

Slips, Trips, Falls

Go Back to Hazard Summary

Warning Signs and Symptoms

- Oil or Slick Substance on Deck
- Unstowed Equipment on Desk
- People Standing on Boat When Underway
- Rough or Choppy Conditions
- Loose Tieup to Dock

Causes

- Poor Footing Resulting in Fall

Potential Effects

- Fall Overboard, Blunt Trama From Falling

Mitigation

- Stow All Gear on Boat Unless Actively Using
- Regularly Clean Deck With Non-Skid Cleaner
- Contain All Fluids in Approved Containers
- Maintain Open Deck Space In High Traffic Areas
- Grab Bars for Holding Onto Boat (Large Boats)
- Grab Line on Inflateable Section of Boats
- Safety Advisory to Sit on Boat Always Have One Hand On Boat When Underway
- Boat Held or Tied to Dock When People Enter / Exit
- Assist Non Team Members When Boarding and Departing Boats

Tasks Needed

Snapped Tow Line

Go Back to Hazard Summary

Warning Signs and Symptoms

- Small Tow Line

- Dynamic Loading on Tow Line

- Inexperience Driver on Towing Boat

- Poor Deck Hardware for Towing

- Old Tow Line

Causes

- Tow Line Breaks and Snaps Into Personnel on Boat

Potential Effects

- Trauma, Injury Due to Line Snap

Mitigation

- Use Tow Line Capable of Transmitting Load + Safety Factor

- Use Towing Guidelines (Line Under Water)

- Use Side By Side Towing Guidelines

- Call for Commercial Tow

- Training on Towing With Lightly Loaded Boats

- Row Disabled Boat With Paddles Instead of Tow

- Inspect Boat Hardware (Fiberglass Intact, Backing Plates on U Bolts) of Both Boats

- Slow Speed Down During Tow

- Assign Person to Watch Tow Line / Craft

- Personnel Not in Line With Tow Rope

- Inspect Tow Line Regularly

- If Poor Deck Hardware Use Boat Structure for Solid Anchor Point

- Until Proper Equipment / Training - Only Side by Side Tow for RIB

Tasks Needed

- Obtain Tow Line

- Plan for Tow Kit

- Inspect U Bolts on Boats

- Training on Towing Operations

- Guidesheet for Towing

Collision With Another Boat

Go Back to Hazard Summary

Warning Signs and Symptoms

- Boats Operating in Tight Area
- Boats Operating Close to Each Other
- Inexperience Driver or Lookout
- High Speed Operations
- Poor Visibility
- Poor Navigation (Lost)
- Distracted Driver / Lookout
- Boat Operating in High Traffic Area
- Lax Command
- Sense of Urgency

Causes

- Boat Hits Another Boat

Potential Effects

- Loss / Damage to Equipment, Personnel Stranded or Thrown Into Water, Trauma

Mitigation

- Space Out or Assign Area for Boat During Practice
- Regular Driver Training With Emphasis on Spacing
- Personnel Training in "Rules of the Road"
- Lookout Training
- Maintain Separation of Boats During Operations
- Slow Speed When in Doubt or In Close Proximity to Other Boats
- Delay Operations During Poor Visibility / High Traffic Times
- Training on Navigation, Good Navigation Plan
- Reduce or Eliminate Distractions for Driver
- Inflatable Sponsons Mitigate Slow Speed Bumps (Coming Along Side)
- Safety Briefing Before Operations
- Boat Assignment Areas Written Into Training Plan

Tasks Needed

- Continue Driver Training
- Continue Navigation Training / Planning

Collision With Fixed Object

Go Back to Hazard Summary

Warning Signs and Symptoms

- Boats Operating in Tight Area
- Boats Operating Close to Each Other
- Inexperience Driver or Lookout
- High Speed Operations
- Poor Visibility
- Poor Navigation (Lost)
- Distracted Driver / Lookout
- Boat Operating in High Traffic Area
- Known Fixed Objects In Area
- Known Submerged Objects in Area
- Dynamic Water

