

Old School, hand built tapered leaders

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Knotted, tapered leaders

- Why

- The leader's job is to efficiently transfer the casting energy initiated by the rod, down to the tippet section and ultimately to the fly being presented
 - That said, the leader's job is to also dissipate some of the casting energy along the way as to avoid overpowering and breaking small, fine tippet
- Before machine tapered leaders, knotting differing sections of different diameter material together was the only option
- The rule of thumb formula since just after WWII is 60% butt section, 20% taper section and 20% tippet section (Charles Ritz formula, yes that Charles Ritz of the Ritz Hotel family)
 - Coincidentally, Nylon Monofilament was widely available as a result of WWII



Knotted, tapered leaders contd.

- Ideally Butt and taper sections are made of a slightly stiffer material than the tippet section
 - Stiffer butt section are more efficient in energy transfer from the fly line down
 - As an example, Maxima Chameleon is stiffer than Maxima Ultragreen or Maxima Fluorocarbon
- 80% of fly-fishing situations can be accommodated with a 9' leader
 - There's an old rule of thumb that says your leader should be the same length as your fly rod
 - Although sometimes you need shorter leaders, sometimes longer
- 80% of trout fishing can be accommodated with 4 or 5X leaders
 - Except for spooky, spring creek trout where you need a 16', 8X leader with a 36" tippet trying to present a #28 midge in a 15 mph cross wind...
- It's the 20% situations where we can really benefit from custom, hand tapered leaders

Benefits

- You'll have nearly unlimited options for length, taper, tippet length/strength etc.
- You can mix and match materials. For example, Nylon Butt/Taper sections with Fluorocarbon tippet
- You can customize and build tapers you cast well
 - Fresh water, salt water, still water, bass, trout, panfish, dry, nymph, streamer specific leaders can be built instead of the "one size fits all" machine tapered designs
- You can build longer leaders than are readily available commercially
- You may end up with a more varied inventory of leaders available on water
- Hand tied leaders are inexpensive, I can build a 10' 5X leader for less than \$1
 - I don't get so emotionally attached to a \$1 leader and use it past it's prime
- It's fun. It's kind of the same feeling from catching fish on a leader you made yourself as you get from catching a fish on a fly you tied yourself
- I find you can build a hand tied leader that casts better for my casting style than a machine tapered leader

Downsides

- Knots!
 - Knots are a weakening point for any Nylon or Fluorocarbon line to line connection
 - Knots also like to pick up floating vegetation matter, super annoying when there is a lot of gunk in the water
 - When there's a lot of gunk in the water, a commercially tapered mono leader will probably be your less aggravating option
 - You get more friction through the guides from the butt section knots than you do with a machine tapered leader
 - Inventory cost, you make a sizeable initial investment into getting 7,8 or more different size spools of mono
 - Conventional wisdom has you discarding Nylon mono that's more than 1 year old, so you don't want to buy large spools of Nylon that's just going to go to waste

Formulas

- Size the butt section appropriate to the fly line size
 - Rule of thumb is the butt section should be appx. 60% the diameter of the fly line diameter.

Fly Line Weight	Nominal Butt Diameter	X
3	.017" - .020"	06X
4	.019" - .021"	08X
5	.020" - .022"	09X
6	.021" - .023"	010X *
7	.022" - .024"	011X
8	.023" - .026"	012X
9	.024" - .027"	013X

- I've yet to find a manufacturer making .021", .019" or .018" Mono in Nylon or Fluorocarbon

Formulas contd.

- Avoid if possible, knotting sections together than exceed two X sizes.
 - Or sections exceeding .003" in differing diameters
 - Remember to give yourself a few extra inches (I generally add 3" more for waste on each section" on each section to account for tag ends being trimmed off after completing your knots
- Guideline for tippet vs. fly size
 - The rule of 3. 3X tippet, #9 hook (now we all know there's no #9 hook, so #8 or #10), 4X tippet, #12 hook, 5X tippet #15 hook (#16 hook) etc.
 - This is just a guideline. There is certainly some wiggle room. However, I'd wager a bet that you'd struggle to get a 3X tippet into the eye of a #24 hook?, and I'd also wager a bet that 7X tippet on a #10 Skwala pattern isn't going to cast very well

Formulas Contd.

- Below is of one of the formulas I use for simple 7, 8 and 9 section leaders for good 5 and 5 weight rod general-purpose use

10' 5X	10' 4X	12' 6X	9' 3X
32" of .022" or 011X	Same	Same	Same
20" of .020" or 09X	Same	Same	Same
18" of .017" or 06X	Same	Same	Same
10" of .015" or .04X	Same	Same	Same
10" of .013" or 02X	Same	Same	Same
10 of .010" or 1X	Same	Same	Same
10 of .008" or 3X	Same	Same	24" of .008 or 3X
20" of .006" or 5X	20" of .007" or 4X	10" of .006 or 5X	
		20" of .005 or 6X	

Note I had to break the rule of not tying together sections more than .003" apart in a couple of places. Simple material availability may dictate this rule being broken occasionally

