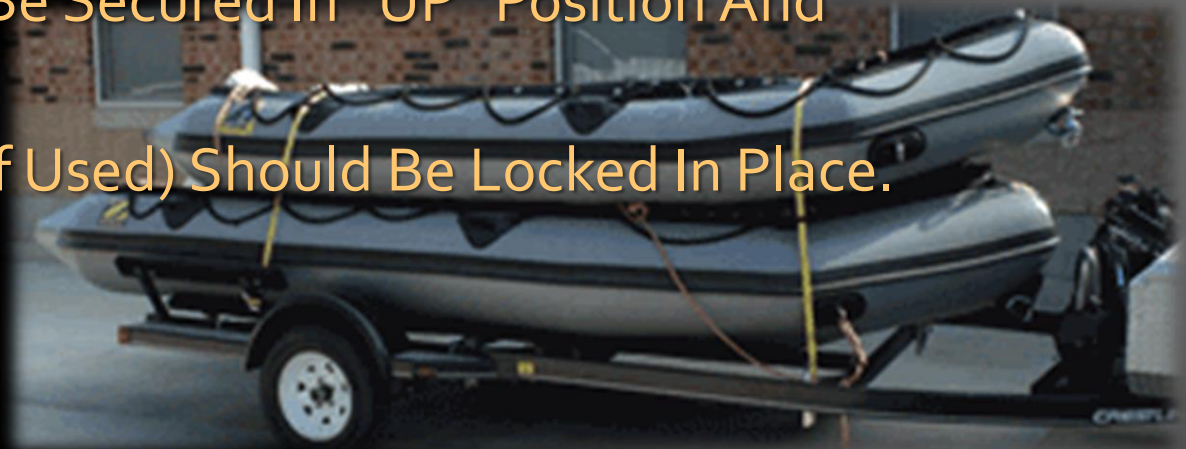
Inspecting & Operating The Towing Vehicle

- Mirrors Are Adjusted To Allow Full View Of Trailer And Watercraft.
- Driver Should Be Experienced In Towing Operations.
- AHJ Should Establish Criteria For Same.
- Driver Should Ensure Proper Placement Of Hands On Steering Wheel.
- Allow More Time and Distance For Braking.
- Maintain Farther Following Distances.
- Check Mirrors Often
- Use Signals When Changing Lanes

Pre-deployment Inspection For Trailer And Watercraft.

- **Inspecting Watercraft.**

- Watercraft Is Properly Secured To Trailer.
- If Double-bunking,(boat On Top Of Boat) Both Units Should Be Secured Individually And Together.
- Secure Equipment Inside Watercraft.
- Motor Is The Correct Size For That Craft
- Outboards Should Be Secured In “UP” Position And Locked.
- Transom Support (If Used) Should Be Locked In Place.



Pre-deployment Inspection For Trailer And Watercraft.

- **Inspecting Trailer**

- Trailer wheels are properly lubricated.
- Tires are properly inflated
- Lug nuts are secured
- Spare tire is secured.
- Loose straps are secured.
- Trailer lights are operable.
- Correct tongue weight for the trailer.

Launch And Recover Watercraft

- Prior to the launching watercraft.
- Allows wheel bearings to cool .
- Easier to load equipment on ground instead of water
- Be sure drain plug is in.
- Disconnect trailer lights.
- Slowly back trailer down ramp until watercraft is in water.
- Set parking brake and block wheels.
- Launch watercraft, maintain secure hold on bowline.
- [Launching The Boat Video:](#)

Recovery of watercraft

- Recovery of the watercraft is the reverse of the launching sequence.
- All equipment stowed out of the way for recovery of the watercraft.
- Slow approach to the ramp site.
- Hand-operated or powered retrieval to trailer.
- Decontamination and rehab of the watercraft may need to be done at the retrieval site.
- Recovering the craft

Boarding Watercraft

- Maintaining stability is a safety issue.
- Ensure that all personnel are equipped with PFDs prior to boarding.
- Keep body low and weight centered.
- If loading any items onto the craft, do so one item at a time.

Demonstrate proper docking procedures

- Docking procedures will vary depending on wind and water conditions.
- Docking will prove to be a difficult procedure for inexperienced operators.
- Motorized Crafts handle best by heading into the wind or current if possible.
- Plan on how you intend to dock.
- Have fenders, boat hook and/or a heaving line ready.
- When docking in current, slip sideways bit by bit towards the dock, pier or slip.
- Secure bow and stern lines.
- Docking The Boat

Watercraft Operations Vehicle in Water

- *When approaching a partially submerged vehicle that has been secured, it is recommended that if possible, the approach is made from the upstream into the current flow.*
- This is to prevent the watercraft and rescuers from getting caught by either if the current should suddenly move them.

Anchoring Procedures

- Ensure that the proper anchor type is being used for the bottom structure.
- Carry two different anchors styles.
- The depth of the water determines the Anchor Scope.
- Anchor Scope determines the amount of Rode (anchor line and chain) that should be used.
- Head craft into the wind or current.

Anchoring Procedures

- Lower anchor over the bow of the craft.
- Reverse travel and set anchor.
- Allow approximately $\frac{1}{3}$ of the rode to deploy, cut the engine, tie off the anchor line to a forward cleat and let out the remainder of the line.
- Never anchor a small watercraft from the stern.
- [Anchoring your boat](#)

Handling watercraft in challenging conditions.

- Watercraft's Trim (the way it floats).
- Watercraft must be stable to operate properly as it must be traveling faster than the water is flowing to maintain control.
- Equipment and personnel must be evenly distributed in the craft.
- Keep the bow light.
- Never exceed the craft's capacity.
- Rule of thumb for fuel usage is 1/3 out, 1/3 in, and 1/3 in reserve.

Proper Handling

- If you find yourself having an “out of craft experience” position yourself upstream of the craft to prevent being caught between the craft and any obstructions.
- *Understanding of the flotation capabilities of the watercraft and procedures for uprighting the craft.*
- *Overturnd boats in swiftwater are dangerous. Stay to the upstream side of the craft to avoid being caught between the craft and any obstructions.*

