National Marine Manufacturers Association & Discover Boating

Hands on Skills Training

Foundations – Basic – Single Inboard

Coach Manual

ACKNOWLEDGEMENTS

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Table of Contents

Boating 101

General Underway Guidelines

- Instructor must create realistic & challenging scenarios for students
- Instructor always demonstrates maneuvers first and provides “stream of consciousness” during demonstrations (See Progressive Teaching Method)
- Students not at helm shall act as crew while underway (manning fenders, e.g.)
- Shifting into or out of gear must ONLY be done with engines AT IDLE SPEED
- ALWAYS pause in neutral when shifting to allow props to slow/stop turning to avoid damaging the transmission(s) and or stalling the engine(s)

Vessel Control Considerations & Key points

- Emphasize slow maneuvering speed (sufficient to maintain steerage & control)
- Always maneuver stern first in wind/ bow first in current
- Emphasize managing momentum & using neutral to scrub off speed
- Students must understand inertia/centrifugal force and the tendency of vessel to swing wide to the outside when turning
- Turning effect is greatest when props are engaged
- Students must understand the importance of placing/using the pivot point correctly when executing maneuvers

Docking & Undocking Considerations

- Instructors must consistently use and show students how to develop a plan for docking, departing & maneuvering & why it is important
- Instructors must set an example of correct crew planning & communication
- Explain the importance of having a fall back plan when maneuvering “Plan B”
- Safety is paramount - caution students to never fend off using hands, legs, etc.
- After tying up the vessel be sure to finish the job by “Flemishing” the lines

Initial Vessel Familiarization

Given a choice, a prudent skipper does not get into tight situations unless and until he or she is familiar with the handling and response characteristics of their vessel. Instructors will familiarize students with the following aspects of the training vessel in an open space before moving to close quarters situations:

- Vessel response to helm at slow/idle speeds - ahead, backing & turning
- Stopping distance when idling ahead and shifting into neutral (coast to a stop)
- Stopping distance when idling ahead and shifting into reverse at idle speed
- Backing characteristics - with and against wind (crabbing, bow fall off, e.g.)
- Prop walk and rudder response when backing
- Vessel response when attempting to turn bow into wind
- Vessel tendency when beam to wind or current (amount & velocity of leeway)

Power Boating Made Easy

Departure Planning

- Instructor at helm --- executes undocking maneuver & provides complete explanation of thoughts and actions taken during maneuver
- Demonstrate proper crew communication

Helm Orientation

- Demonstrate correct positioning for access to controls and maximum visibility
- Practice moving from wheel to controls without looking
- Discuss boaters eye and awareness of vessel movement
- Discuss wind awareness and clues/cues to determine direction and strength
- Review rules for maneuvering in wind and or current
- Review shifting rules
- Review steering rules
- Demonstrate 2 methods for centering helm
- Demonstrate raising vs. pulsing throttle
- Discuss trim tab position and motor/outdrive trim position

Maneuvering Evolutions

Instructor Demonstrates all maneuvers 1st then students rotate through helm position

- Steering in a straight line with minimal helm input
- Normal Stop ---moving ahead at idle speedo Determine stopping distance
    - Determine stopping distance
- Urgency stop --- moving ahead at idle speed
    - Determine stopping distance
    - Maintain Bow Control
- 360. Turn in tight circle --- idle speed only
    - Initiate turn in both directions
    - Initiate turn in reverse
    - Initiate turn in forward
    - Practice all elements with pulsed throttles
    - Discuss & Compare differences
- Backing down in a straight line at idle speed --- maintain awareness and control of bow

Executing Maneuvers

Backing down a narrow channel 100 yards in a straight line

There is generally a tendency for beginning students to focus only on the stern during this maneuver so instructors should emphasize awareness and control of bow position/fall off.

Single Inboard

- Position the stern correctly in anticipation that propwalk will straighten the vessel out as sufficient sternway is achieved to gain steering response
- Teach students to modulate throttle position (up/down) and to use neutral to manage propwalk and or improve rudder response
- Emphasize bow awareness and teach students to manage bow swing/fall off by stopping if necessary and temporarily using propwash against a properly positioned rudder to kick/reposition the stern

360o Turn In Tight Quarters

This maneuver is to be completed in smallest circle possible and objective is to turn the vessel in its "own water". When maneuvering in wind or current, instructors will ensure students understand danger of "lee shore" and emphasize maintaining a position to windward.

Single Inboard

- The basic turn shall be completed at idle speed unless conditions dictate otherwise
- Instructors will insure students understand the "preferred" direction of the turn – for example, with a RH prop the preferred direction is CLOCKWISE since the vessel will back to port due to propwalk
- The turn may be initiated using either forward or reverse based on situation & space
- The rudder has no effect in reverse without sufficient sternway so the helm should remain in a Fixed Position during the entire maneuver - i.e., hard to starboard with a RH prop
- As students demonstrate ability to control vessel movement fore and aft while rotating, instructors will teach how to pulse throttle to increase turning forces and rotational speed and tighten the turning radius

Bow First in Protected Slip (finger piers)

General

Instructors must point out how to manage momentum and centrifugal force that cause the vessel to slide toward the outside of the turn especially when propellers are disengaged. Beginning students should be instructed to stop/slow in a straight line until proficiency increases.

Single Inboard

- The basic maneuver will be taught as a 3-point turn. The vessel should be stopped with the pivot point aligned correctly with the slip; the student will use the back and fill technique to pivot the boat until the bow is centered and can be moved straight ahead into the slip.
- The preferred approach with a RH prop is starboard side toward the slip to take advantage of propwalk.
- As students demonstrate an understanding of correct position of pivot point, instructors may combine stopping and turning as a single step. As proficiency increases, challenge students to strive for a “no touch” execution.
- Instructors will teach both port and starboard approaches

Stern First in a Protected Slip (Touch/No-touch)

Single Inboard

- Basic maneuver is taught as a 3 point turn with preferred approach port side to (RH prop) to take advantage of propwalk. Vessel should be stopped with pivot point aligned correctly, bow angled away from slip and at a sufficient distance off for maneuvering room. Use back and fill technique to pivot boat and position stern to accommodate propwalk for backing into slip.
- Demonstrate approaches in both directions and allow students to practice both starboard and port side approaches. In a starboard side approach, show students how to use propwash against rudder to jockey the stern as required. Challenge more advanced students to back in “no touch”.
- Explain and demonstrate how to use a spring line to assist in this maneuver

Dock Alongside a Facing Dock

Single Inboard

- Basic maneuver is taught using a shallow angle of approach from both the port and starboard sides. Emphasize a soft landing through speed control using idle speed only and neutral to manage momentum. Insure students understand how to use propwalk to advantage on a port side approach as it pulls stern in while slowing/stopping and how to overcome negative effect of propwalk in a starboard side approach.
- In the Advanced Maneuver (1), use a steeper angle both port and starboard to and challenge the students by creating a “tight scenario” without spring lines (small space, boats ahead and astern). For departing, pivot off piling without spring line and have crew manning a fender(s) as needed.
- Advanced Maneuver (2), teach how to use spring line for docking and departing with instructor demonstrating correct and safe spring line use first.