



FLY CASTING:
FUNDAMENTALS OF A CAST

CONSERVATION / EDUCATION / COMMUNITY

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WHAT ARE THE FUNDAMENTALS OF A “FOUNDATION” CAST?

For our purposes, a “foundation” fly cast is an efficient, functional cast we would all use during a typical fly fishing outing. There are many variations of this cast used for a variety of fishing purposes, but this is the cast we all use more than any other. Trademark features of a good foundation cast are front and back loops with relatively straight top (fly) legs and enough speed to deliver the fly to the intended target.

WHAT IS A “LOOP”?

In fly casting we call the shape of the line in the air while casting the “loop”. The shape of the loop is very important. Here are drawings of the 3 most common loop shapes.

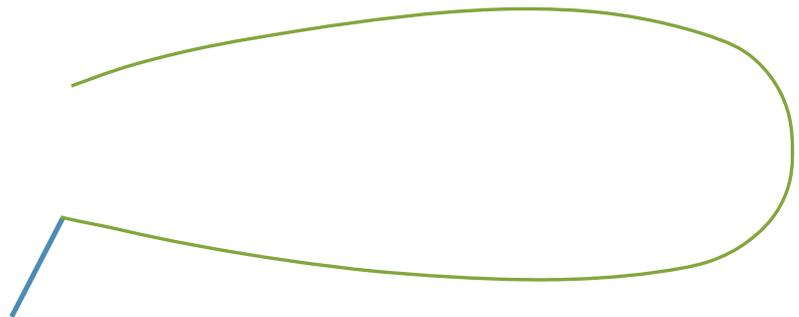

Fly Rod


Fly Line

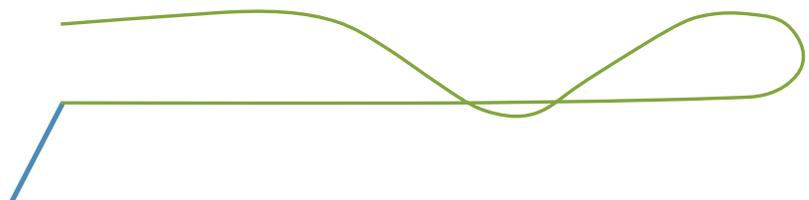
GOOD BASIC LOOP



BIG INEFFICIENT LOOP



INEFFICIENT TAILING LOOP

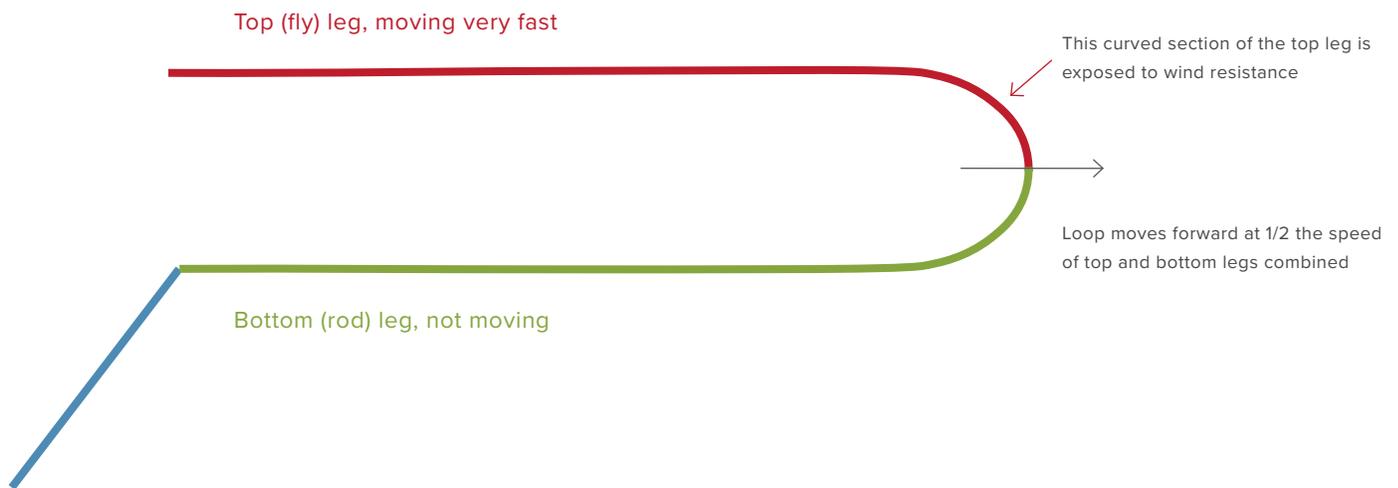




WHY IS THE SHAPE OF THE LOOP SO IMPORTANT?

In spin or bait casting, the weight we are casting is the weight of the lure, bait or sinker, not the line. When fly casting, we are normally casting flies that are too light to cast with spin or bait casting gear. Fly casting utilizes a special line, a fly line, that is the casting weight. Rather than having the weight of the lure pull the line off the reel, in fly casting the weight of the fly line itself pulls the fly through the air and delivers it to the target.

