Underwater Journal

A Diving Adventure Magazine

Dolphin Dreams

Bahamas Diving on the M/V Dolphin Dream

DSMB: Delayed Surface Marker Buoy

Red Demons Off The Gold Coast

Fiji's Shark Reef Marine Reserve

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Explore, Discover, Challnge

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Cover Image: Group of Atlantic spotted dolphins (*Stenella frontalis*) get friendly in the Little Bahama Banks.
Photographer Walt Stearns. Camera system - Nikon D300, Tokina 10-17mm lens at 11mm/f11, shutter 160 sec.

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Frozen Fins

Ice Diving in the Northeast

Text & Photography
By Michael Salvarezza
& Christopher P. Weaver

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When the temperatures dip below freezing, and the bitter winds of winter begin to blow, many Northeast divers retreat to the comfort of their living rooms. With gear stowed and log books closed; they begin to dream of warm summer days and the dives to come. Or, they may escape the grip of the ice and snow by traveling to far away destinations, leaving the winter behind for a brief time to get their diving fix.

But for the adventurous diver who wishes to extend the local dive season and embrace the challenges of cold water diving, a different type of diving frontier awaits.

So, let's go diving…beneath the ice!

Ice diving is one of the most exhilarating activities local divers can undertake. Despite its seeming dangers, ice diving can be conducted safely with the proper training, equipment and techniques.

The rigors of diving below ice, with water temperatures at or near freezing and with surface conditions even worse at times, can be physically and mentally challenging. But the rewards are great. Besides the thrill of penetrating below ice-covered surfaces, and the sense of accomplishment of having conquered yet another hostile environment, divers will see an aquatic world that continues to exist and thrive despite the harsh conditions of the season.

Lighter weight motorized vehicles like this one are commonly used to transport dive gear across the ice.

First, a word of caution…ice diving should never be conducted without proper training from a qualified dive instructor as part of a certification course. But, depending on were you live, you may find that your local dive shop does not offer an ice diver certification course. Don't despair! With a little research, you should be able find a shop that does. In fact, we had to take our PADI Ice Diver Certification at a dive shop three hours away from home, but it was well worth the effort.

Generally these courses consist of several hours of classroom work followed by a series of dives out on the ice. Because of the need for

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ice-covered surfaces, these dives are often conducted on lakes and inland bodies of water where the surface has frozen completely over. There are numerous locations in the northeast where these dives are conducted. Two such locations are Lake Ronkonkoma on Long Island and Oneida Lake, near Syracuse, New York, but there are many others throughout the region.

So, what's involved? Besides training, ice divers must pay careful attention to preparing the dive site; they must be diligent about using the right equipment, strictly adhere to established procedures and make sure that adequate protection from the elements is available.

Before divers can enter the water a proper dive site must be created by first evaluating the ice conditions. First, the ice surface must be of sufficient thickness and strength to support the entire dive team, and any transport vehicles such as snowmobiles. It's also a good idea to measure the bottom depth if you are not familiar with the area. Once the ice is determined to be safe for diving operations, the second step is to prepare the dive site.

Creating the dive hole requires special cutting equipment; such as handsaws, breaker bars, chippers, augers and/or chain saws. There are several options regarding the shape of the dive hole, which can be circular, square, rectangular, or triangular. Triangular holes are often preferred because there is less ice to cut and the corner angles makes it easier to enter and exit the water. The size of the hole should be large enough to accommodate two divers and a safety diver at one time. On the surface, a visible marker should mark the dive site. Often, a tall branch is used which can be left behind to indicate that there was an opening here that is now being left to re-freeze.

Once the hole has been created, additional markings are desired to help divers under the ice more easily find their way back to the opening.