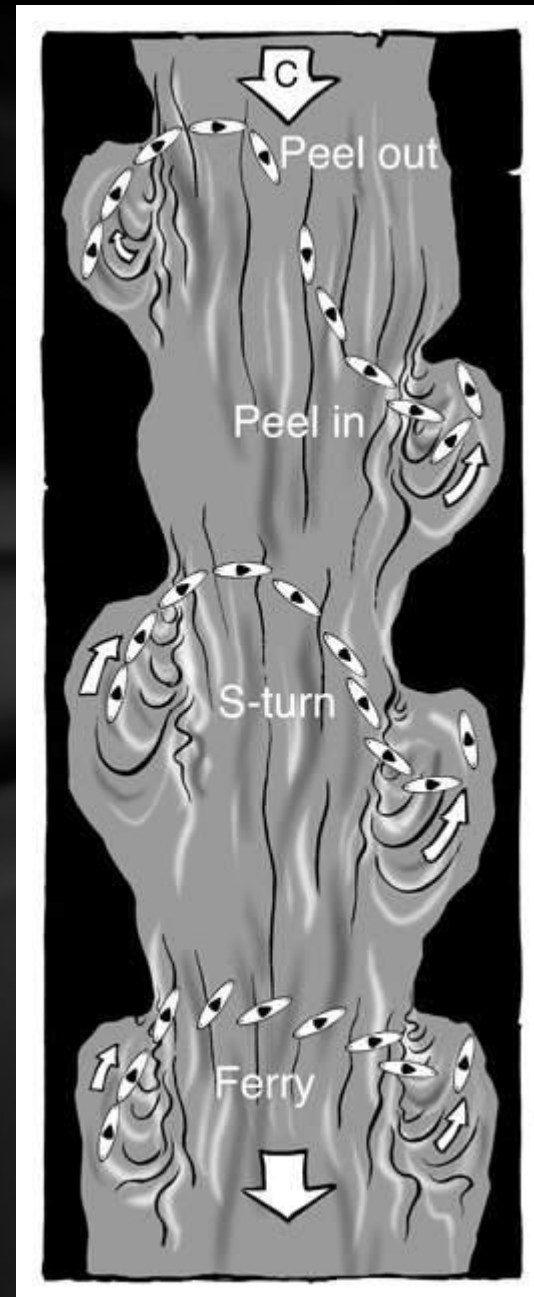
Entering an Eddy Punching the Eddy

- Approach from the upstream side.
- Begin turning into the eddy as the bow of the craft enters across the eddy line where the currents meet.
- Rescuers in the craft lean to the downstream side to allow the current to help with the turn.
- Allow the stern of the craft to swing downstream.
- Power / paddle upstream into the eddy.
- Catching the eddy

Eddy Peel-Out

- Approaching the rock from downstream side.
- Navigate the bow of the craft to the upper end of the eddy.
- Begin to turn the bow slightly away from the rock
- As the bow of the craft crosses the differential line, increase power and turn the craft downstream.
- Rescuers should lean towards the downstream side of the craft.
- Leaning upstream can flip the craft.
- Eddy Peel Out

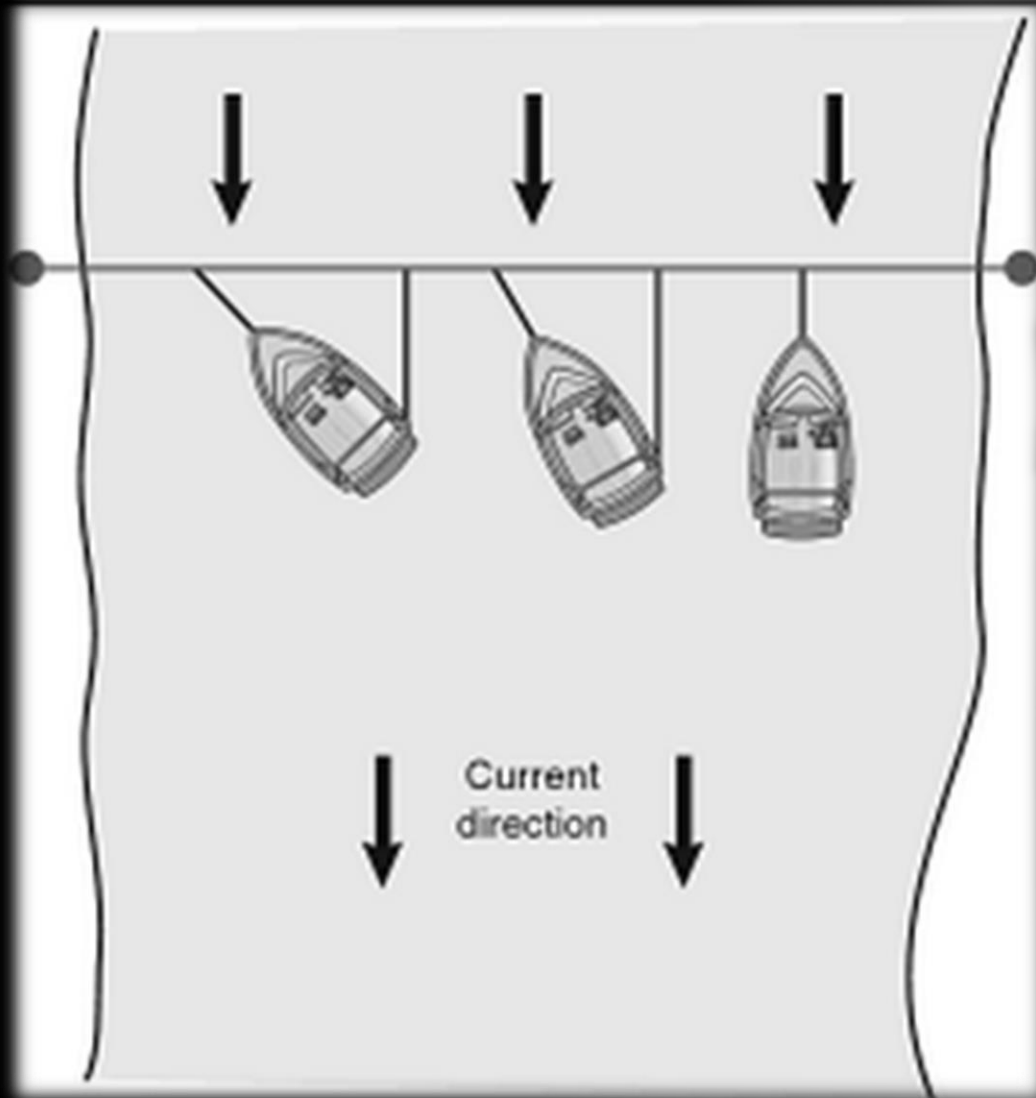
Eddy Peel-Out



Static Line: Craft Ferrying

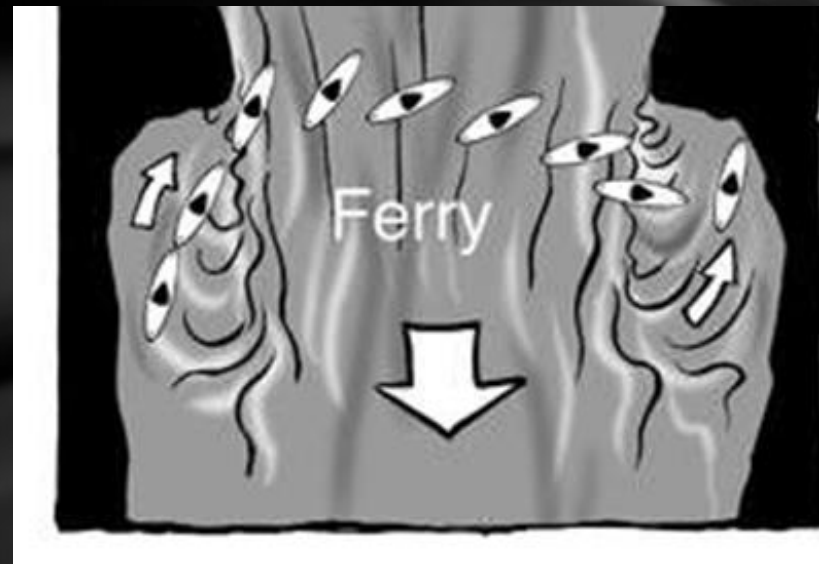
- *Utilizes the current (Force) of the water to move the craft from side to side into position for a rescue.*
- Static line is placed perpendicular to the shorelines.
- Two pulleys are attached to the static line.
- A short line (body cord) is attached to each pulley.
- The rescuer at the bow of the craft controls one pulley.
- The rescuer at the stern of the craft controls one pulley.
- The rescuer controlling the stern pulley shortens or lengthens the line to allow the current to push against the side of the watercraft and ferry it across the body of water.

