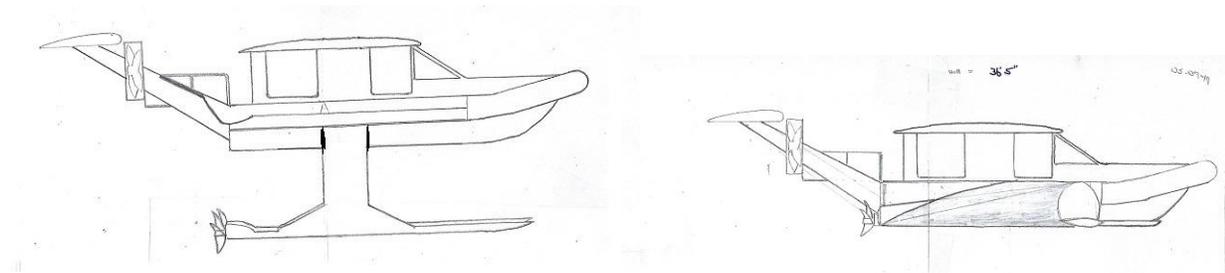


The Explorer

“WIG” Wing in Ground Affect Boats

Hydrofoil/Hull boats

We use the hull until the hydrofoils will fly, then use the hydrofoils until the airfoils will fly. We build manned and unmanned boats from 13' to 30' for Military, Municipalities, and recreational purposes.



A couple drawings, first one is with hydrofoils extended and airfoils retracted, and the second is with hydrofoils retracted, furling system lowered, and airfoils/horizontal masts extended.

My Inspiration for the Explorer Boat;

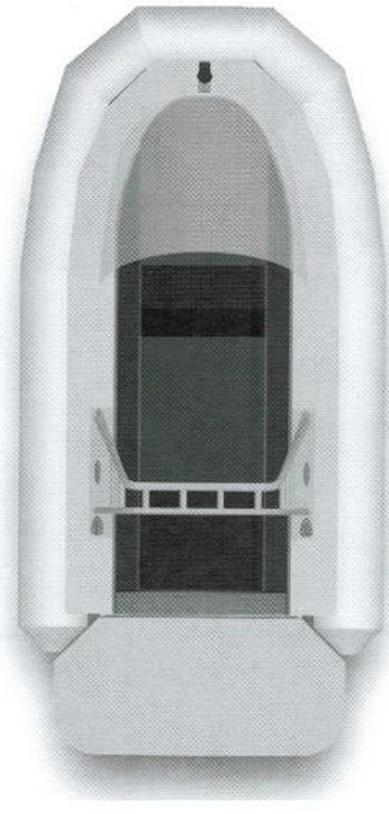
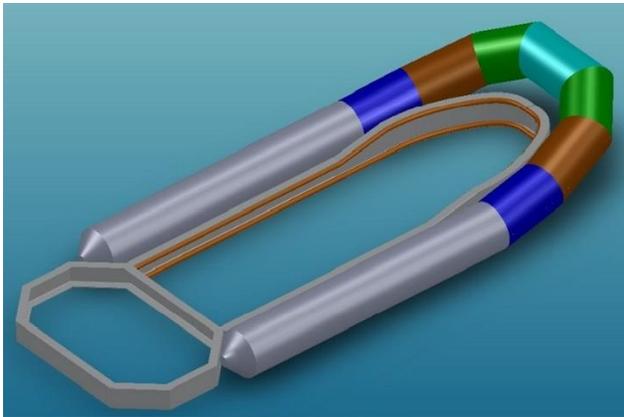




Hydrofoil only model to be used at the resort.



WIG Configuration with hydrofoils to get up to speed...



Summary of Design Goals as of 03/30/2020:

The Explorer has been designed based on my experiences gained from taking long extended trips on personal watercraft for over past ten years (350 to 500-mile runs). Also, from contemplating on what is needed to comfortably support 2 persons on extended stays on a small watercraft, protect themselves from the elements, and being able to travel over the tops of the waves, eliminating the hopeless fight with waves.

Having the ability to support yourself on overnight stays, and protect yourself from the elements were my first goals, but over the years while *eating waves* on my trips *as we call it*, I have become obsessed with the thought of getting the boat up and over the waves. As soon as I met with Principal Research Scientist Brant Savander, Ph.D., P.E. a few years ago, I knew he had the knowhow and established relationships with experts in the field to make it happen.

The technology to affectively travel over the tops of the waves has been established. I desire to put those and other technologies, supported by scientific studies, engineering, and a team of world class of experts behind my design that will allow the Explorer to travel freely over the tops of the waves.

