

Teaching Surf Instructors to Teach



National Surf Schools and Instructors Association Instructors and Coaches Training Manual



Foil Surfing

Provided exclusively for NSSIA certified instructors.

Foil History

Hydrofoil technology has been explored since the early 1900's. Starting in the sixties hydrofoils made their way into recreational activities like water skiing and knee boarding. Leading the way were the likes of Walter Woodward, Lucas Emmanuell, Mike Murphy, Brad Barnett, and Bob Woolly (Air Chair).

In 1963, the first hydrofoil "waterski" was patented by Walter Woodward and Lucas Emmanuell. The hydrofoil structure was attached to the bottom of a pair of fixed water skis with the rider towed by boat. Walters company, Custom Dynamics, Inc. would go on to sell the DynaFlite successfully for over 20 years.

In the 1980's Bob Woolley and Mike Murphy (later to start SkySki in 1998) began working on the first sit-down hydrofoils, the Air Chair. With these designs a rider is towed behind a boat, seated in a chair above a cast aluminum hydrofoil assembly. It was stronger, more stable and much lighter than the original DynaFlight. Air Chair introduced the world to hydrofoiling in 1990. By 1999 it was a well established competitive sport attracting riders from all over the world.

Then in 2003 the surf world was put on notice of the possibilities of the foil when Dana Brown's Movie Step Into Liquid filmed Laird Hamilton surfing Jaws on a foil board that Laird modified from an Air Chair. In the early 2000's Laird Hamilton began riding a modified Air Chair around the north shore of Kaua'i. He removed the chair and attached a pair of snow board boots to the deck of the board. Laird, along with the rest of the big wave riders, found that due to minimal surface contact with the water, hydrofoils rode smoothly through the chop. By tapping into the energy below the surface, they could let go of the line and surf a powerful wave like Jaws. These legends drove foil boarding forward by standing up and harnessing the energy beneath the surface of several of the largest waves on earth.

In 2016, the video of Kai Lenny on a downwind SUP board that was modified and equipped with a foil went viral. This single moment changed the direction of the foil market and opened doors to foiling boarding without the need for and some external power source other than yourself.. From the Kai's modified SUP downwind board to modified SUP boards and surfboards and now a whole market focused on foil specific board designs and a gamut of foils wings designed for specific fit and purpose.

Foil Design

Early on there wasn't a foil specific board and people were attaching a foil to whatever they had laying around, an old SUP, a surf board, pretty much people tried everything. In addition to the foil itself, It was quickly determined that the board design also mattered and entered an abundance of foil specific board designs. There are so many design aspects at play when it comes to foil boarding and it pays to take understand all these variables in order to achieve your desired results. You will quickly learn that with foil boarding the little things matter. Very small changes can result in big differences with regards to performance and behavior.

Determining the best board and foil depends on several factors such as where and how it will be used and the skill level of the rider. They all differ in their performance with regards to maneuverability, efficiency, and ease of use.

For the foil board, although the shape differs greatly from surfboards, the construction is

generally the same whether hand laid glass, vacuumed bagged carbon fiber or even sandwich construction. The big differences for foil boards, and this is important, is how the foil mounts to the board and the construction method used for the mount area. If there is going to be a failure on the foil board this is generally where it will happen. Foils can exert a great deal of force into the board and if the foil mount area of the board is not properly constructed to withstand these forces then it will fail. Worst case construction is a floating foil mount box, this is where the foil mount box, whether just set individual into low density foam, or individually wrapped in high density foam and set into low density foam or even both boxes set into high density foam but the unit as a whole is simply set into a bed of low density foam.

At this point the only real support is the lamination schedule over the top of the mount. The best foil mount construction is to ensure the mount boxes (whether 4 bolt or tuttle) are set into high density foam and the high density foam goes from bottom to deck and is securely capped with an appropriate lamination schedule to create a strong I-beam construction. So when purchasing a new foil board, it is recommend you ask the right questions about your investment and one important question to understand what type of construction is used for the foil mount area.

Foil Construction

For the foil it is important that they can handle corrosive environments that salt water can present. Composite materials such as carbon fiber are popular due to its corrosion resistance and high strength to weight ratio. Other materials, such as titanium and aluminum is great material because of its high strength to weight ratio, corrosion resistance. Aluminum is typically expensive and difficult to shape. Titanium is extremely expensive.

Teaching a Foil Clinic

Overview

Foiling is an exciting new water sports. This clinic will serve as an introduction to surf foiling and provide an overview of the sport and insight on how to get started. While many skills are transferable from non-foiling boards such as surfing, paddle boarding or skateboarding, it does require some new skills to master the foil.

Duration

4 hours

Introduce foil boarding and go over some basics including foil history, equipment overview, safely, and how to get started foiling instruction. If wave conditions are right we'll provide instruction and let participants try out some foil boards.

Preparation

Please prepare yourself for the clinic with the following:

- We will have a select few demo foil boards available
- If it is your first time to foil we suggest bring a helmet for safety ie a skateboard helmet
- Make sure you have plenty of water or food to stay hydrated and energized

- Sunscreen as needed
- A great attitude to learn about the coolest sport around

Agenda

1. Introductions
2. Foil Boarding Overview - a little history of how we got to this new sport
3. Equipment Overview - provide an overview of the different types of foiling equipment for both boards and foils the differences and why it matters.
4. Safety - priority number one is safety. Foiling can be challenging and inherently dangerous if not approached correctly. We will spend some time talking about how to make your foil experience as safe as possible.
5. How to Foil Board
6. Setting up the foil board
7. Show how to transport board/foil setup safely and launch safely to and from the beach

Foiling Etiquette

There is a lot of talk about foils and the danger they pose both to their users and other water users. But as with all watercraft it used correctly and etiquette and safety are observed there should not be any problems. Here are few tips from the pros:

- Stay away from all other people in the water when learning to foil. You have a three-foot blade on the bottom of your board. You are a danger in crowded conditions.
- Always wear a leash, this protects others around you. You will be surprised how far a foil can travel by itself.
- Wear a helmet and impact vest when first learning.
- Always heed to caution when looking to take a wave. If someone looks to be too close or in the way then they are too close. Do not take the wave.
- Do not take off with someone directly in front of you.. foils are much faster than a surfboard. You will overtake them and if you are just learning you may find it difficult to turn and not hit somebody.
- When other surfers are present, go somewhere else. The beauty of foiling is you typically do not want the waves a surfer wants.
- Make sure you pick the right board and foil for surfing.
- Be aware of submerged rocks and sandbanks
- Do not foil alone.
- All foilers should police other foilers who are being dangerous and educate them. If you see someone not sticking to the rules, point it out to them.
- Stay away from crowded surfing lineups... PERIOD.

Best Places to Foil

The really unique thing for foil boarding is that there are so many great options to go foil boarding. Foil boarding is really just an extension of water sports and can be viewed as an option for having more water time. even on those days that most people would consider way to small or mushy to go surfing. these days offer some of the absolute best days to go foil boarding. Because the foil board does not requires a breaking wave there is no need for a foil boarder to surf with a pack of surfers.

There are so many places to go and so many ways yet to be discovered to go out and enjoy the sport of foil boarding. New places are being discovered all the time that are not able to be ridden by traditional surf boards. One to two foot mushy waves are ideal. Placed such as off shore shoals, tanker waves, and protected bays are just a few places where soft rolling swells can be found and are optimal for foil boarding.