INTRODUCTION

This Safety Bulletin establishes Department policy and procedures for working safely on, near or over water. It is based on Occupational Safety & Health Administration (OSHA) and American National Standards Institute (ANSI) standards for Personal Flotation Devices (PFDs) aka life preservers, Personal Protective Equipment (PPE), fall protection, barges and floating work platforms, skiffs and life saving boat requirements. These procedures and policies have been established to meet regulatory requirements and in recognition of the particular risks associated with working in proximity to water. The procedures shall be carefully reviewed by Program Management in consultation with Employee Safety & Health prior to beginning work.

DEFINITIONS

**Active (Personal) Fall Arrest System** – System used to arrest an employee in a fall from a working level that requires physical activation by that employee to make it effective, consisting of an anchorage point, connectors, body harness and lanyard.

**Aerial Lift** - A piece of equipment, extendible and/or articulating, designed to position personnel and/or materials in elevated locations.

**Competent Person** – a person who is capable of identifying existing and predictable hazards in their surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate or limit exposure to the hazard(s).

**Controlled Access Zone (CAZ)** - Area where a recognized hazard exist requiring demarcation by a competent person through the use of signs, wires, tapes, ropes, chains, or other devices. All protective elements of the CAZ shall be implemented prior to beginning work.
Working in Proximity to Water

Floating Work Platform - A stable work platform or barge capable of safely supporting workers, equipment, and materials necessary to perform work.

Full Body Harness - ANSI approved personal protective device designed for fall protection, which by reason of its attachment to a lanyard or retractor and safety line or structure will limit a fall to 6' or less.

Lanyard - ANSI approved line designed for supporting one person, with one end fastened to a full body harness, and the other end secured to a safety line or structural member. Lanyards shall not exceed 6' in length, and preferably include a retractable or deceleration device to attenuate fall impact.

Motorized Equipment - Any specialized, motor-driven equipment used in an operation that includes, but is not limited to, aerial lift devices, fork lifts, drill rigs, cranes, excavators, etc.

Passive Fall Protection System - System used to prevent a fall from a working level that does not require immediate action by an employee, such as guardrail, midrail, toe board, shielding or safety nets.

Personal Flotation Device (PFD) - PFDs (life preservers, life jackets, or flotation vests) worn by each affected employee must be United States Coast Guard (USCG) approved pursuant to 46 CFR part 160 (Type I, II, III, or V PFD) and marked for use as a work vest, for commercial use, or for use on vessels.

Positioning Device - Harness system designed to allow an employee to be supported on an elevated vertical surface, work with both hands free, and limit a free fall to 2' or less.

Qualified Person - A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Ring Buoy - A throwable flotation device 30-inch (0.76 m) in diameter. A USCG approved ring life buoy with a line attached shall be located on each staging and/or readily available on a floating vessel on which work is being performed.

Restraint Device - Harness system designed to keep an employee within a passive fall protection system.

Life Line - A ¾ inch polypropylene line anchored by means of physical attachment capable of withstanding a load in excess of 5000 lbs., and draped in a fashion that the line lays in the water down stream from the work performed/assigned, at a distance that may be reached within 15 seconds notice by the Safety Watch person. The line shall be either yellow or multi colored and
shall be maintained free of knots, kinks, or abrasions and/or discoloration caused by Ultra Violet (UV) damage.

*Rescue Skiffs* - A flat bottomed small craft with one end pointed and a hard transom capable of safely supporting a motorized propulsion device.

*Water Rescue Pole* - A manufactured pole made for land or boat-based water rescue recovery operations. The rescue pole often prevents water rescue responders from risking their life by entering dangerous fast-moving waters. Water rescue poles are typically designed with a blunt or rounded hook. They may also have buoyant handles and reflective markings.

**SAFETY EQUIPMENT**

*General* - All safety equipment and personal protective equipment (PPE) shall meet applicable OSHA and/or ANSI standards, including harnesses, safety lines, nets, and Personal Floatation Devices (PFDs). (Also refer to the Safety Bulletin on Aerial Lift Devices and the Safety Bulletin on Fall Protection).