Causes

- Boat Hits Fixed Object

Potential Effects

- Loss / Damage to Equipment, Personnel Stranded or Thrown Into Water, Trauma

Mitigation

- Assign Area for Boat During Training
- Driver Training Maneuvering Around Floating Course
- Personnel Training in "Rules of the Road"
- Lookout Training
- Communication With Hand Signals Identifying Direction / Objects Pointed Out
- Slow Speed When in Doubt or In Close Proximity To Objects
- Delay Operations During Poor Visibility / High Traffic Times
- Training on Navigation, Good Navigation Plan
- Reduce or Eliminate Distractions for Driver
- Inflatable Sponsons Mitigate Slow Speed Bumps
- Safety Briefing Before Operations
- Spotlight On Boat

Tasks Needed

- Continue Driver Training
- Continue Navigation Training / Planning
- Practice Docking, Leaving Dock

Broken Levee - Swiftwater

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Warning Signs and Symptoms

- Flood Conditions
- Weakened or Overflowing Levees
- Fast Moving Water
- Levee Failure in Other Areas
- Rising Flood Waters
- Rising Water or Surge From Upstream (Dam Release)

Causes

- Sudden Swiftwater Conditions Due to Failed Levee

Potential Effects

- Drowning, Trauma, Loss of Equipment

Mitigation

- Leave Area If Able
- Driver Training in Swiftwater Conditions
- Equipment / Staging on Bank or Place Out Of Danger of Water Surge
- Personnel in Possible Hazard Area With Proper PPE
- Personnel in Possible Hazard Area With Survival Swimming Training
- Warning System for Levee Failure Upstream (Spotter, Radio Update)
- Preplanned Safe Zone to Run To
- Boats Equipped for Swiftwater Conditions
- Safety in Place Downstream If Appropriate
- Preplanned Regrouping Point If Become Separated
- Limit Personnel in Hazard Area At All Times
- Safety Briefing Before Operations
- Flood Maps And Water Flow Hazard Areas

Tasks Needed

- Continue Driver Training
- Guidelines for Sandbagging, Working in Possible Levee Break Areas
- Flood Maps and Levee System of Local Area

Victim in Car in Water

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Warning Signs and Symptoms

- Car in Streambed
- Road Covered With Fast Moving Water
- Flood Conditions With People Driving on Road
- Poor Traffic Control

Causes

- Car Driven into Water or Swept Away by Flood Waters

Potential Effects

- Drowning, Trauma, Loss of Equipment

Mitigation

- Decide if Rescue or Body Recovery
- Stabilize Car
- Talk to Victim - Let Victim Self Rescue If Able
- Post Upstream Spotter
- Post Downstream Safety
- Risk Vs Gain for Endangering Rescuers
- Wait Until Flood Waters Recede
- Block Roads / Hazard Areas for Unsafe Roads
- Rope Rescue Utilizing From High Line System
- Handoff to Helicopter With Experienced Crew
- Limit Personnel in Hazard Area At All Times
- If Use Boat Approach From Downstream and To Side If Able
- Protocol of Will Not Submerge Rescuer to Attempt to Get Victim Out
- Hookup Car to Tow Truck and Tow Out Everything in Still Water

Tasks Needed

- Standards for Creating High Line Systems on Cards
- Additional Helicopter Techniques Training

Forced Entry From Boat

Go Back to Hazard Summary

Warning Signs and Symptoms

- Crash of Aircraft / Car into Water

- Missing Victim(s)

- Strainers in Waterway

Causes

- Person Trapped in Wreckage or Pinned by Force of Water and Requiring Extrication

Potential Effects

- Trauma Due to Power Tools, Hazmat, Exposure Cuts to Sharp Edges, Fire

Mitigation

- Decide if Rescue or Body Recovery

- Stabilize Structure / Vehicle if Able

- Talk to Victim - Let Victim Self Rescue If Able

- Post Upstream Spotters / Downstream Safety Personnel

- Risk Vs Gain for Endangering Rescuers

- Use Proper PPE (Leather Gloves, Helmets, Safety Glasses)

- Use Proper Water PPE (Dry Suit)