Since air is 784 times less dense than water, *and fighting waves in a small boat is a hopeless endeavor*, the basis for my goals are simple and fundamental in nature;

1. Keep 2 occupants out of the elements and have the essential fixtures/accessories to support extended overnight trips.
2. Lift the boat above the water and waves on retractable hydrofoils to reduce drag so that a smaller engine can be used to reach desired speeds for the airfoil to support flight in the "ground effect".
3. Build the structural components of the hydrofoils, airfoils, and the hull of the boat from Carbon Fiber to gain strength, and to minimize weight, use Aluminum, fabric, and other materials to minimize costs.
4. Develop a hydrofoil that will eliminate the fight with the waves and surface of the water from the boat itself. These Hydrofoils may also be used to "Perch in the Shallows" while supporting the boat up and out of the water for calm over-night stays.
5. Develop an airfoil using sailboat technology to support the weight of the boat off from the hydrofoils, which can be retracted once flight is established in the ground affect. The leading edge of the wings will be structural, the surface area of the wing will be inflatable fabrics as used by Paddle North on their recreational products. This fabric was used by the Navy some 80 years ago and is very durable.
6. Use a very efficient propulsion system to get our hourly fuel burn rate down to 2-3 gallons per hour while cruising along at an economy cruise speed of 60-65 mph. Use 2 high-efficient diesel engine/generators and 4 electric drive motors.

Not only can the Explorer make long-extended trips, it has the following amenities; an Enclosed Cabin, Full Size 76"x54"Bed, an Incenolet Porta-Potty, 30-gal. Fresh Water Holding Tank / Shower with in-line heater, direct discharge Wavebrite - Grey Water Filter System / a

Yeti Cooler, Grill, Dry Box, Marine Radio, Blue-chip Stereo system, GPS-Charts-Maps-Fish Finder, Lock Box, Heat, and Air Conditioning.

The Explorer is also built using 27 cubic feet of closed cell foam, so it is un-sinkable while intact making the Explorer unique from any other small boat. Within my design parameters I have incorporated proprietary improvements and many other amenities to create the most practical fuel-efficient small boat that will support 2-4 persons on extended overnight stays. The Explorer boat itself is approx. 36.5 feet long, include the rear foil section, and the total length of the craft is 56.5 feet in length.

My performance goals for the Explorer is an economy speed cruise of 60-65 mph while burning only 2-3 US gallon per hour @1700-1800 rpm's, and a high-speed cruise of 85-90 mph while burning only 5 gallons per hour @ 2200 - 2300 rpm's. A 24-mile per-gallon boat, not too bad!!! Just think, a 23-gallon tank gives you a 500-mile range (with a 50 mile / 2 gal. reserve). All the way around Lake Michigan is only 850 miles, and only having to stop for fuel once? Not too bad.

On our trips, half of the fun is that you come in off the water for the day at these remote locations wearing shorts, dew rag hats, sunglasses, and a perma-grin. Then pull up and buy 12-gallons/\$60 dollars-worth of fuel. The guy next door has a 50-foot Sea Ray buying 500 gallons/ \$2,000 dollars-worth of fuel, same marina, same remote location. I would suggest that we might be having more fun!!! (A perma-grin) is having such a great morning or afternoon run that you can't wipe the smile off your face!!!

The Explorer only takes advantage of known technologies. Our Explorer could easily be used for military applications including patrol assignments and assault efforts.

The 2 photos below are of the Airfish 1 that was developed and built in Germany back in the 1980's and into the 1990's. While flying in the "ground affect" the power was set at 13 hp., and flew at 100km per hour, or 62 mph. Not too bad!!! This group has gone towards building larger crafts, air taxi's and have a licensing deal building multiple units as the "Airfish 8" as of 2016.



I like the feel of this boat, the width/length...

Sub-components/contractors that I have identified over the years;

1. Levi Drives
2. Attwood Hardware
3. Wave Brite Grey Water filter System
4. Climate Right – Heat/Air
5. Kubota / Isuzu Diesel Generator / Yanmar
6. Parker Electric Motors / Remy Electric Motors
7. Schaefer Boom Furling Systems
8. Jacks Plastic Welding -tubes
9. Paddle North



A model that I built a couple years ago

Hydrofoils;

Designed to fly at the surface, or 6" below the surface with a fixed fin/foil that makes the foil fly at a consistent positive 2-3 percent climb, until it runs into the surface of the water or at least the portion that is designed to climb hits the surface of the water. I have reached out to Levi Drives with the intent to use their surface drive technology on our hydrofoils. We might want to mount them closet to the vertical support and have the hydrofoil spring loaded so that the tips rise up higher than the trailing edge when the weight of the boat is lifted off the foils.

Airfoils;

I have looked at Schaefer Furling systems to use for our horizontal wing/sail. Use the leading edge of the airfoil like the boom on a typical sailboat using a boom furling system. We can pull our wings/sail out the leading edge of the airfoil like a sailboat pulls the sail up its mast.

Initial Boat for the Resort Guests to operate:

Ski



The smaller of the two boats above is built at 13ft with a 3 ft platform. It needs to be 21ft long with a 3 ft platform. ***I don't know if I can build boats without retractable hydrofoil/hulls that can get the boat up and over the waves!!!!!!!!!!***

I want to sleep on a 2-person hammock in front of the windshield over the sun pads, Hammock of choice will be the Pawleys Island Deluxe DuraCord Rope Hammock, typical hanging length needed is 14ft to 16ft.

Can the bottom of the hydrofoil/hull be like a slalom ski and put up a spray when you turn?