

Water sports

A project made by
Amalie Francis
Bodil Pedersen
Isabel Doyer
Erik Tveit



Fall 2005

Index

<u>Front page</u>	<u>p.1</u>
<u>Index</u>	<u>p.2</u>
<u>„What is a wave“ by Bodil Pedersen</u>	<u>p.3</u>
<u>“Surfing” by Bodil Pedersen</u>	<u>p.4</u>
<u>“Diving as a watersport” by Erik Tveit</u>	<u>p.6</u>
<u>“Sailing as a watersport” by Amalie Francis</u>	<u>p.9</u>
<u>Pollution and watersports” By Isabel Doyer</u>	<u>p.10</u>

What is a wave?

By Bodil Pedersen

If you see a wave rolling in on the beach after a storm, or if you are out on the ocean on a windy day, you'll understand that there is enormous power in the waves.

But where do these forces come from? What creates the waves?

Everything from earthquakes to ship wakes creates waves; however, the most common cause is wind. When the wind passes over the water's surface, friction forces it to ripple. The strength of the wind, the distance the wind blows (fetch) and the length of the gust (duration) determine how big the ripples will become.

If the wind continues to blow, the waves will grow. Wave energy is a purified form of sun energy.

The energy in the waves is dependent on the height of the wave (the distance between the trough of the wave and the crest of the wave) and the length of the wave (the distance between each crest) (How a wave is "build up" is better explained further down).

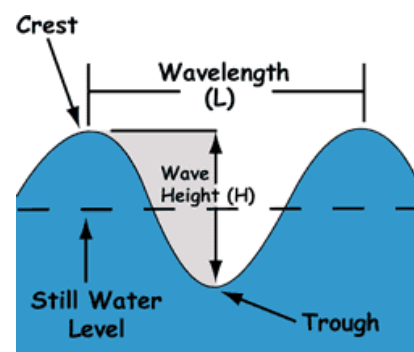
The taller and longer the waves are, the more energy there's in them. In addition, you will find most energy in the waves in deep water. In deep water, a wave is a forward motion of energy, not water. When the waves approach land, the energy in the waves decreases considerably.

There's most energy in tall and long waves, for example in the waves during and after a storm.

How is a wave divided?

Waves are divided into several parts. The **crest** is the highest point on a wave, while the **trough**, or the valley between two waves, is the lowest point. **Wavelength** is the horizontal distance, either between the crests or troughs of two consecutive waves.

Wave height is a vertical distance between a wave's crest and the next trough.



Surfing

What is it, how is it done, and when did it all start?

Surfing is in the encyclopedia defined as an activity or a sport in which individuals are propelled across water by the force of waves, while standing on boards made of either "fiberglass", foam or wood.

The surfer begins at the point where the wave begins to form. Then, facing shore, he/she paddles toward the beach with an oncoming wave. When



the wave catches the board, the surfer stands up and glides along the crest of the wave.(look "what is a wave").

Surfing was originally developed by Hawaiian islanders before the 15th century. It took a long time before it was "spotted" by the rest of world, in fact, in 1821 missionaries banned the activity - they thought it was immoral.

But in the early 20th century, it was spread to the mainland of USA and Australia.

The sport exploded in popularity in the 1950s and 1960s, when the boards became cheaper and more manoeuvrable. The boards were now made of fiberglass or foam, which made riding and different stunts much easier.

Wave Priority - Your Wave My Wave?

If you are surfing on a popular spot, there might be a lot of other surfers who might be after the same wave as you. To prevent surfers to collide, there is one simple rule all surfers have to follow - the surfer closest to the breaking of the wave has the priority.

In this case, it is surfer D who has the priority. He is closest to the breaking of the wave. If surfer D does not get the wave then its up to surfer C and so on.



