

The Cedar Plug: In the paper (www.albacoretuna.org) we discussed the biology, feeding & foraging behavior of albacore tuna including trolling techniques and lures, the key point emphasized in that paper was that lure color is secondary in importance to the contrast the lure makes against the background. The starker the lures outline (in contrast) against the background the easier and quicker the lure will be noticed. We used the ubiquitous natural Cedar Plug to make that point. This paper focuses upon the Cedar Plug from its early development to the present, we expand upon and attempt to answer the many question received regarding the cedar plug. For a detailed discussion of gamefish color vision and trolling lures please review the albacore paper.



The standard natural cedar plug is an unpretentious piece of cedar wood with a dull lead head, in a tackle box with an assortment of colorful eye candy lures you have to wonder why anyone would choose to troll that simple non-assuming plug? Well it's because experienced ocean trolling sport fisherman, professional fisherman and those few fishery scientists who are actually fisherman agree that the ubiquitous Cedar Plug represents elegant simplicity that really works, a proven trolling lure particularly effective for Tuna, Wahoo, Dorado, Yellowtail and many other mid-ocean gamefish and predators including Marlin, Mako Shark and even Humboldt Squid.

The outline or shape of the basic cedar plug is essentially that of a typical baitfish such as an anchovy, sardine or small mackerel without the fins and tail, to early fisherman observing gamefish feeding on baitfish it was an obvious configuration to copy being easily hand fashioned from readily available materials using the tools and hooks of that time period.

It is not known what culture first carved the plug or just when it came into general use, most probably it emerged at about the same time from various fishing societies. Existing records and surviving antique lures indicate that hand carved wood, bone, whale tooth and walrus ivory plugs of that basic configuration go back a very long time. Fig 2 illustrates two very old Alaskan Native fishing lures that were hand carved from walrus tusks for slow trolling behind kayaks. Fig 1 is an example of a typical Japanese fishing plug; both Japanese and Yankee Whalers carved almost identical lures from whale teeth. California Native Indians used tear drop shaped carved abalone shells (Fig 4) along with hand carved abalone hooks (Fig3) for trolling lures as they paddled along the California Pacific Coast to and from Catalina and the Channel Islands. These antique plugs hand

carved from available marine ivory and abalone shell were heavy enough to be effectively sub-surface slow trolled without additional weight.



Fig 1



Fig 2



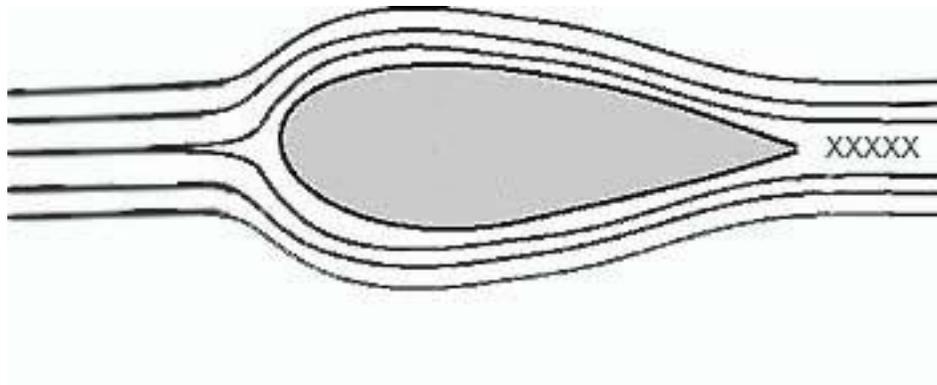
Fig3



Fig4

The present cedar wood plug configuration most likely came about when marine ivory became scarce and power boat trolling required a weighted lure, that coupled with modern line and hooks eventually evolved into the cedar wood body; lead weighted nose and brass end cap that is now the standard. Today there are several companies and a few dedicated individuals making these plugs, each is a bit different in specific design but all relate to the basic bare baitfish configuration and share similar aerodynamic characteristics...

From a fluid/aero dynamics viewpoint, like in a wind tunnel smoke test, one can see the laminar flow around the plug, in this greatly simplified example we used a standard streamlined tear drop, an elongated plug would exhibit similar characteristics. The end result is a distinctive wave with a bit of turbulence (xxxxx) within the trailing wave; it is that turbulent wave that predator fish's lateral lines (motion sensors) detect (and at a considerable distance) triggering the attack response ending in a hook-up...



A cedar plug's unique trailing waveform is more distinctive (more easily detected at a distance) than a plug with feathers or skirts. Colorful feathers and plastic skirts were added to lures in the belief that they simulated fins and tail action, hopefully making the lures more natural looking? In a 6 knot troll those adornments are swept back behind the lure head, not resembling true fish fin or tail motion, arguably not enhancing the basic plug signature? With wind tunnel simulation software now available as a free download, we can expect fisherman DIY's/hobbyists, with help from their computer-savvy teenagers, to further refine troll lure configurations, enhancing the all-important trailing wave. Maybe even resulting in a school science project?