Static Line; *Craft Ferrying*



Ferrying Paddle/ Powered Watercraft

- Launch craft from the shore with the bow pointing upstream.
- Maintain an angle of approximately 45 degrees with the bow of the craft to the current flow.
- Use only enough propulsion to maintain that angle and neutralize the force of the current.
- Do not try to move the craft upstream or downstream, only across the body of water.



Static-Line: *(Boat on highline)*

Watercraft-assisted rescue.

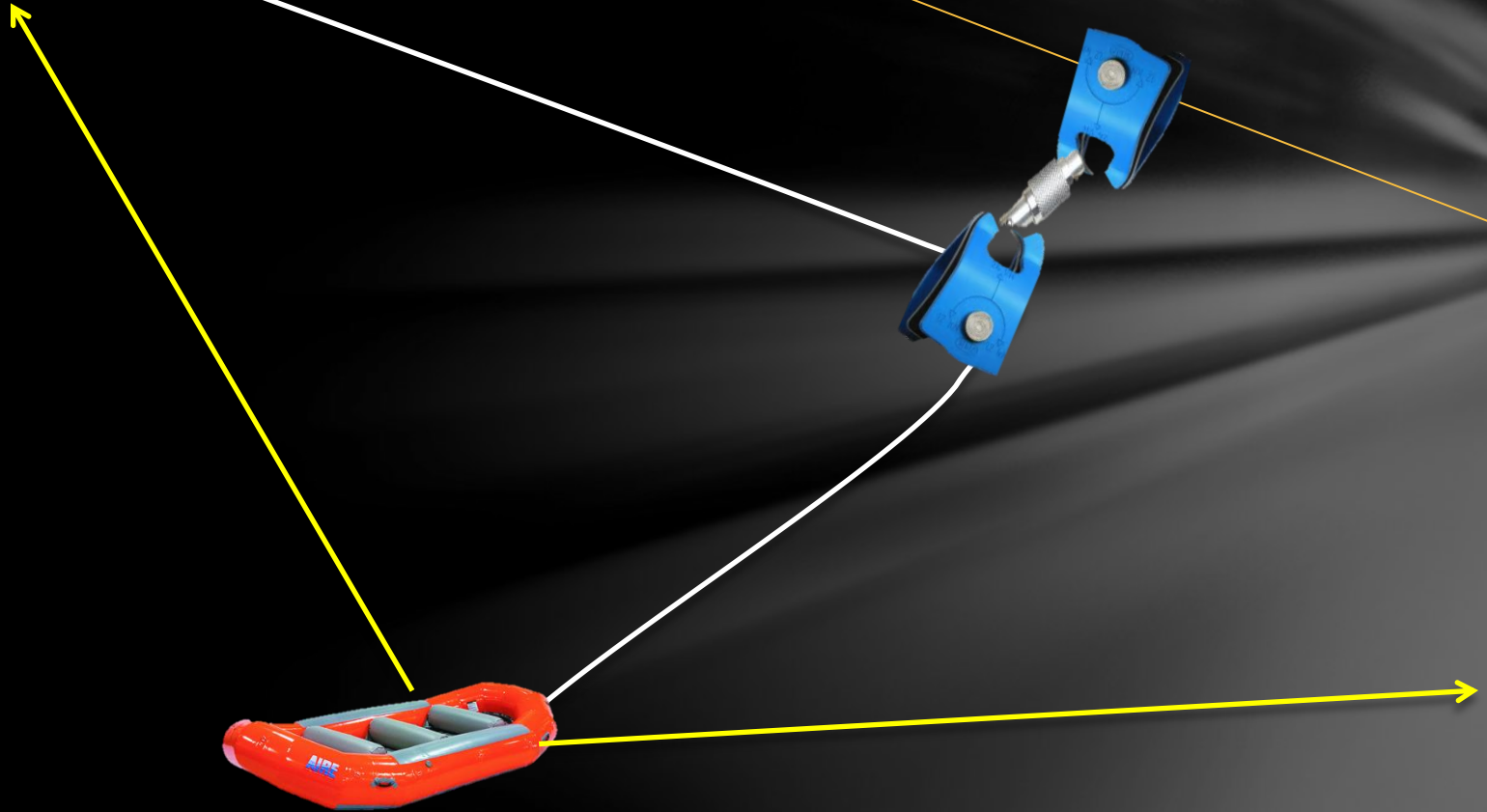
- Used when a shore-based rescue is not possible.
- Works well for bodies of water up to 300 feet wide.
- Fixed static-line across the body of water 15 to 20 feet upstream from the position of the victim and 2 to 4 feet above the surface of the water.
- Secure tag lines from each shore to the bow of the watercraft.
- Position pulley on the static/track line and
- Attach a second pulley to the carabiner hole of the first pulley.

Static-Line: *(Boat on highline)*

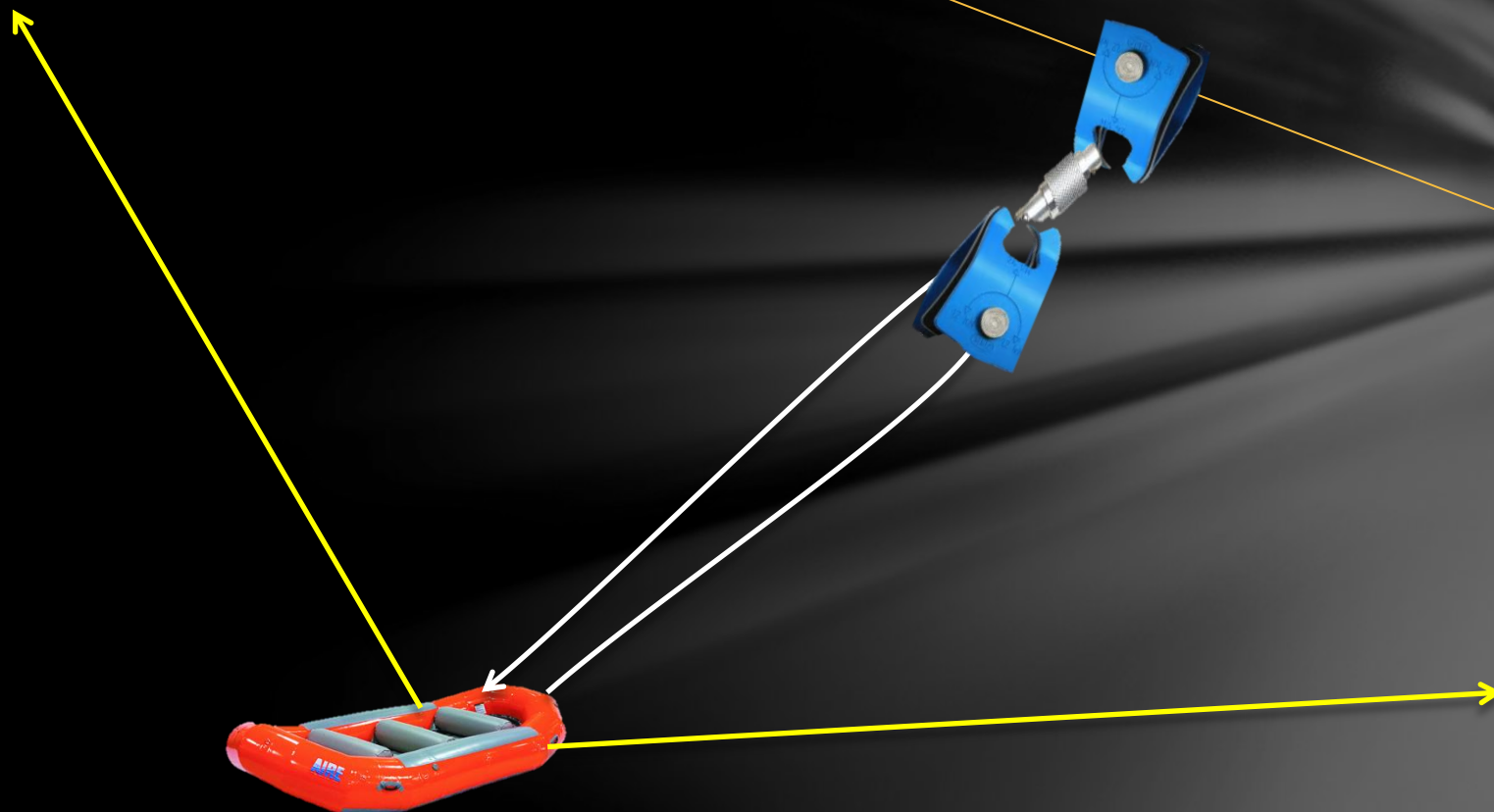
Watercraft-assisted rescue.