Surfing Do's And Dont's

- Alcohol. Surfing under the influence is not a good idea.
- Be Aware. Be aware of other surfers and water users, of the surf conditions, and of where you are surfing.
- Comfort Zone. You should surf in waves that you are comfortable in, don't get in over your head.
- Fitness. Make sure you are physically fit when surfing. You need to be able to swim back to shore if you lose your board at the end of an exhausting session .
- Food. As with swimming, do not go surfing for at least 45 min after a meal.
- Fun. Surfing is all about having fun, keep it in mind when you are out in the waves.
- Hold or Throw. Know when to hold onto your surfboard and when to get rid of it.
- Patrolled Beaches. If you are surfing on a patrolled beach make sure that you keep within the designated surfing are.
- Priority. Always make sure that you are not taking anyone else's wave. Practice. If you want to improve then you need to be in the water surfing as regularly as possible. No-one got any better at anything by staying home and watching TV.
- Respect. Respect the locals if you are visiting a beach. Remember that you are a guest and that waves should be shared.
- Rips. If you are caught in a rip remember that it's called R.I.P. for a reason and you will probably not make it back to dry land ever again. Although hopefully you already know that a rip is a strong current that (normally) goes straight out to sea and if caught in one that you should not panic and paddle across the rip (not against it) until you have escaped.
- Sun Block. Always wear a good waterproof sunblock.
- Surf Buddy. Always surf with at least one other person.
- Surf Conditions. Make sure that the surf is safe before you go in. If you are going surfing at a spot you are unfamiliar with it is a good idea to get some advice from a local.
- Warm-up. Always have a quick warm-up and stretch before entering the surf. This will reduce the risk of muscle injury or cramp whilst you are surfing. It also gives you time to check for any rips or where the best spot to catch waves is.

Diving as a watersport

By Erik Tveit

Diving, as a water sport is, at least what I think it is, is when you swim underwater with a tank of oxygen on your back. This is only a small part of what diving really is. There are a lot of different types of diving. Amongst them are snorkelling, free diving, scuba diving and snuba diving.

The Different Types of Diving

Snorkelling is diving with a limited amount of equipment. Snorkellers only use a diving mask and a short rubber tube, called a snorkel. Snorkelling is when a person swims close to the surface observing the ocean and the habitats within. The snorkeller constantly breathe through the snorkel and because of that, he doesn't need to have his head above water when he breathe, since he receives all the oxygen he needs through the snorkel.

Free diving is the most extreme form of diving today. There are three ways of competing in free diving. The first way is called Static Apnea, which means holding your breath for as long as possible. This is often attempted in pools or such. The second way is called Dynamic Apnea and in this part the meaning is to swim as far as possible under water, without surfacing. In this category there are two sub categories, which is with or without fins. The third way is depth diving. This is when the diver swims as far as possible downwards. There are several sub categories in depth diving. They can do it with or without fins, with or without weights, that make them sink faster, and with or without buoyancy control devices. The world record of No limits-diving is 209 metres- No Limits is a sub category to depth diving and contains both weights and buoyancy control devices.

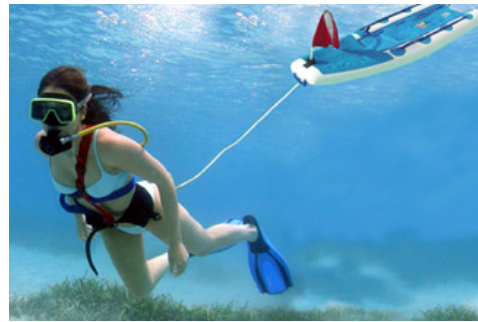


Scuba is short for: Self-Contained Underwater Breathing Apparatus. This is actually the equipment the divers uses during a dive. In short, scuba diving is when a diver carries his own equipment on his back during diving. Among the equipment are an oxygen tank, a diving mask/helmet and a diving suit. Scuba divers often



swim deeper than free divers and snorkellers, because they have oxygen with them and because of that, do not rely on returning to the surface to breathe.