If we don't control the shape of the line in the air, wind resistance makes casting even short distances difficult. Consider each loop to have just two parts, a top leg and a bottom leg. The dividing line between the two is the apex of the loop, where the red and green sections meet in the drawing below. Our goal is to cast as efficiently as possible and that requires that the top leg be as straight as possible.



The top (fly) leg of the loop is travelling very fast, the rest of the loop much slower. For that reason, it is most important that we control the top leg of the loop, the rest is much less important.

IMPORTANT LOOP TRIVIA

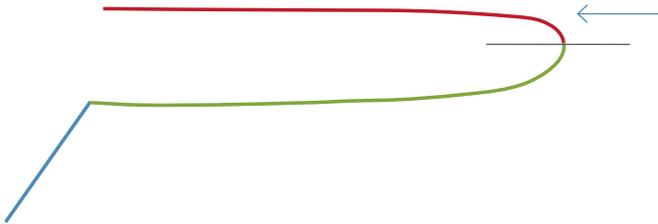
- » Loops progress forward at half the speed of the top and bottom legs combined. If the top leg is going 50 mph and the bottom leg isn't moving, the loop progresses forward at 25 mph. $50+0=50$ $50/2=25$ mph
- » Wind resistance increases exponentially as speed increases. Double top leg speed, wind resistance increases 4X. Triple top leg speed, wind resistance increases 9X!



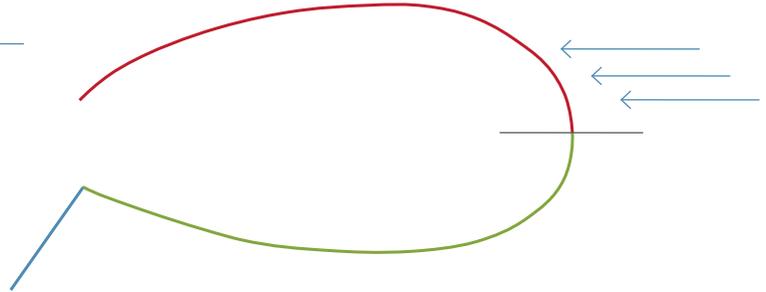
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Below are simple drawings showing the difference in wind resistance between two loops.

Pretty straight top leg, very little wind resistance



Curved top leg, very wind resistant, inefficient



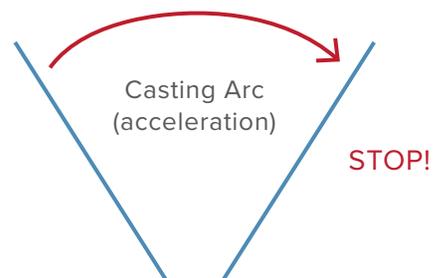
So, when we fly cast we want to make loops with top (fly) legs that are as straight as possible, unless we have a specific reason to want it to curve one way or another. If any part of the top(fly) leg is curved that part will be wind resistant and reduce the efficiency, accuracy and distance of the cast. All this applies to both loops, front and back.