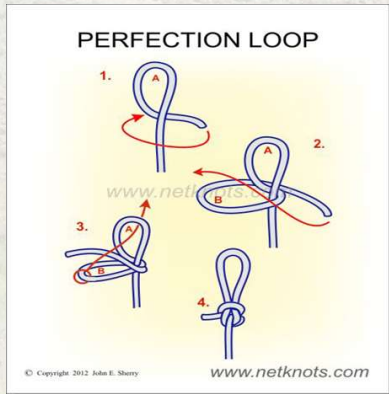
Also, although not 100% accurate to the 60/20/20 rule, the above examples are well within practical ratios for good turnover of flies in the #10 to #28 range for me, your results may vary

Knots

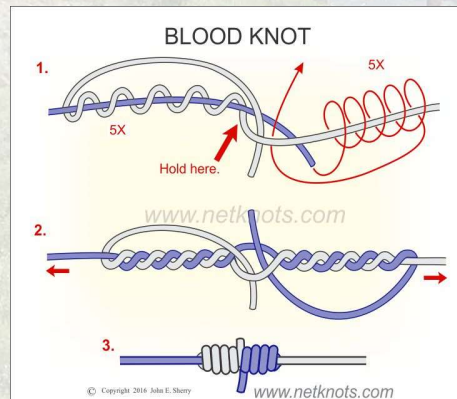
- If you like a loop-to-loop connection from leader to fly line, I'd suggest a Perfection Loop knot, otherwise simply nail knot the butt section of the leader to your fly line.
- My personal favorite to join sections is a 5 or 6-turn blood knot
 - Blood knot seems to retain the highest breaking strength
 - And I do cheat and use 4 turns on some of the heavier butt section connections
 - And I do cheat and use a tippet ring between the last taper section and the tippet section sometimes, especially with subsurface leaders
- Always! I repeat, always lubricate your knots before pulling them tight
- A three-turn Surgeon's knot once you get down into the 5X and smaller sections seems to work just as well as a blood knot. Especially when it's about ½ hour before sunset and there's a blizzard BWO hatch in progress...

Knots contd.

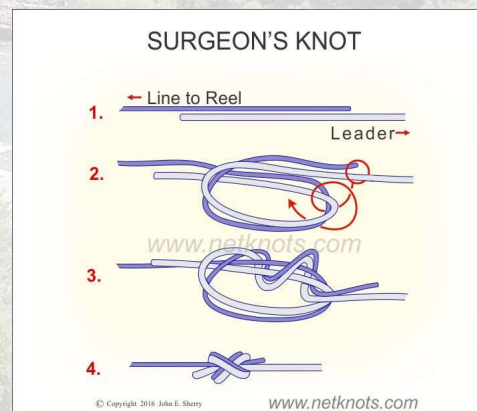
Perfection Loop



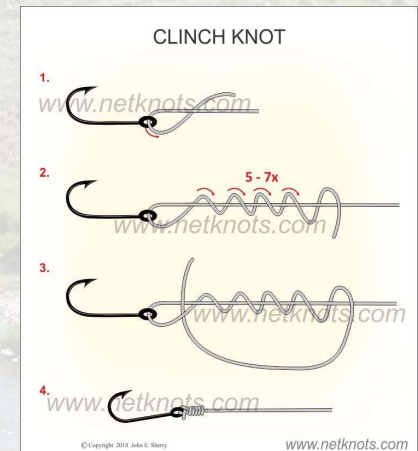
Blood Knot



Surgeon's Knot



Clinch Knot



Run this one through another time! You'll thank me later

Useful resources

Typical mono diameters,
X designations and
breaking strengths

<u>Fly X</u>	<u># Test</u>	<u>Diameter Inches</u>	<u>Diameter mm</u>
8X	1	0.003	0.08
7X	1	0.004	0.10
6X	2	0.005	0.13
5X	3	0.006	0.15
4X	4	0.007	0.18
3X	5	0.008	0.20
2X	6	0.009	0.23
1X	8	0.010	0.25
0X	8	0.011	0.28
01X	10	0.012	0.30
02X	12	0.013	0.33
03X	15	0.014	0.36
04X	15	0.015	0.38
05X	18	0.016	0.41
06X	20	0.017	0.43
07X	25	0.018	0.46
08X	25	0.019	0.48
09X	25	0.020	0.51
010X	30	0.021	0.53
011X	30	0.022	0.56
012X	35	0.023	0.58
013X	40	0.024	0.61

Don't be afraid to raid your local tackle shop for spools of mono. I've found 200-yard spools of Fluorocarbon in the right diameter for a specific tippet size at very interesting pricing at Cabela's and Sportsman's Warehouse

Useful resources contd.

- www.bvff.com
 - Boise Valley Fly Fishers
- www.tu.org
 - Trout Unlimited
- www.globalflyfisher.com
 - Great resource for all things fly fishing, especially their online tool “leader calc” which has hundreds and hundreds of leader formulas available
- www.maximafishingline.com
 - Monofilament fly line manufacturer
- www.trouthunter.shoplightspeed.com
 - Trout Hunter has the only leader I’ve ever found in 4.5X, 5.5X and 6.5X sizes in both Nylon and Fluorocarbon, it’s expensive, but it’s worth it.
- www.netknots.com
 - I can’t find a better online resource for literally hundreds of knot illustrations and instructions

Questions?

- Don't be shy!