Snuba diving is a new form for diving that is a combination of scuba diving and snorkelling. The difference is that the diver hasn't got the oxygen tank on his back, but it floats on the surface, strapped to a raft. This is a very relaxed form for diving and anyone can do it, since it doesn't require any special diving-license such as regular diving. The depth limit is 6 metres, since it's a depth where decompression sickness doesn't turn into a problem.



Diving Hazards

Diving involves many dangerous situations, but almost every single one can be avoided if handled correctly. Decompression sickness is one of the most common dangers. This is a result of descending too quickly, which means that your body tissue doesn't get rid of the nitrogen or helium your body has absorbed in depth. The only way to avoid this is to descend slowly after a dive. Another hazard is pulmonary, commonly known as "burst lung". This happens if a diver holds his breath while descending. The oxygen in the lungs will then expand as a result of the decreasing pressure and then the lungs explode. This mostly results in death. Hypothermia is another risk divers take. This happens when the diver swims in cold water for a long period and because of that, loses too much of the body heat. Last, but not least is drowning. This is very common not only amongst divers, but other people as well. When there is no oxygen to breathe, the diver inhales water and fills the person's lungs with water. Drowning mostly leads to death, as its definition is: Dying due to not being able to inhale anything but water. In spite of this, many drowned persons can be saved if they get artificial respiration or CPR, within a short amount of time.



Pollution

None of the sports above oppose a direct threat upon the environment, as other water sports do. The only "pollution" the divers leave behind must be eventual garbage they take with them, which is quite unlikely. If the divers were to unbalance the habitats, in any way, it must be by cutting off corals and selling them to tourists. This will, over a long period of time, result in the destruction of the coral reefs. That will result in the extinction of many fish and other sea creatures. Many places today rely on tourism, and wouldn't survive without. Because of this, many people take advantage of the situation, and sell corals. Since many people think that this is an excellent souvenir, the destruction of the coral reefs continues. The people who make a living out of this are only a small part of the water sport community. In general, people who participate in water sports are against water pollution. Many scuba divers lose their "territories" as a result of pollution. If the water gets too polluted, the government closes the beach and no activities are permitted. Because of this, many of the people involved in these activities takes a political stand against it and leads demonstrations against polluting factories, power plant etc.



Diving is very much depending on the oceans condition. This is because the divers study fish, reefs etc. Pollution in the water will kill fish and destroy half the meaning of diving and, as mentioned above, the government will close the beaches and areas where divers dive if they get too polluted. This will result in lesser tourism in the countries that base their tourism on scuba diving and snorkelling.

Conclusion

Diving is a great hobby, but also a profession for some. Diving is also fun and exciting for those who want to try it. Divers exploit the resource called water in a great way. They are not polluting the water, but they still get to study the great wonders of water, from below the surface. Divers are very important in a scientific way because they can discover parts of the oceans that never has been discovered before.

Sailing as a watersport

Sailing is the art of navigating a sailboat for recreational or competitive purposes.



From the first time you step on a boat until the last time you step off, sailing is a learning a experience. Even the most experienced sailors learn something new whenever they encounter an unfamiliar boat, weather or water.

All you need is a boat and some wind to travel the world. Without the need to use presious fossil fuels or to create lung burning pollution, sailing provides a means of transportation used for centuries.

Sailing was first originated I Holland in the 17th. Century, and was later spread to different parts of the world. Now a days sailing is most known in America. The oldest continuously existing club in the United States is the New York Yacht Club. In 1851 members of the NYYC raced the schooner *America* against British competitors around England's Isle of Wight. Of course they won, and donated their trophy to the NYYC. It became known as the *America's Cup*, giving its name to the oldest and most prestigious event in international sailboat racing.

Racing Classes

There is no single "yacht type" of boat, rather many types that include sloops, yawls, catamarans, and ketches. The hundreds of different racing classes fall into three broad groups:

*one-design classes where very similar boats compete;

*handicap classes where dissimilar boats race, some with an advantageous time allowance



*and rating classes where a variety of formulas take into account boat length, sail size, type of rig, and other factors.