OSHA refers to body harness devices as personal fall arrest systems in all standards related to fall protection. This term is defined as a system used to stop an employee in a fall from a working level. It consists of a harness, anchorage point, connectors, and lanyard. Because aerial lifts have passive fall protection (bucket or rail system), the intent of the body harness is to keep each occupant in the device upon impact, not to attenuate a fall from it.

Safety equipment (including PPE) shall only be used for employee protection and shall be inspected prior to and periodically during each use. Any personal fall arrest equipment actually subjected to in-service loading (a restrained fall) shall be removed from service and not reused.

All safety equipment showing signs of mildew, broken fibers, deterioration, excessive wear or damage, which could materially affect its strength, shall be removed from service and not reused.

Nets, ropes, harnesses, and lanyards should be kept dry. If they become wet, they shall be thoroughly dried before storing. Storage shall be in a dry location away from caustics, corrosives, or other sources of damage or deterioration.

*Rescue Skiffs & Life Saving Boats* - Management is responsible for providing suitable rescue equipment for employee working in proximity to water. For many worksites water rescue skiffs are appropriate. However, in fast moving waters, in water with a long distance to shore, in waters with a surf or 'chop' a life saving boat with a rescue sling and winch or raft appropriate for the conditions must be provided.

In all circumstance the Skiff and Life Savings Boats must be appropriate for the intended purpose. Canoes and John boats not do provide sufficient stability and are not recommended for use as a rescue skiff or life saving boat. An inflatable skiff with a rigid
bottom and fixed oars is recommended for use as a rescue skiff. Inflatable skiffs can not be swamped, provide a stable platform in most conditions, and afford a greater margin of safety than do canoes and John boats to would be rescuers and victims.

Skiffs should be equipped with a motor having the rating within the manufacture’s posted rating. A prop shroud shall be provided for all outboard motors used in rescue. In slow moving waters having a breadth of less than 50 feet oars alone may be appropriately provided.

Nothing in this Safety Bulletin is intended to prohibit the use of specialty designed rescue craft or water rescue devices. Questions regarding the appropriateness of a skiff or life saving boat shall be directed to the Regional Employee Safety and Health Office.

PROCEDURES

Ring Buoys
Whenever work is being done over water or next to the water, ring buoys with at least 90 feet of line must be attached and immediately available. Ring buoys cannot be more than 200 feet apart. A life line should be attached to the rings buoys. (Most ring buoys come with a ‘throw bag’ with line attached.)

Fall Protection
When employees are working over water they must be protected from falling regardless of the fall distance to the water and regardless of the water depth. Fall protection can be in the form of a guardrail system, a personal fall arrest system, safety shielding, net, or a restraint system. Employees must be continuously protected.

Personal Protective Devices
When active fall protection, a harness, lanyard with anchor point, is required and used 100% of the time, the use of a PFD is optional. Employees working from a UBIU must be protected from falling with a personal fall arrest system that provides 100% fall protection all of the time. If the distance between the water surface and the employee is less than the length of the lanyard, the employee shall wear a PFD.

Employees shall not work alone in situations where a drowning hazard exists, if at all possible.

Skiffs & Life Saving Boats
OSHA requires that a life saving skiff and ring buoys be provided for employees who are performing Construction work while working over and adjacent to water where the danger of drowning exists. Working from aerial lift devices including Under Bridge Inspection Units (UBIU) has been determined by NYS Public Employee Safety and Health to be Construction work regardless of what work is actually being performed. Additionally, work on a portable scaffold while it is positioned over water is considered a Construction related activity that requires a skiff or rescue boat.
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Work within the confines of a fixed railing system on a bridge would typically not require a skiff.

The Department will strive to provide a skiff/boat to assist in rescue when it is feasible to do so and when their use does not expose our employees to greater hazards. The skiff/life saving boat must be immediately available for rescue. Skiff operators shall be trained in the safe operation of a skiff/boat when used for rescue.