- Secure a line to the bow of the watercraft
- Thread it through the sheave of the second pulley.
- This line acts as a belay line and can be operated by a rescuer in the watercraft
- rescuers can control from shoreline to allow the rescue craft to float downstream, rescue a victim and then be pulled back upstream and onto shore.

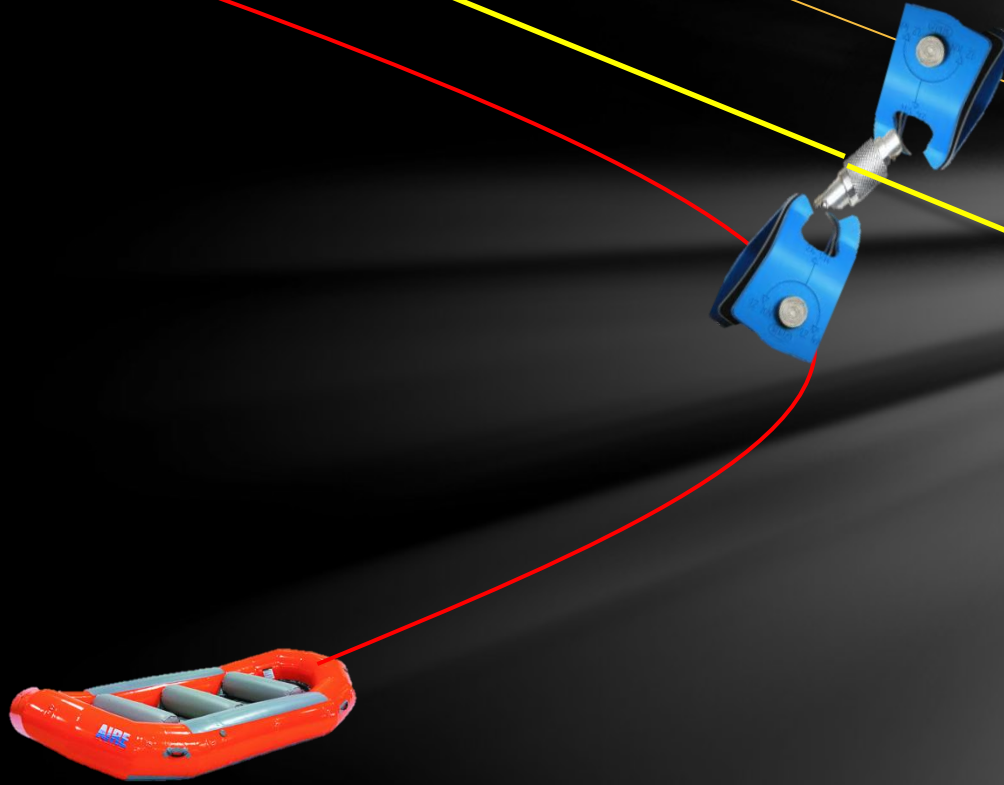
Option 1



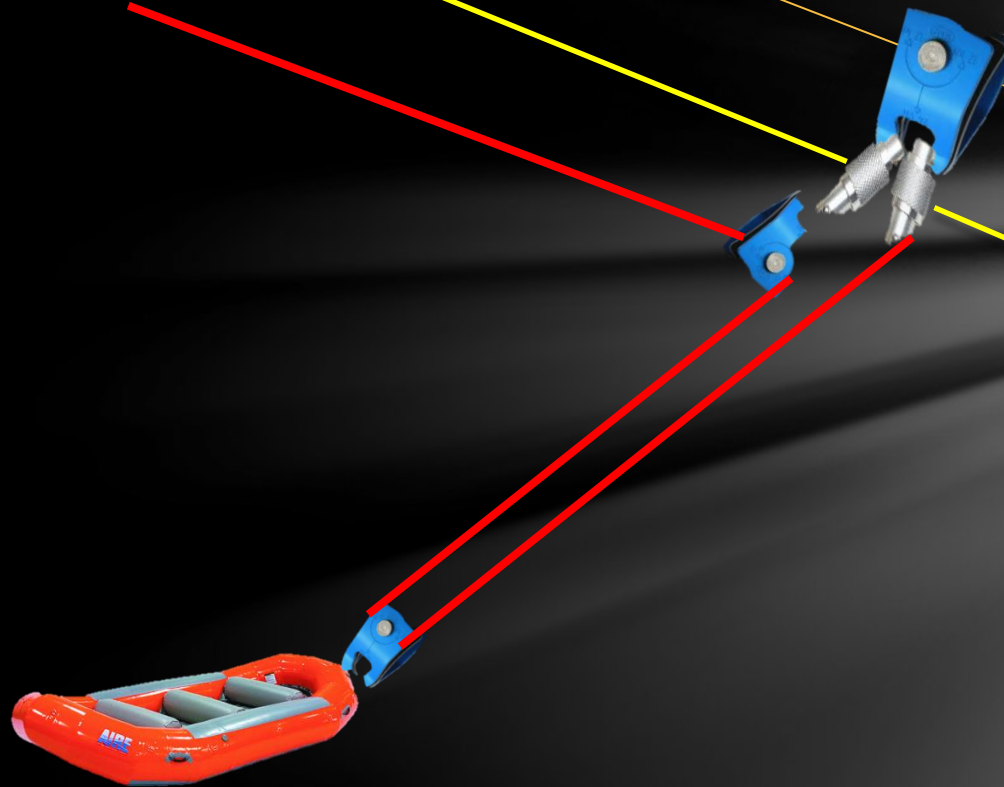
Option 2