Sailboats originally had wooden hulls with sails made of sailcloth, a canvas commonly called duck. Today, fiberglass hulls and synthetic fabrics predominate, and rigid wing sails, which look a lot like aircraft wings. They are used in place of a fabric sail when a high speed is desired.



Pollution

If you are a sailor in the United States, you should always be careful concerning drinking and swimming in the water in some places. In the United States, beaches along both coasts, riverbanks, and lake shores have been ruined for bathers by industrial wastes, municipal sewage, and medical waste.

Especially one disease all sailor should be aware of is the Weil Disease. Weils Disease is an infection caused by the bacterium *Leptospira interrogans*. There are over 200 hundred types or strains of this bacterium that are capable of causing human disease. It is mainly associated with people who have close contact with water courses as part of their job or hobby. The bacterium is carried in the urine of rats and other rodents. The very nature of these creatures is to continuously urinate over the area they travel. Due to this and considering that rats are commonly found in aquatic environments, the following areas and activities may carry a risk of transmission. The bacterium which is present in water and moist vegetation/soil etc. gains access to the body by entering via scratches on the skin, or inhalation of contaminated water droplets. Occasionally this disease has been caught through contaminated foods. It is found in people who do activities such as recreational bathing aquadromes, rivers ,rowing, sailing, campers, water skiing, sportsmen/women.

As long as you are careful and follow all the rules, sailing could be an really exciting hobby or a profession for you. Its easy to learn and With a little bit of training and practice almost anyone can learn how to properly rig a boat, pull halyards and trim sheets. Its an experience worth to try!

Pollution and watersports



- * Water-sports
- * Offshore racing
- * Oil pollution
- * Tin pollution



I was to find out how watersports effects the envirement,

but actually I found no negative effects made by watersport.

But what we all know is that boats cause pollution in the water!

They cause *tin-pollution* and *oil-pollution*...

Motor-sport on water like **offshore-racing (ORC)** and **powerboat-racing (APBA)** and other water-sports that includes boats cause pollution.

F. eg.:

- Fishing
- Waterskiing
- Wakeboard
- Scubadiving



Powerboat-racing:

Founded by: Mr. Carbonell

Mr. Carbonell has been an innovator in this sport. He introduced the "inshore"



He introduced the "inshore" racing format in 1989. Whereas boats used to race offshore far from the public's eyes, his inshore format allowed the audience access within 60 feet of the race course. This made the sport popular, both for the fans and for the sponsors, and changed the entire

marketing and visibility of offshore powerboat racing.

Powerboat is racing at a speed of ca.200-300km/h.

The team consists of 2 persons in a boat;

- a driver
- a throttleman

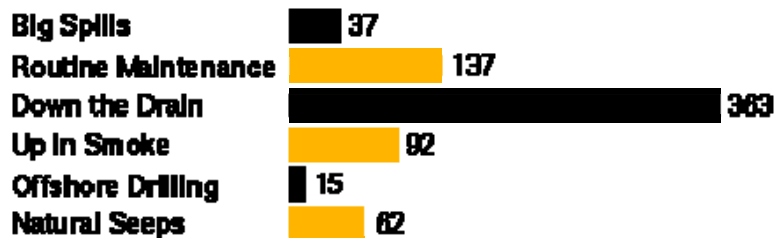
If you're in good shape, maybe you can stand getting beat up at 67 mph for 60 seconds or so before you get tired and back off. In racing, you get beat up for an hour and you don't back off. In racing, the driver and throttle man can get bounced so hard that they crack their helmets together and nearly lose consciousness.

They now have more national fans than ever, and the number of fans is still growing. Super Boat International has assured itself an exciting future.



Oil pollution

When it comes to mixing oil and water, oceans suffer from far more than an occasional devastating spill. Disasters make headlines, but hundreds of millions of gallons of oil quietly end up in the seas every year, mostly from non-accidental sources!