A very effective (easy to see) cedar plug would be painted flat black with holographic markings resembling fish scales. Such a lure, in appearance or outline, forms a stark silhouette against the overhead background sky. In addition, the holographic markings reflect sunlight, resulting in a flashing or "grating" effect that is a beacon to predators. A flat black plug would be most visible in a surface or near-surface troll, with the gamefish typically looking up from below and behind or parallel to the troll. This is not to discount the visibility of a natural cedar wood plug; when wet (or oiled), it turns a very dark brown, presenting very good contrast. Painted black with "holographic scales" only enhances that contrast...

For maximum impact (gamefish lateral lines sensing from a distance and vision upon closing), the entire troll should be made up of all of the same lures and color. I refer to the all-black cedar plug set-up as the "Darth Vader" troll. Underwater, it's an awesome sight, and it really works. As can be seen using wind tunnel simulation software, of a typical troll, the end plug on the leader would be preceded by a daisy chain of three mini plugs. Each of the small plugs would deviate slightly from side to side and up and down; the resulting trailing and slightly turbulent wave(s) would intertwine with the large end plug wave, tending to "modulate" the end trailing wave(s). When multiplied by five to seven daisy chains in the troll, it creates down-track the impression (as sensed by the foraging gamefish) of a school of live bait, the signature their encoded memory matches to a potential food source...

Below pic shows a natural cedar plug daisy chain. Black plugs with holographic markings are a DIY project using spray paint and stick-on holographic tape...



An additional and proven enhancement to the troll would be to include a continuous chum line consisting of Menhaden Oil dispensed via an automatic dispenser. A few manufactures of Menhaden Oil recommend that natural cedar plugs be thoroughly soaked (and stored) in their fish oil adding a bit of scent to the troll? Sounds like a pretty good idea even if you regularly use a dispenser...



Using the fore mentioned tackle/chum arrangement it would now present an enhanced scent/sound/sight signature even more closely resembling a large school of baitfish to any predator crossing the trailing turbulent wave, inducing them to change course and follow the wave track back to its source, meaning your troll...

A trolling speed of about 6 knots is ideal, excessive speed does not enhance the trolls viability but only wastes fuel. Think about it, in a trolling situation you haven't got a clue as to where the fish are, they can be anywhere going any direction or maybe nowhere in the vicinity, you're just out there blindly dragging a bunch of lures thru the water for hours at a time eating cold bologna sandwiches, drinking soda and beer hopping for the best. With so few major gamefish around these days your chances of trolling into or over something interesting is remote. It is a fact that the vast majority of successful hook-ups are the result of a wide ranging fast moving foraging gamefish or a tuna school crossing your trailing wake, sensing same and making the turn, powering up and homing in on your troll...

We can enhance the troll even further by adding L-Tryptophan to the Menhaden Oil (about one tablespoon per gallon). Tryptophan is an amino acid, a protein building block available naturally in certain meat, powdered egg and chum products, by itself it has been scientifically proven to be a very attractive scent for Yellowfin Tuna. California Market Squid, very popular local bait, will bleed an amino acid cocktail that contains high levels of Tryptophan; this may explain why these little squid (fresh or frozen) are favored bait...

As mentioned in the albacore paper nature's most effective lure is a feeding frenzy, the sounds of an all-out feeding frenzy with predators attacking baitfish from below and seabirds swooping in from above creates a very distinctive sound wave, a dinner bell, that can be heard underwater many miles away.



Videos shown regularly on TV Documentaries provide graphic proof that a feeding frenzy will quickly draw hungry predators from the surrounding neighborhood. In a frantic feeding frenzy you can forget about the lure or bait as just plain bare hooks are quickly taken. A Nature Video often shown on TV depicts a school of majestic Sailfish working a very large bait ball, the Sailfish slashing into the bait disorients and/or wounds and separates several baitfish from the main ball, these little fish twisting and squirming turn their scale sides to the sun resulting in short bright flashes (grating light) that the Sailfish quickly see, go for and swallow, further providing real world evidence that in many instances color is secondary in importance to contrast and in this case secondary to grating light.

A feeding frenzy sound can be simulated by directing a powerful stream of salt water from a high volume wash-down pump into the ocean alongside the boat. With some chum thrown in this old technique is also a very effective way to lure Tuna up from the depths and Yellowtail away from a kelp paddy toward the boat.

So in the real world of sport fish trolling will an all-black Darth Vader troll with a chum line attract and catch more fish than a plain cedar plug troll or a conventional multicolored skirted lure troll, or something else? Maybe yes, maybe no, it can never be proven one way or another, the basic idea and the point we are trying to make is to get something out there that a gamefish can quickly and easily detect (sense) at a great distance and clearly see upon closing. When choosing a lure to meet those basic requirements use your own common sense and ignore lure advertisements and promotional hype like: "The

#1 Tournament Tested Lure You Must Have In Your Tackle Box". You can bet that the venerable Cedar Plug will outlast them all; it will be around as long as fishermen troll for gamefish. And remember: "Hooks Catch Fish, Lures Catch Fisherman"...

If you are going to spend an entire day or two out there trolling spending big bucks for fuel it behooves the sport fisherman to take advantage of every trick in the book. If lucky you will catch a few fish, "Catch and Release" is a good idea but definitely take some fish home for the Bar-B-Q and to prove to the wife that you were really out there working hard fishing, trying to put food on the table, and not just drinking beer with the boys...