Skiffs and Life Saving Boats are not necessary in the following instances:
- The water is too shallow to navigate a boat.
- Where the geography lacks a safe area to launch a skiff or life saving boat or when the water way presents an immediate hazard to the employee (rescuer) operating the skiff or life saving boat, e.g. gorge areas and other sheer launch sites, lock areas and water falls.
- When other effective means of rescue exist; e.g. in shallow areas, with slow moving water that are close to shore such that an employee can immediately wade into the water or utilize the rescue pole to provide rescue.

The use of Life Lines should be considered in areas not suitable for a skiff or life saving boat.

All skiff and life saving boat occupants shall wear a proper fitting PFD, and shall be properly trained to row or to operate a motorized skiff or boat. Operators/occupants of a skiff or boat shall be properly trained to affect rescue, or secure the person to the skiff/boat in the water, or if person can be safely moved to shore to provide first aid, until professional rescue services arrive.

The rescue skiff/boat operator may be assigned to other tasks provided he/she is immediately available to perform a rescue without delay.

Questions regarding the need for a skiff shall be referred to Regional Management in consultation with Employee Safety & Health.

Person in the Water Procedure – See attached addendum.

BARGES / FLOATING WORK PLATFORMS

When using motorized equipment (aerial lifts, drill rigs, cranes, etc.) on barges / floating work platforms, a Safety Plan shall be developed to address:

- Competency of operator(s)
- Load rating capacities
- Design consideration to eliminate risk of capsize
- Motorized equipment capabilities / limitations
- Fall protection requirements and other required PPE
Use of Controlled Access Zone (CAZ) or perimeter guarding
Method(s) of anchoring equipment
Lighting (if necessary)
Access to barge/platform
Communication devices
First aid
Emergency notification
Conformance to all other appropriate OSHA/ANSI and Department safety requirements

The Safety Plan shall be forwarded to Regional Management and Employee Safety & Health for review prior to the start of work.

Only motorized equipment with manufacturer approval to work on floating vessels shall be used. Equipment shall be positioned as close to the center of the platform or barge as feasible. A CAZ or perimeter guarding shall be in place. Equipment shall be securely anchored / tethered as required by the manufacturer.

Employees in aerial lifts shall use a full body harness connected to an approved anchorage point. The carrier portion of the aerial lift shall not be moved while occupied unless designed to do so.

A passive rail system is preferred on barges / floating work platforms. Employees walking or working on unguarded decks of barges / floating work platforms shall be protected with proper fitting USCG approved life jacket or buoyant work vest. A PFD is not required when working within an enclosed cab or equipment compartment on a barge or floating work platform.

Work from barges / floating work platforms may necessitate notification of local rescue authorities prior to work beginning.

Floating work platforms shall be designed by a qualified person to eliminate risk of capsize. The combination of personnel, equipment and materials shall not exceed the load rating capacity or cause risk of capsize.

Scaffold systems used on barges / floating work platforms shall be securely anchored. A competent person shall be designated to oversee erection, rigging, and securing of scaffold systems. (Refer to Safety Bulletin on Fall Protection regarding proper scaffold construction).

A Work Sheet for Barge Inspection is available by contacting Main Office Supervising Equipment Operator Instructor.
WORKING ON ICE

Work performed on ice and all equipment moved across or placed on ice shall be done in accordance with established procedures such as those of the U.S. Army Cold Regions Research and Engineering Laboratory. Employee Safety and Health shall be notified prior to any work performed on ice.

The Safety Plan shall be developed and forwarded to Regional Management and Employee Safety & Health for review prior to the start of work.

TRAINING

Training shall be conducted for employees assigned to Boat Operation or Rescue Skiff/Boat Operation on each item in this procedure:

Skiffs and Boats  Part 1 - NYS Safe Boating Course (initial only)
                    Part 2 - Hands on Rescue Training (initial - 3 year refresher recommended)
                    See Basic Training Skills Checklist for Skiff Operators on page 10
                    Part 3 – First Aid CPR Training

Working in proximity to water can involve varied equipment and complicated sites. Training shall be commensurate with the risks and tasks involved.