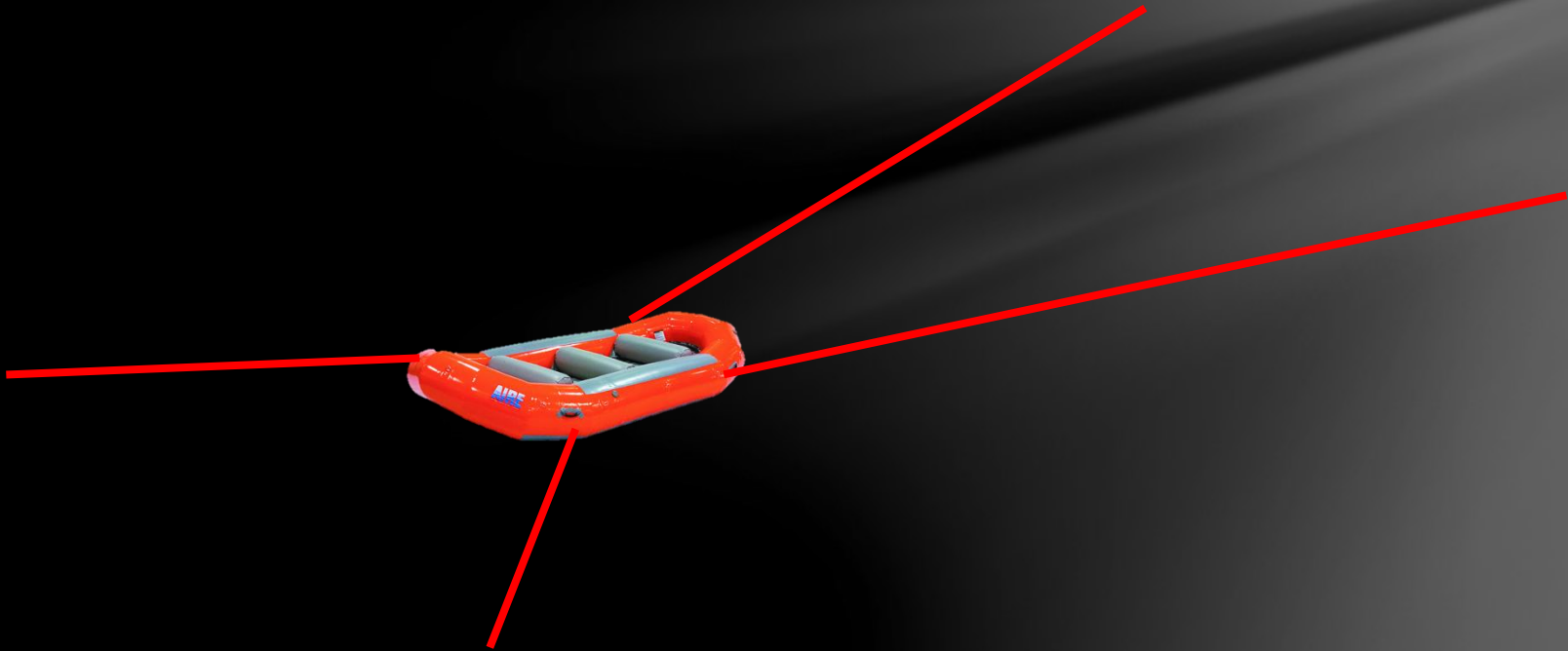
Option 3



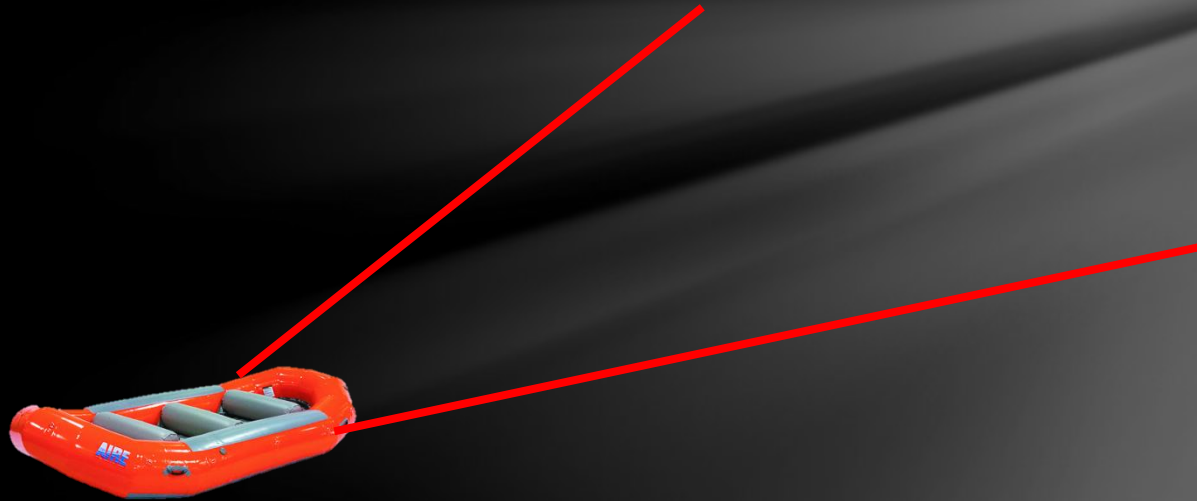
Option 4



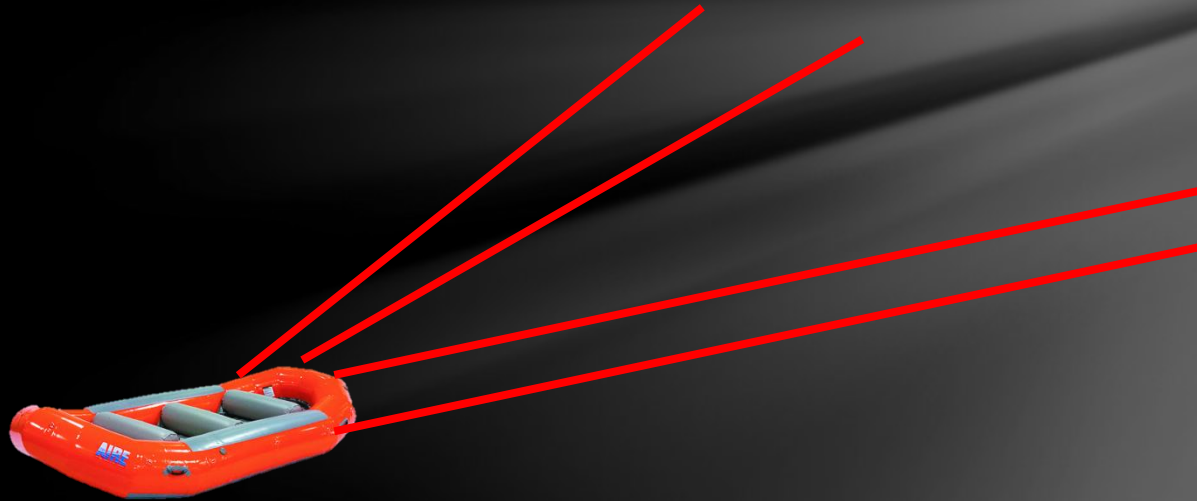
4 Point Boat on Tether



2 Point Boat on Tether



4 Point Boat on Tether



- Attendants on the shore maneuver the rescue craft across the body of water and into a position in-line with the victim using the tag lines attached to the bow of the rescue watercraft.
- Once the victim is in the craft it is pulled back to shore.