- Training on Aircraft Rescue / Car Extrication

- Respond Upwind If Able To If Possible Hazmat

- Deploy Shoreside Support and Hazmat Group Early - Decon in Place

- Backup Boat Ready For Rescuer Safety

- Non-Sparking and Hand Tools Preferred

- Work From Bank If Able

- Deploy Medical Transport Unit Early

Tasks Needed

- Training on Aircraft Breaching Techniques

- Training on Breaching in Water Conditions

Boat Drifts Off

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Warning Signs and Symptoms

- Loosely Tied Lines
- Boat Only Pulled Up On Bank (Not Tied In)
- Poor Connection to Dock or Mooring
- Windy Conditions or Moving Water
- Inexperience Person Tying Boat Up
- Anchor Set

Causes

- Boat Floats Away Due to Poor Attachment to Dock Or Bank

Potential Effects

- Loss of Equipment, Stranded Rescuer, Embarrassment

Mitigation

- Bow and Stern Line on Boat
- Training on Tying Into Cleats
- When Pull Boat Onto Shore, Picket Bow Tie in as Well
- Inspection of Boat / Mooring Before Leaving Boat
- Boats Work in Pairs - Go Get Drifted Away Boat
- Training On Anchoring
- Store Boats on / in Trailers

Tasks Needed

- Training on Tying Into Cleats
- Guideline / Training on Mooring Boats
- Training on Anchoring

Flipped Boat During Maneuver

Go Back to Hazard Summary

Warning Signs and Symptoms

- High Speed Turns in Waves
- Inexperienced Operator
- Choppy or Surf Conditions
- Swiftwater Conditions
- Inexperienced Deckhand
- Overloaded Boat
- Deflated Bladders
- Unbalanced or Shifting Weight in Boat
- Not Coming Out of Turn in Small Boat

Causes

- Boat Flips

Potential Effects

- Loss of Equipment, Stranded Rescuer, Trauma of Boat Hitting Rescuer

Mitigation

- Still Water Training on Turns / Handling
- Deckhand Training on Turning
- Swiftwater Boat Handling Training
- Design of RIB Allows for Stable Conditions Even Under Tight Turns
- Training In Swimming Pool for Boat Flip Drills (Small Boats)
- All Drivers Lanyard to Motor Kill Switch
- Inspection and Care of Bladder Sections
- All Loads Secured on Boat
- Rerighting Boat Drills
- Boats Operating in Pairs On Extended Missions
- Safety Briefing on What To Do If Boat Flips
- Waterproof Radios Used With Water Rescue Team
- Survival Swimming Training
- Swim Testing of Water Team
- Rescuer PPE
- Lifejackets Worn At All Times
- Thermal / Insulation Gear Worn / Available as Needed
- If In Doubt, Tell Driver to Slow Down

Tasks Needed

- Complete Swiftwater Driver Training
- Continue Driver Practice

Personell Thrown Out Of Boat

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Warning Signs and Symptoms

- High Speed, Peel or J Turns
- Inexperienced Operator
- Choppy or Surf Conditions
- Swiftwater Conditions
- Foot or Seat Straps in Poor Condition / Broken
- Too Many People on Boat
- Swiftwater Victim Pickup
- Cluttered Deck
- Deckhand / Passengers Distracted

Causes

- Person Ejected From Boat

Potential Effects

- Rescuer Left Behind, Trauma of Hitting Water or Side of Boat

Mitigation

- Safety Briefing for All New Passengers
- Grab Bars, Foot Straps, Seat Hold Straps
- Grab Lines on Inflatable Sections
- Bench Seating for Rescuers / Transport People
- Slow Down in Choppy Conditions
- Sit Down When Boat Under Way
- Driver Calls Out Turns Or Intentions Before Executing
- Training on Turns / Deckhand Movements on Boat
- Practice of Passenger Pickup Techniques
- Boats Operating in Pairs On Extended Missions
- Safety Briefing on What To Do If Thrown Out of Boat
- Waterproof Radios Used With Water Team
- Survival Swimming Training
- Swim Testing of Water Team
- Rescuer PPE - Lifejackets at All Times When Underway
- Lifejackets Worn At All Times
- Thermal / Insulation Gear Worn / Available as Needed
- If In Doubt - Tell Driver to Slow Down

Tasks Needed

- Complete Swiftwater Driver Training
- Continue Driver / Deckhand Practice