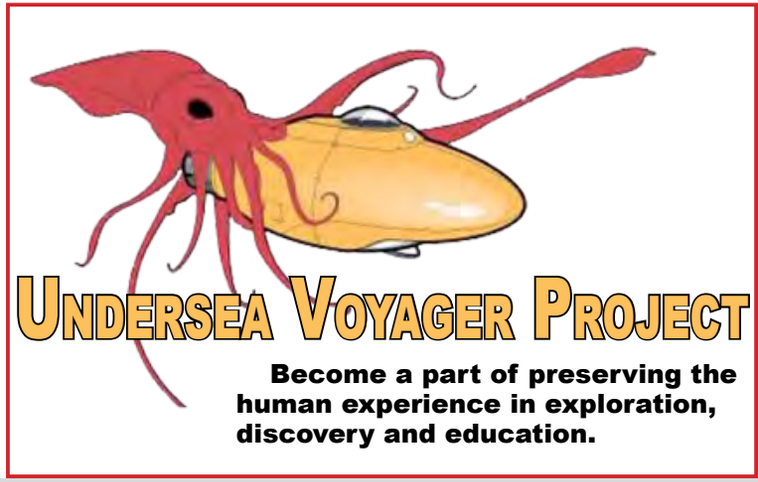
If there is a covering of snow, concentric circles are dug in the snow surrounding the site at predetermined intervals, along with intersecting lines and arrows that point towards the opening. In this manner, ambient light will

penetrate below the surface in the shape of the markings, which can help a disoriented diver find their way out from under the ice. Sometimes this surface "design" takes the shape of a wagon wheel; the most commonly used surface marking system.

With the site created and secured, preparation for the actual dives begins. Of critical importance to the divers is the proper functioning of the dive equipment, the adequacy of the diver's thermal protection and, perhaps most important of all, the securing of a safe and effective rope system.

Regulators must be rated for use in cold-water environments. Divers exploring below the ice must guard against regulator freeze-ups, which will inevitably cause free-flowing conditions. Some divers employ special shunts on the hoses near their second stages to enable them to quickly turn off the flow of air in the event of a free-flow.

Divers also must be careful not to exhale into the second stage while above the water in freezing conditions, as this will frequently



For both safety and communication, color coded lines are tethered to each diver before going in under the ice.

cause a freeze-up. Redundant air supplies are another important safety consideration in these situations.

Divers should not underestimate the effect of cold water on their bodies. Even with dry suits, divers are advised to use under garments rated for these temperatures. Integrated glove systems, which allow for the easy flow of air to the hands, are also beneficial, as is an ice cap underneath the regular wet or dry hood.

Because of the danger of diving in an overhead environment such as a frozen lake, ice diving is a team activity that is made up of support personnel, divers, tenders and safety divers.

The line tender is responsible for playing out and taking in line so that the diver does not get tangled.

Ropes are attached to the diver's chest harness via a locking carbineer to minimize the likelihood of the rope disengaging. Safety ropes leading to the divers are secured to the ice surface using ice-screws, which prevent the rope from accidentally slipping into the water.

A safety diver is always suited up and ready to enter the water at a moment's notice to assist the primary diver in the event of a problem. Safety divers will always have their own line tender.

Communication to the diver or to the surface is accomplished by simple line pulls. Each series of tugs on the line means a different thing. It is vitally important that divers and tenders agree and understand all rope "commands". While there may be variations to these techniques employed in different locations, the general principles are the same. Because different techniques might be used, it is all the more reason to carefully rehearse with all the divers working the site what techniques will be used on the dive.

While divers in the water are often comfortable, the surface conditions can be quite harsh. The flat surface of a lake affords little shelter from the wind and the temperatures may be far below freezing. Some form of protection from the elements should be brought onto the ice

For those who are looking for activities beyond observing the underwater environment, ice divers often search for sunken equipment and other items of interest. For example, in many northern lakes, ice divers are sometimes approached to salvage sunken snowmobiles and other types of equipment that have fallen through the ice.

So, the snow is falling outside. The temperatures are below zero. The wind is howling from the north. Seems like a good day for diving…

- MS & CW

if at all possible to guard against hypothermia while donning and doffing equipment as well as keeping divers warm between dives. Even a small tent can serve as a windbreak, which can mean all the difference while waiting on the surface between dives.

Diving beneath the ice, divers enter a completely alien and spellbinding world. Often, the winter water is clearer, affording exceptional visibility. While the winter temperatures have chilled the lake water, fish have nowhere to go…so they still thrive in these frigid waters. Divers can often observe aquatic life that is often difficult to approach in the summer months.