Down the drain: This is how many *million gallons* of oil leaking out in the ocean by boats or other “harmless” transports every year. Now this must cause some damage!

Large spills--even though a relatively minor source of ocean oil pollution--can be devastating. The same amount of oil can do more damage in some areas than others. *Coral reefs* and *mangroves* are more sensitive to oil than sandy beaches or sea-grass beds; intertidal zones are the most sensitive. Crude oil is most likely to cause problems

Tin pollution

Tributyl tin has been used extensively in marine paint formulations to prevent barnacles and slime to stick on boat hulls.

They use tributyl in paint because its biocidal properties kills barnacles (*-andeskjell*) and other organisms that would otherwise remain on the boat. However, it was discovered that Tributyl tin not only kills organisms in direct contact with the boat but is also harmful to other organisms as it seeps out of the paint.

Tributyl tin was banned by many countries around 1980, but it's still widely used on large ocean-going boats, so amounts of tributyl tin are found in almost every harbour.

Symptoms of tin:

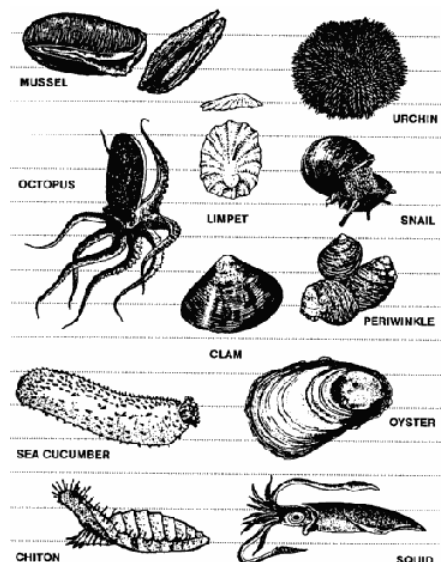
Humans:	Animals:
Headaches	Hemolysis
eye irritation	Hepatic necrosis (OSHA).
psycho-neurological disturbance	
sore throat	
coughing	
abdominal pain	
vomiting	
urine retention	
paresis	
focal anesthesia	
skin burns	
pruritis	



While it takes a relatively large amount of Tributyl tin to cause such symptoms in humans, it only takes trace amounts as small as 50 ng of Tributyl tin to cause problems for Mollusks and other bi-valves. (f. e.g. oysters)

The Mollusks, they function as filters to clean the water, so when the mollusks filter out the tributyl, it builds up inside them. The tributyl tin causes many problems for the mollusks, it weakens and deforms their shells and gives them reproductive difficulty.

Before Tributyl tin was banned, The oyster populations of many harbours were completely wiped out.



The standard maximum allowable concentration of Tributyl tin is 2 ng per liter. It's not uncommon for a shipyard that still has traffic with painted hulls to have concentrations as high as 100 ng per liter or 50 times the legal limit

There is still no standard method for determining how much tributyl tin contamination is present because of the extremely small amounts.

Marine paint is not the only source that causes butyl tins to get into the water. It is also used as a catalyst in the plastics industry and as an algaecide in cooling circuits for boilers.

Because of the ban of tributyl tin, other products have been developed for use on boat hulls. For instance Teqmar Antifoul, contains no tributyl tin or arsenic, but still serves as an antifoulant to keep barnacles and slime off of boats. It still contains toxins but they are harmful only to organisms that are stuck to the boat.

Because it is hazardous and toxic to humans it is not used in any other application of modern life.

Read more about **tin pollution** at:

<http://www.mbhs.edu/departments/magnet/coursesandlife/RandE/matsci/stephen.html>

Read more about **ocean pollution** at:

http://www.southwark.gov.uk/Uploads/FILE_13840.pdf

Read more about **water-sport and pollution** at:

http://www.southwark.gov.uk/Uploads/FILE_13840.pdf

Read more about **offshore-racing Norway** at:

<http://www.aktivioslo.no/kunder/offshorevm/>