RELATED SAFETY BULLETINS

Refer to the following Safety Bulletins for additional information:

  Fall Protection
  Aerial Lift Devices
  Rental / Leased and Surplus Equipment
WORKING IN PROXIMITY TO WATER

ADDENDUM - PERSON IN WATER PROCEDURES

1. Once inadvertent entry into water is observed immediately shout "Person in Water" to alert others on site to the situation. It is important to keep the victim in sight to assist with rescue. This may involve dismounting apparatus, descending grades and moving along shorelines. Execute the following plan swiftly and use available time wisely to give the victim the greatest chance of a successful outcome.

2. Initiate "Emergency Action Plan" for water emergencies. Have one person alert Emergency Services (911) via mobile phone or NYSDOT 2 way radio (relayed through NYSDOT radio operator) and describe in as much detail as possible, the situation. Do not terminate call until the Emergency Services (911) operator instructs you to do so. While the person contacts Emergency Services (911), others on site may be directed to assist in the rescue. Waiting to notify Emergency Service may waste valuable time that the victim may need for a successful outcome. Many Emergency Services are staffed by volunteers who may take some time to assemble and respond especially in rural areas.

3. **Reach** - if the victim is able and is close enough to a stable shore, attempt to guide them to a safe location. When a person is near enough, try to reach them with a rescue pole, ladder, shovel or other long item. Ensure your proper footing before pulling victim to safety. When pulling victim to shore, pull in the same direction of the current flow. If victim is beyond reach: use the throw-able ring.

4. **Throw** - From shore or stable area, throw a ring buoy / Type IV Personal Flotation Device attached to a safety rope / line, or other floating object(s) to victim. Throwing some floating objects near the victim will provide them numerous options to assist them with floating and in the event of total submersion, will serve to mark the area where the victim was last seen for professional rescue services to begin search. Ensure proper footing before attempting to pull victim to safety. When pulling victim to shore, pull in the same direction as the current flow. If throwing object(s) is unsuccessful:

5. **Row** - rescue skiff or boat to victim. Assist victim by helping victim hold onto rescue craft or holding their head above water until additional help arrives, using caution not to capsize the rescue vessel. If rescue craft has only 1 operator, tether craft to shore before leaving shore when possible. If tethered, have someone on shore pull rescue craft to safety. If craft has an operator and an occupant(s), the occupant(s) shall render the assistance to the victim and the operator shall have the responsibility to navigate the rescue craft to safety.

6. Once victim is moved to safety, administer appropriate first-aid assistance if trained to do.
7. If victim can not be located, provide Emergency Services (911) an accurate area where the victim was last seen. Water depth and flow characteristics and other potential hazards (ex. submerged trees, nearby downstream waterfall, locks, dams etc.) shall also be noted if known.

8. Notify appropriate NYSDOT supervisory staff.
Basic Training Skills Checklist for Skiff Operators

**Prerequisites**
- Completion of Boater Safety Course
- Completion of First Aid/CPR Course

**Skiff and Engine**
- Location of Safety Equipment
- Engine shut off
- Engine Nomenclature
- Tilt Control Location/ Operation
- Telltale Location/ Cleanout

**Procedure**
- Shift Control Position/ Throttle

**Advance**
- Engine Starting Procedure
  - Engine Position
  - Fuel Primer Bulb
  - Engine warm up
  - Fueling

**Skiff Underway Maneuvers: “Hands on Maneuvers”**
- Accelerate/ Decelerate/ Stopping
- Turns-Gradual/ Tight-Speed/ Control & Comfort
- Backing-Observation of Stern Movement

**Docking Maneuvers**
- Discussion - making the most of wind/ current force
- Approaching and departing from dock - varied wind/ current conditions
- Vessel Handling Exercise in Constrained Space

**Anchoring**
- Demonstrate an understanding of wind/ current effects

**Person in Water**
- Discussion of Operator’s Responsibility
- Approach victim while compensating for wind/ current conditions
- Retrieving the victim

**Discussion of Skiff Operator Responsibilities**
- Importance of notification to onboard personnel re: intent
- Responsible for all decisions relating to safety of personnel on board
- Weather Check
- Use of PFD’s

Name: ___________________________ Date: ______________________
Approved to operate Safety Skiff by: ____________________________ on ________________
Regional Bridge Maintenance Engineer ____________________________ Date: ______________