Two-Craft Tether Rescue

- Used for open water or approaching low-head dams.
- Requires the use of two watercraft.
- Rescue officer is positioned on shore, in-line with the boil-line.
- Downstream of the dam where he/she can use some type of communication to direct the operation

Two-Craft Tether Rescue

- Lead craft approaches the victim from the downstream side.
- Rescue officer directs lead craft to assure that it does not cross the boil-line.
- Lead craft is tethered to a second craft located 50 to 100 feet downstream.
- Using throw bags and flotation devices, rescuers in lead craft will attempt to retrieve the victim.
- If the lead craft is in danger of being pulled into the boil line, the second watercraft downstream then proceeds to pull the lead watercraft back downstream away from the boil line and to safer waters.

Open Water; Watercraft-based Search / Rescue

- Search In Inaccessible Areas
 - Drop-offs, Ledges, And Heavy Debris.
 - Use Several Cross-search Patterns For Drop-offs.
- Use Of Sonar Graphs And Divers To Enhance The Search Effort.
- Slow Movements Through A Search Area Allow Sonar Graphing To Be More Effective.

Open Water; Watercraft-based Search / Rescue

- Watercraft operators should move slowly over search areas when using grappling hooks and drags so that these devices will stay in position during the search.

Open Water; Watercraft-based Search / Rescue

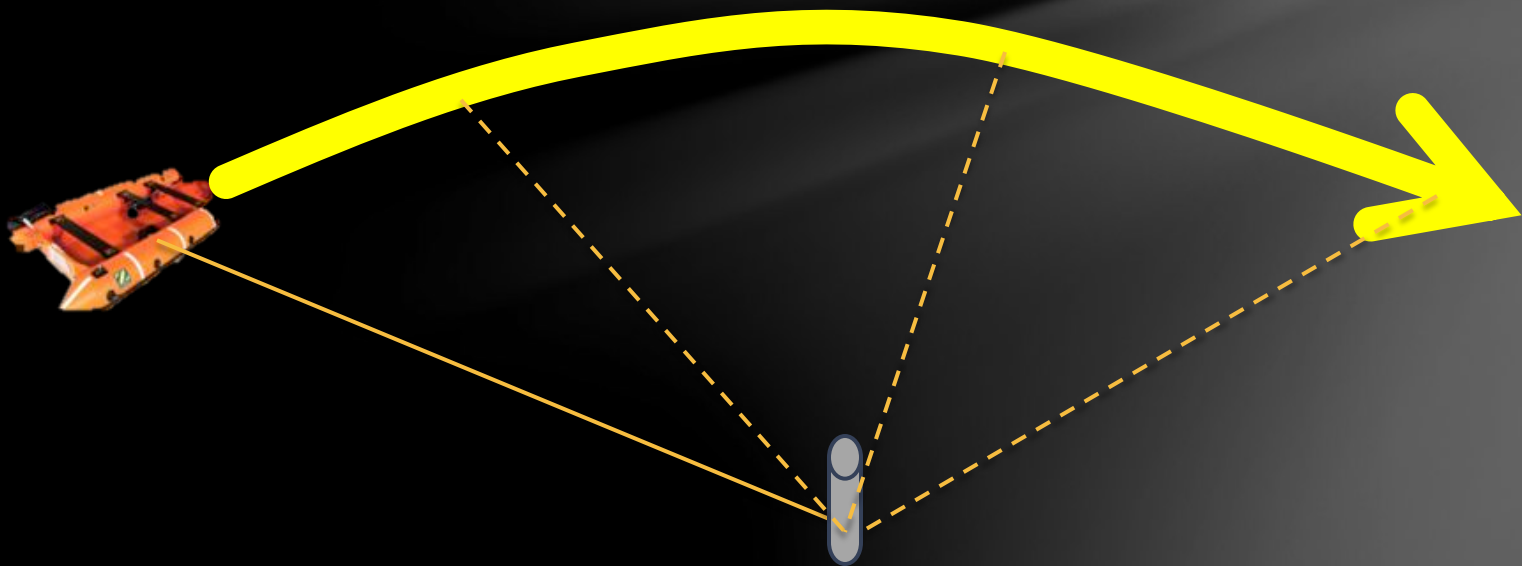
- **Circular Search Pattern.**
 - Search pattern used from the shore.
 - Tie a line to an anchored watercraft or to a spot on the shoreline.
 - The anchored watercraft allows for a full circle search pattern to be used while the shoreline anchor allows for a semi-circle type search pattern.

Open Water; Watercraft-based Search / Rescue

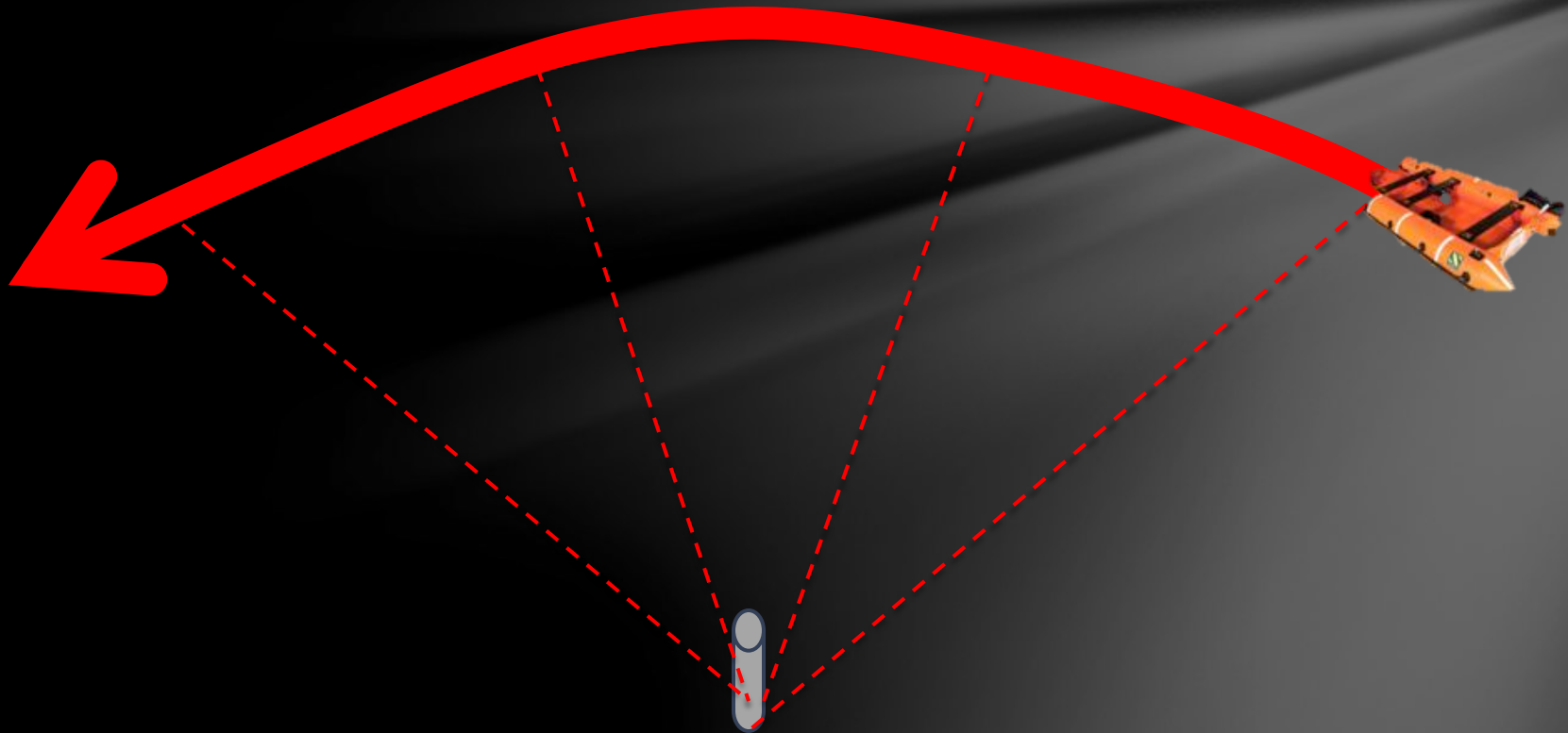


- **Circular Search Pattern.**
 - A predetermined length of line is deployed for each consecutive search sweep.
 - Overlap on the search sweeps.
 - Marking the line prior to each sweep is an easy way to keep track of the search area.
 - This can be accomplished with plastic marking tape or by tying a knot in the line

