

# Lines and Knots on Lake Nockamixon

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Version 1B

# Rope Fiber Materials

- Nylon
- Polyester (Dacron)
- Polypropylene
- High Tech materials used for lines that are lighter and stronger than stainless steel cable and some float. High Tech examples: Spectra, Vectran, Dyneema, Zylon, Kevlar. Not typically used by cruisers so not covered in this document.

# Rope Construction

- Cable-laid Rope
- Braided Rope

# Cable-laid Rope

- Fibers twisted into Yarns, Yarns into Strands, and Strands into Rope.
- Right handed three strand nylon most common type.

# Braided Rope

- Fibers twisted into Yarns, 2-4 fibers laid together as strands, and strands braided into rope.
- Single braided has uniform cross section.
- Double braided has braided core inside of a braided cover.
- Parallel-core has a core of straight yarns inside a braided cover.

# Selecting Rope for Lines

- Anchor Rode-Choose 3 strand nylon.
- Dock Lines- Choose single or double braided nylon. Park says to avoid polyester dock lines.
- Painters and Life Rings-Choose polypropylene since it floats.
- Halyards-Choose braided polyester with low stretch core.
- Sheets and Vangs- Polyester braid.

# What Diameter of Rope to Use

- For existing vessels, must match line diameter to size of existing blocks, and various cleats on each sailboat.
- Measure existing lines with micrometer or dial indicator.
- Running Rigging are typically 1/4 to 3/8 inch depending on existing hardware and function of line.
- Dock Lines are typically 3/8 to 1/2 inch in diameter on Lake Nockamixon.

# Knot Terminology

- Rope-Generally refers to cordage purchased in bulk.
- Line-A rope becomes a line when it is cut into pieces for any purpose. Exceptions are bolt rope and bell rope.
- Belay-To secure a line to a cleat.
- Running End-The free end of a line that you are working with.

# Knot Terminology

- Bitter End-Opposite end of rope you are working with.
- Standing Part-The section of rope around which the knot is tied.
- Bight-A half loop in a line made by turning the line back on itself
- Turn- A single wind or bight of a rope, laid around a post, or like.

# Three Types of Knots

- Bend- Knot used to secure two lines together or to secure a line to an anchor ring.
- Hitch-Knot used to secure a line to an object such as a fender to a stanchion.
- Knot-Knots used to tie ropes to themselves, as in making a loop in one end.

# Types of Knots

- Bowline (Pronounced Bolen). Most useful mariner knot. Never slips, and usually easy to untie.
- Square Knot also called Reef Knot- Used for tying reef points, or tying tiller cover to tiller. Sometimes reef knot uses bow like for tying shoes. If so then Reef knot not same as Square Knot.
- Round turn and two half hitches- Use to tie fenders to stanchions.
- Clove Hitch- Temporary knot. Used to tie NSC banner to tent or gasket coil to life lines.

# Types of Knots (Continued)

- Rolling Hitch- Used to tie a smaller line to a bigger line. Easier to untie than sheet bend.
- Figure Eight-Used as stopper knot.
- Double Overhand Knot-Used for bigger stopper knot.
- Sheet Bend-Used to tie two different sized ropes together.

# Types of Knots (Continued)

- Truckers Hitch- Make block out of your line with mechanical advantage of 2. Used to tie boat to trailer.
- Sheep Shank- Used to keep bad place in line from carrying load until it can be repaired or replaced.
- Carrick Bend- Easier to untie but harder to tie than Sheet bend. Used for tying towing hawsers together.
- Anchor Bend- (Fisherman's bend) Used to secure anchor.

# Whipping Lines (Bad line, Bad!)

Whipping-Treatment of end of a line to prevent the line from unraveling. Types of whipping:

- Whipping twine (small stuff) with sail maker's needle.
- Liquid rope whipping.
- Hot knife.
- Cigarette lighter or match whipping.
- Tape whipping.
- Combination of two methods frequently works best. Ex: Whipping twine and hot knife.

# Splicing Lines

- Long Splice
- Short Splice
- Eye Splice
- Back Splice

# How to get your lines to move easily through your blocks and cleats?

- Use proper size lines. If lines too big then may not move easily through blocks.
- Make sure blocks are set up so they turn both ways.
- Use lubricant on blocks and lines. McLube is a dry spray on lubricant that is great for blocks and lines.