HOW DO WE MAKE A GOOD FOUNDATION LOOP WITH A STRAIGHT TOP LEG?

The basic motions of fly casting are very simple, accelerate the fly rod through an arc then stop it. When the rod tip decelerates, the fly line overtakes the rod tip and a loop forms. ***The path in which the fly rod tip travels while casting determines whether the top leg will be straight or curved.*** If the rod tip path is straight, the top leg will be straight and efficient. If the tip path is curved, the top leg will be curved and less efficient.

HOW DO WE CAST SO THE ROD TIP PATH IS STRAIGHT?

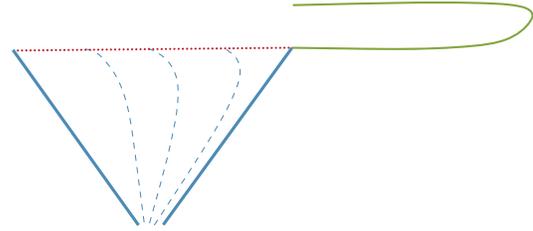
Simply, the rod tip path is determined by the “casting arc” and how the fly rod bends. The casting arc is just the angle change of the fly rod during the casting stroke, and it looks like this:



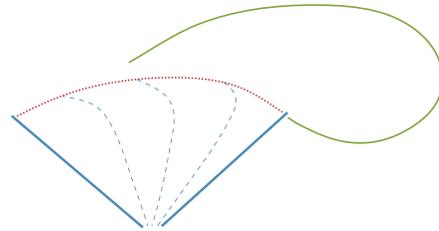


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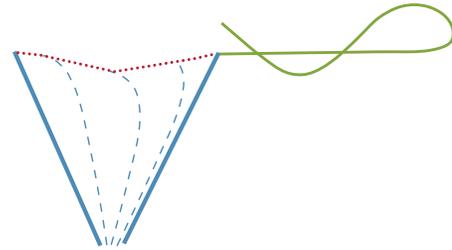
Because the fly rod bends while casting, it is possible for the rod tip path to be very straight. That would look like the drawing to the right:



In this next drawing the maximum rod bend is exactly the same as above, but the casting arc is too wide and that makes the rod tip path a big upward curve. That makes the top leg of the loop a big, inefficient curve too:

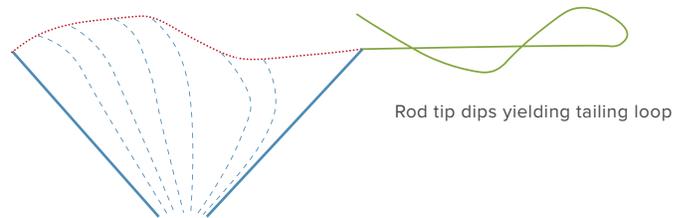


If the casting arc is too narrow, the tip path will dip down, and so will the top leg, creating an inefficient “tailing” loop:



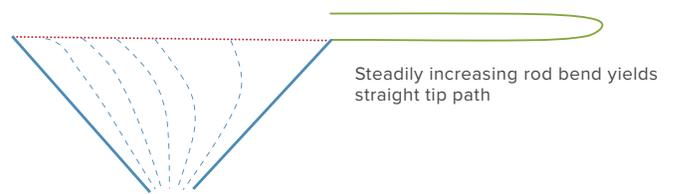
Simple enough, but there’s a bit more to making a great basic cast. How we accelerate and stop (decelerate) the rod has a big impact on the straightness of the top leg and the efficiency of the loop.

For the rod tip path to be straight, the fly rod must bend just right. The more you accelerate the rod, the more the rod bends. If you accelerate slowly, the rod bends very little. To the right are two drawings that show how differing rates of acceleration affect rod bend, and tip path. Assume in each case that the casting arc and force applied are appropriate for the cast being made.



