

RodDNA

(Rod Design aNd Analysis)

We all like our tools, toys, and amusements. Rodmakers are suckers for new tools and toys. Rodmakers are also easily amused by a simple stick (a.k.a. Cane Rod). Yet in the simplicity of that stick lays untold truths. It is that search of those truths that begins a journey that many rodmakers never finish. That truth is the taper. Tapers! What makes a good taper? Analyzing a taper! How to make a better taper? Tweak the taper! Converting a beloved taper yet retaining its beauty. Issues that haunt rodmakers.

Consider Garrison working out his stress curves in a hospital bed using only his slide rule (surely you remember them – if not just substitute a handy dandy scientific calculator) and then plotting the resultant stress curve on graph paper. Only the really dedicated engineer needs to try this. Forgive me Lord I have sinned. Oh no, not manual calculations! Help!

Now let me use Wayne Cattanach's HEXROD or one of the derivatives of it. Much better! But I still feel so limited! Stress curves what do they mean and how do they help me. Confusion still reigns. Stress curves only show that a taper is coherent. It is only a simple tool to analyze a set of numbers but does not yield the holly grail of a perfect taper

It is easy for today's rodmakers to find rods they like – attend enough rodmakers gatherings, cast enough rods, and soon you will be saying “so many tapers, so little time”. OK, you finally find a bamboo fly rod that you like. This rod casts like the rod of your dreams. Smooth, responsiveness, and exhibits the power you crave. It is everything that you want in a rod. But it is the wrong length and line weight. Besides, only two sections and you want three. In reality, each rodmaker will pick certain tapers they personally like and enjoy. Now they want to build, “improve”, and possibility even “modify” them. This is the crux of the problem. How to change something and still retain what they enjoyed about the original?

The first such program that would let you modify known tapers in a coherent manner was John Bokstrom's set of Controlled Modification DOS programs. However, the “beloved” tapers were John's personal favorites. Not a bad selection, but very limited. John worked the “numbers” by hand. His program was especially useful, if you like Garrison. (Editorial Note – Never underestimate the Garrison tapers – latter you will find out why!)

Now comes RodDNA. This has been a joint project with Larry Tusoni spearheading the effort. He first developed what turned out to be the foundation upon which current program's capabilities were built.

I had been working with John Bokstrom to put a modern interface upon his Control Modification (CM) programs. I understood the principles behind the program due to lengthy emails and conversations with John. The crux of the problem was to solve how to automatically characterize the data set for a new taper. John had used manual methods to

get the original data sets in his programs. I figured out that techniques applicable to Digital Signal Processing (DSP) could be applied to developing the data sets. Over sampling the taper was the key – sample far more points and the detriment. This was the key we needed.

Larry had already developed a rod design & database program written in Java. Java is a portable computer language across Operating Systems. I had been using Visual Basic that wasn't. Larry already had sophisticated display and graphing capabilities incorporated that I would have struggled to implement. Larry was a proficient programmer and I wasn't. I had mastered CM and Larry had yet to understand its concepts. At the Corbett Lake Gathering in April 2004 we (John Bokstrom, Larry Tusoni, and myself) sat down and mapped out a development strategy for what turned out to be RodDNA. Larry was the programmer I have been his Beta tester and John remains the sage.

The philosophy of the program is to provide in one package all the tools capability a rodmaker will require to store, analyze, and modify a taper. This includes the capability to access existing documented tapers (data base of 445 plus tapers) and add new tapers – even at irregular intervals.

So in a nutshell, what important capabilities RodDNA provide?

RodDNA provides the capability to:

- Maintain a rod taper (model) data base
- Sort and display the taper database on desired fields
- Input new tapers (regular or irregular measurement spacing)
- Print the taper and rod planning form setting reports
- Access and display selected taper(s) (single or multiple tapers) dimensions in tabular or graph form
- Calculate and display selected taper(s) (single or multiple tapers) stress curve in tabular or graph form
- Switch between above displays and data base information
- Convert selected a taper from Hex to Quad or Penta and vice-a-versa
- Convert selected a taper from 2-piece to 3 or 4 (even more) while maintaining the same stress curve and vice-a-versa
- Modify the fly rod length, line weight, and action of a selected taper using John Bokstrom's CM
- Automatically calculate the tip top and ferrule sizes for a selected taper(s)
- Automatically calculate guide spacing
- Input user defined default values

Now, Let look at each the above capabilities RodDNA and what they mean to today's rodmaker.

// Short Para describing each bullet above with screen captures //

Now let's discuss the Holy Grail for rodmakers – developing a consistent set of tapers having the same basic desired action but in different lengths, number of sections, and line weights. Remember our earlier discussion of Garrison. In using RodDNA you will find that the Garrison Tapers have a consistency across various lengths and line weights. Using the CM feature you will be able to start with one Garrison taper and end up with another. In my presentation at Grayling and also at Roscoe I show how you can start with a Garrison 215 (8' 6" 3 piece 8wt) and end up with a 201 (7' 2" piece 5wt). He was surely the "Master". Other famous rodmakers tapers do not exhibit this consistency across models – not even Paul Young's famous Para Series. He accomplished it by empirical means and Garrison used a proven scientific method. Now is your chance to take your "favorite" rod taper and "clone" it across a range of lengths, number of sections, and line weights. RodDNA provides the tools for accomplishing this. Lets look at an example of how to do this.

// Insert the example from the briefing here. //

In summary RodDNA provides the modern rodmaker with a software tool that allows him to play and design his beloved toys. RodDNA is a powerful tool that has been sorely missing. The more a rodmaker plays with RodDNA, the more they discover things about tapers they have never observed before. It allows a rodmaker to quickly accomplish things that were near impossible before. Garrison would have loved it. This is the ultimate complement.

RodDNA is available free from: <http://www.HighSierraRods.com>