# Cleating and Coiling

- How to properly Belay a line to a cleat.
- How to Coil a line.
- How to Flemish a line.
- How to Fake (or Flake) a line.

# Tools for Working with Lines

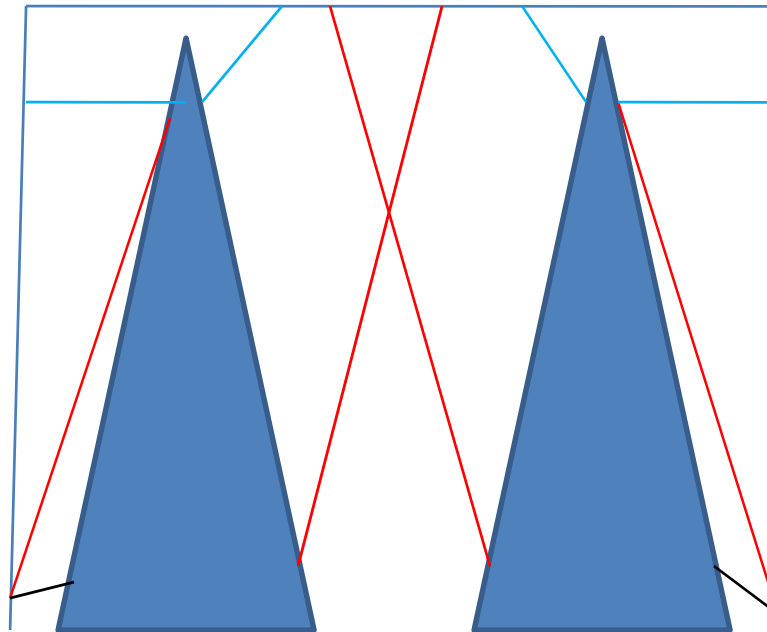
- Marlinspike with Shackle Key
- Rigging or Sailing Knife
- Weatherman Multitool
- Sailmaker's Needle

# Dock Lines

1 Stern line

2 Bow lines

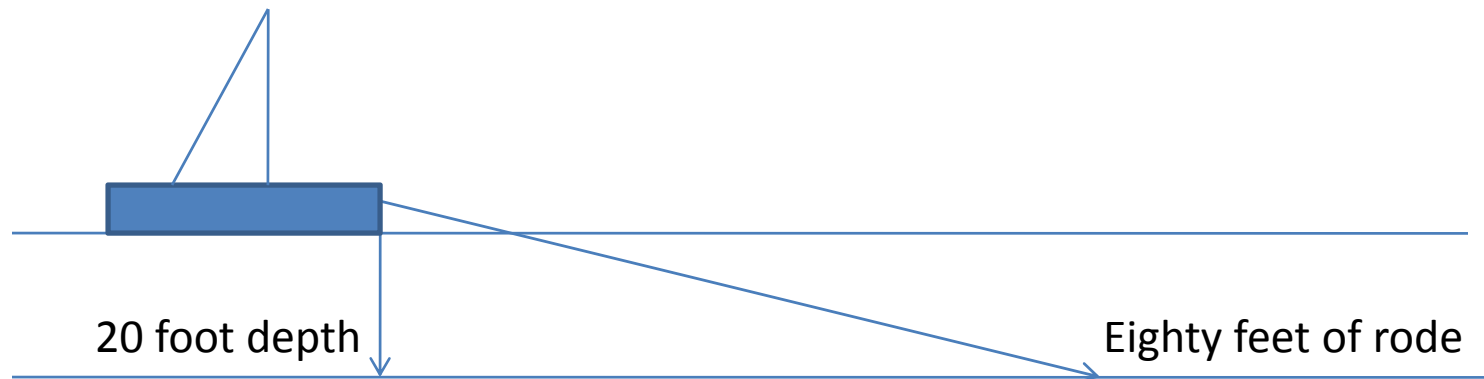
2 Spring Lines



One of the cleats in front of boat in “Next slip” is intended for a stern spring line from Your Boat.

# Anchor Lines

- Use three strand nylon,  $\frac{1}{4}$ " to  $\frac{1}{2}$ " in diameter.
- Most sources recommend anchor scope of 7:1 but very little current on Lake Nockamixon. Unless there is a strong wind can anchor with less. 4:1 is usually enough.
- If depth is 20 feet need 80 feet minimum.



# Great Rope Website

- Animated knots by Grog has excellent animation of all common knots.

<http://www.animatedknots.com/indexboating.php>