Rod tip dips yielding tailing loop

Fly rod accelerated too slowly early in the casting stroke, too fast later



Steadily increasing rod bend yields straight tip path

Fly rod accelerated at a constant rate throughout the casting stroke

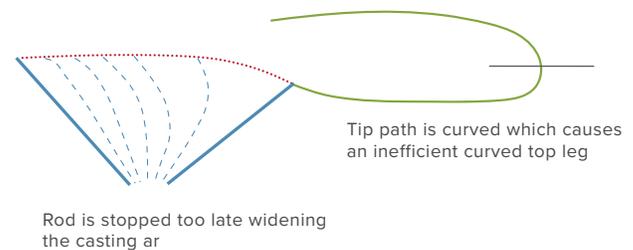
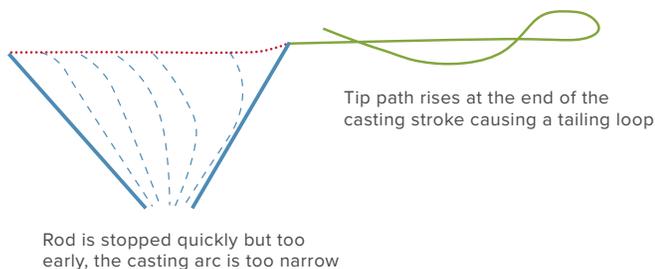
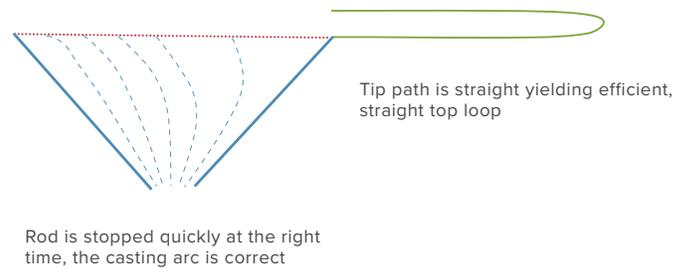
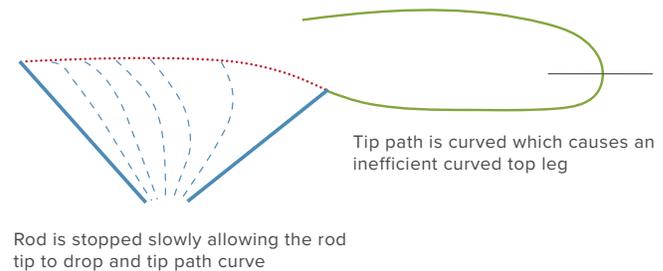
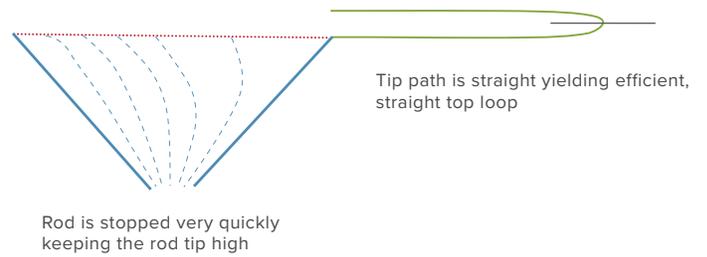


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While it is physically possible to accelerate the fly rod too quickly early in the casting stroke and then too slowly later, it is very difficult to do and very rarely happens. It is very common to accelerate the rod too slowly at first, then too fast later. Be sure not to confuse acceleration with speed. ALL casts start with the rod moving slowly and end with the rod moving very fast. How the caster moves the rod from slow to fast, the quality of the acceleration, is what's most important.

How the fly rod is accelerated is very important, how it is decelerated, or “stopped” is almost as important. How and when the rod is stopped also impacts the rod tip path and top leg of the loop. To the right are two drawings showing what happens when the rod is stopped very quickly, and more slowly.

When the rod is stopped impacts the loop much as how it is stopped. The drawings below show how.



..... Rod Tip Path — Loop

KEYS TO THE FOUNDATION CAST

1. Top (fly) leg of the loop is relatively straight.
2. The loop has enough speed to get to the target, not much more or less.
3. Front and back loops are very similar
4. Adjust casting arc to match rod bend to maintain straight tip path.
5. Stop the rod quickly.

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