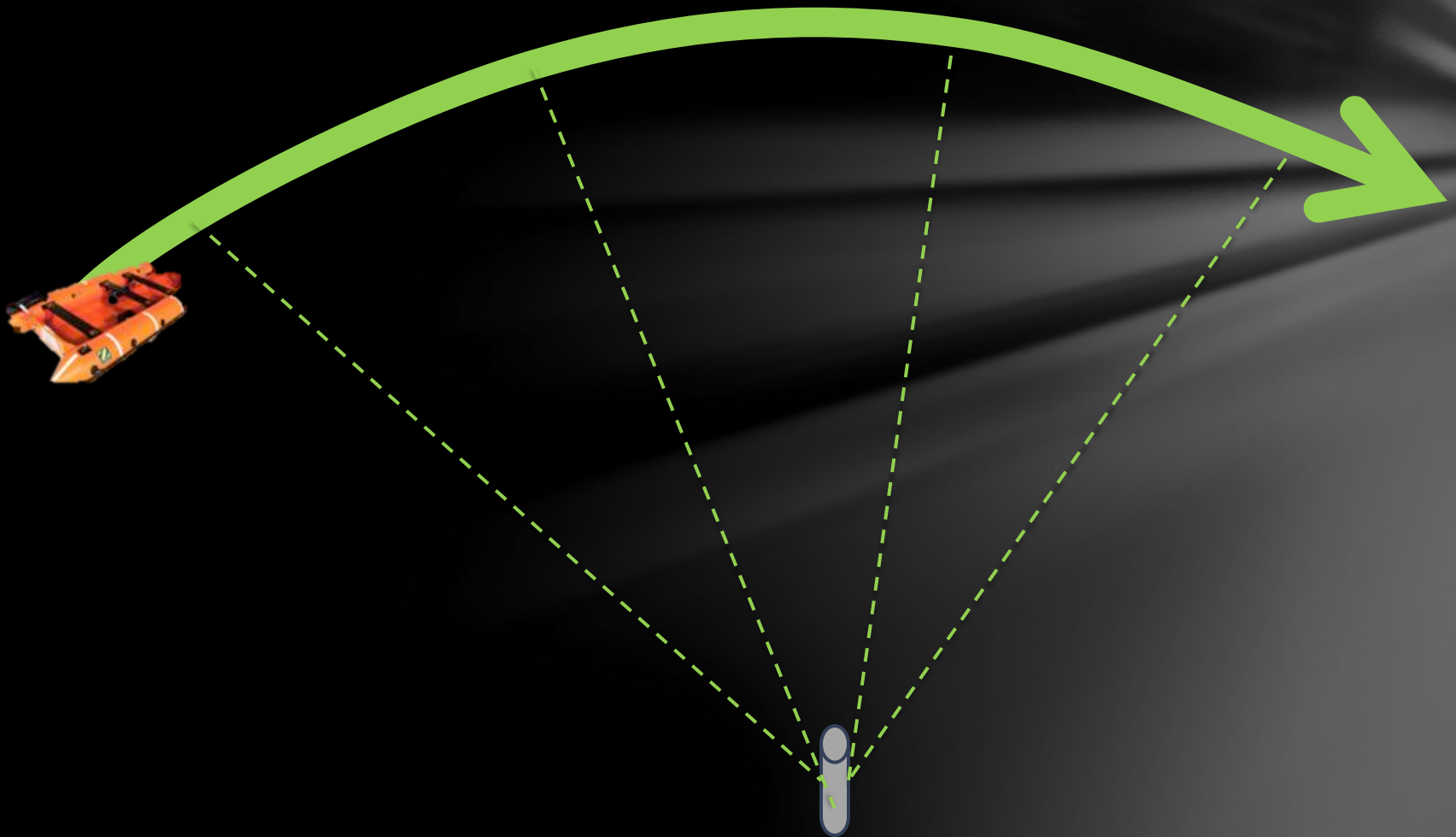
100' From Shore



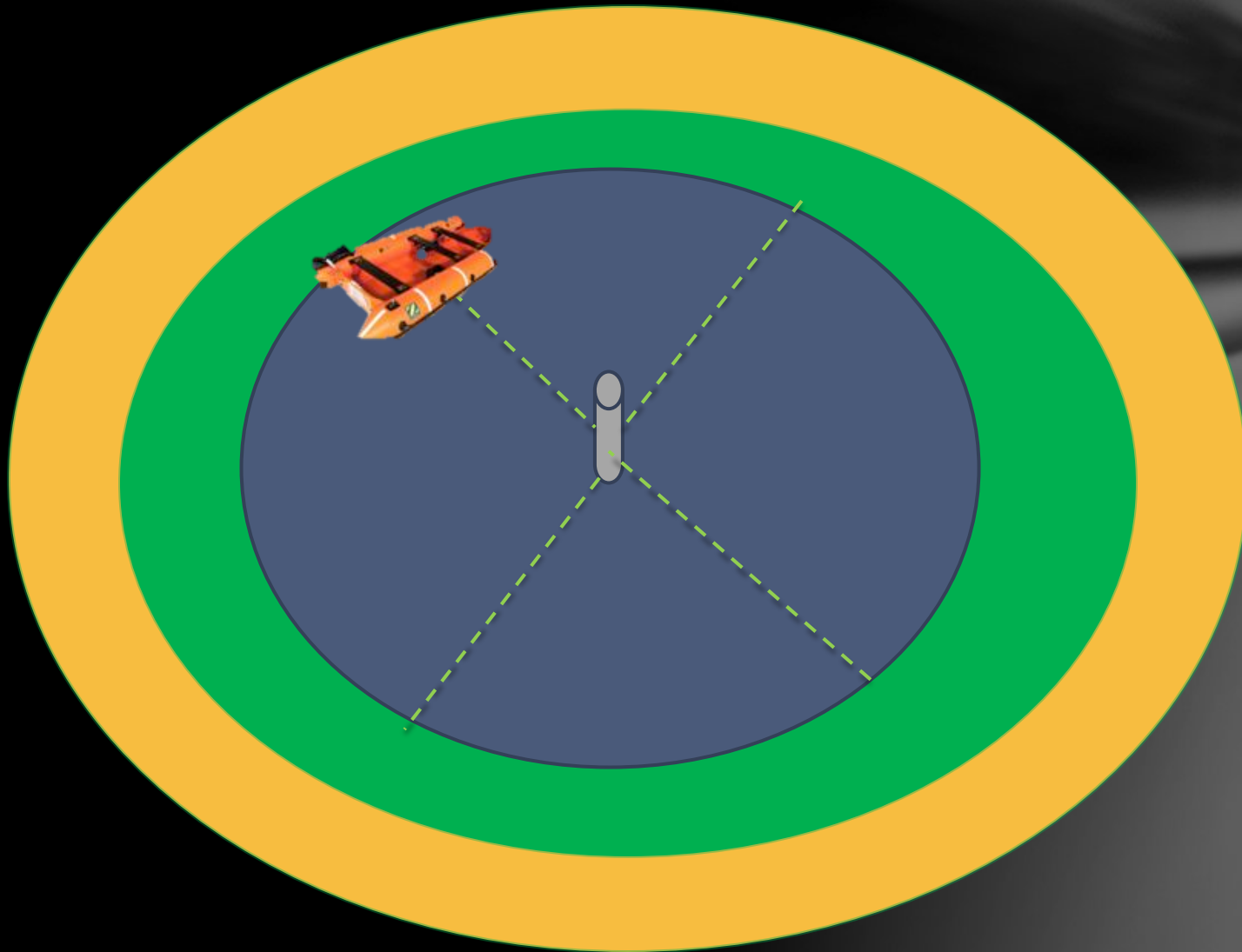
120' from Shore



140' From Shore



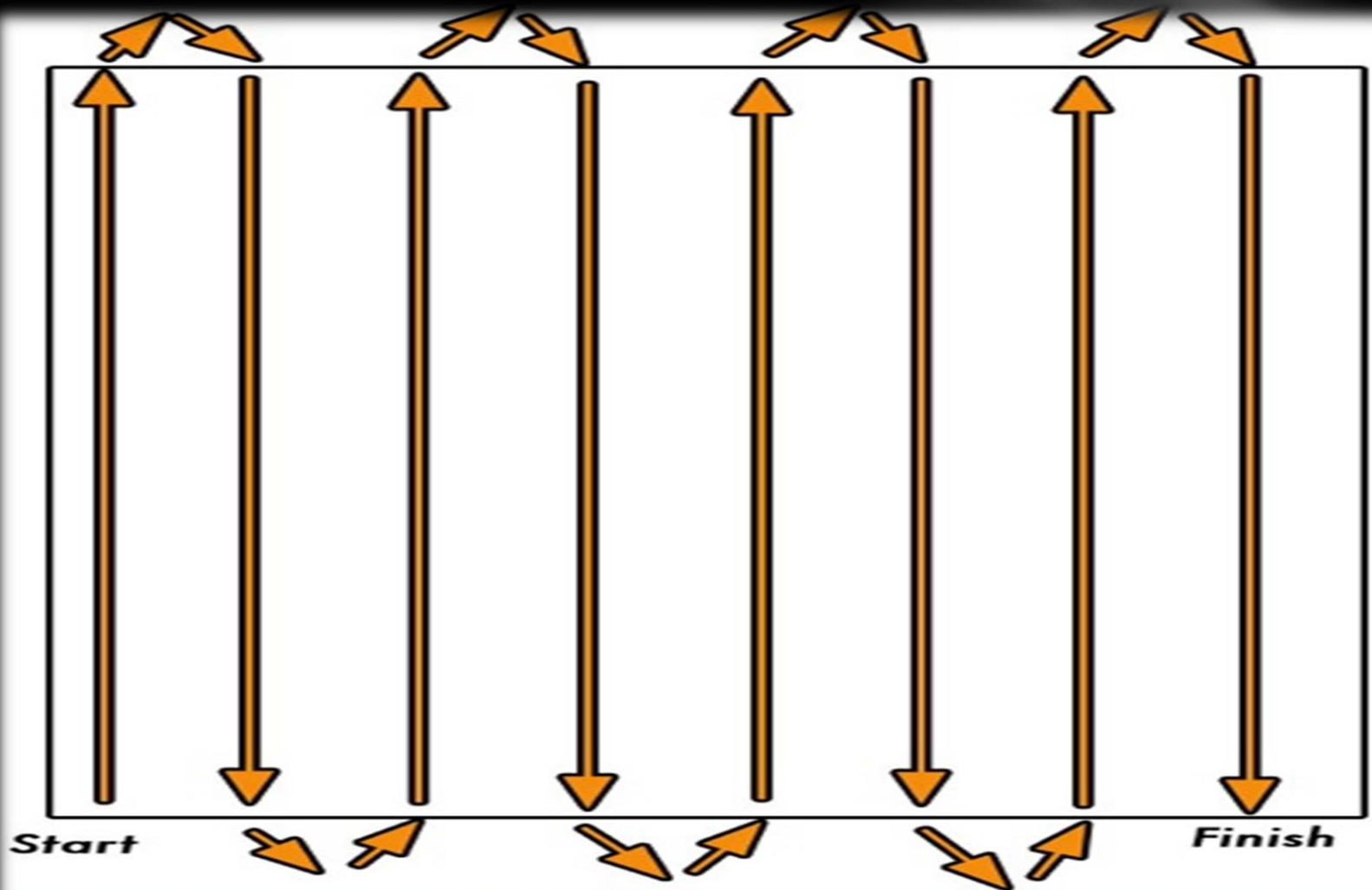
Circular Search From Vessel



Parallel Track Line

- Search legs are run parallel to the long side of the search area in a Search Pattern.
- *This type of search pattern should only be used when the victim's Point Last Seen (PLS) is approximate.*

Parallel Track Line



Grid SEA 075-B

Expanding Search Pattern

- Used when the victim's PLS has been established.
- The first leg of the search is done in the direction of the wind drift and/or current flow.
- Course changes are made at 90-degree angles and all in the same direction, right or left.

Wind Direction



Shoreline Search

- Dogs
- Strainers
- Eddies
- Deep pools with pike poles or long grab hooks.
- Hydraulics
- Maintain a safety boat downstream during all search operations.

Watercraft-based Search On A River

- Establish the victim's Point Last Seen
- Determine the area to be searched at one time.
- Obstacles in the river or changes in the current flow may dictate area covered.
- Establish two static lines.
 - One static line is placed at the start of the search area.
- The second static line is placed downstream of the starting point & serves as a safety for watercraft that may get into trouble

Watercraft-based Search On A River

- A safety watercraft should be positioned downstream from the second static line to serve as a downstream safety.
- Place the watercraft abreast at the starting point and sweep the search area.
- The number of sweeps in an area will be dependent on how many watercrafts are available in relationship to the width of the river.

Watercraft-based Search On A River

- Rivers may have shorelines great distances apart. Consider using:
- Circle search
- Parallel track-line search
- Expanding search

Extricating A Victim From The Water

- *Stirrup Method of extricating a victim from the water.*
 - *Used for conscious victims.*
 - Tie small loops into a web or rope sling.
 - attach the sling to the opposite side of the craft from retrieval side.
- Rescuers not assisting with victim extrication should be positioned on the opposite side of the craft.

Par buckling

- Blanket, Net or Rope (Method) of extricating a victim from the water.
- May be used for conscious or unconscious victims.
- Position and secure one end of a blanket, net or ropes (minimum of three) inside the rescue watercraft.
- This method is not recommended for victims with suspected neck or back injuries

Parbuckling

- Victims with suspected neck or back injuries should be first stabilized in the water with an appropriate stabilization device (e.g., Miller Body Splint, Floatable Backboard, and Scoop Stretcher) before attempting to load the victim into the rescue craft.
- [Parbuckling Video](#)