Beneath the White Sea

> WE GATHERED IN THE FRIGID PRE-DAWN, OUR GEAR AND LUGGAGE PILED IN FRONT OF THE SNOWMOBILES AND OUR NOSES FREEZING IN THE -22°F (-30°C) TEMPERATURES. IT WAS TIME TO LEAVE OUR RUSSIAN HOSTS AFTER A WEEK OF DIVING THE FROZEN WHITE SEA BUT WE WERE TEMPTED TO LINGER A LITTLE LONGER. DURING THESE LAST FEW MOMENTS, STANDING UNDER A CURTAIN OF STARS ON A DEEP, DARK NORTHERN NIGHT IN RUSSIA, WE REFLECTED ON THE EVENTS OF THE PAST WEEK.

1 The maina, or ice hole, is the only exit from beneath the ice
2 Divers find clear dark water beneath the ice
3 Divers explore the ice formations of Biofilter Bay

We'd come to this remote spot filled with excitement and anxiety over the prospect of exploring the icy waters of the White Sea. Nestled alongside the Kola Peninsula and straddling the Arctic Circle, this inland sea – technically part of the Barents Sea – is the only one which completely freezes in winter. Our ice-diving operations base was the Arctic Circle Dive Lodge near the seaside village of Nilma and just north of the Arctic Circle.

Diving the White Sea in winter requires preparation, equipment, fortitude and, most important, adequate training in ice diving techniques. With surface temperatures routinely dipping as low as -22°F (-30°C), and with almost constant snowfall, divers must be prepared for extreme conditions. Almost three feet of sea ice is covered with six inches or more of snow. Once below the ice, water temperatures hover near 28°F (-2°C). Though visibility is generally good, the water can be extremely dark, so many of these dives can almost be considered night dives due to the lack of ambient light penetrating the ice ceiling. Fully functioning cold water gear and good training are essential.

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The diving protocol employed here provides everything necessary to protect divers from the elements. Divers and gear are transported from the lodge via snowmobile. Dive sites vary and may be just a 10-minute run away or a 45-minute trek across the ice-covered sea. Once on site, specially constructed small wooden huts provide shelter for donning and doffing equipment. Each hut has a wood-burning heating system for much-needed warmth before, between and after dives. Indeed, temperatures inside the huts are almost too hot and divers will often be seen propping the doors open to let in some cool air!

The huts are on skis and moved from location to location. They're generally placed within a few feet of the entry, usually a triangular cut made into the ice referred to locally as a *maina*. Once suited up, divers shuffle to the entrance and begin the icy plunge into the magical world below.

Our first dives were at Anemone Rock in 45 FSW (14m), a huge rocky outcrop on the bottom around 20ft (6m) high which rises up from the slope of Bolshoy Krestovy (Big Cross) Island. Some say it's as big as a three-story building and shaped like a dragon's tooth. The seabed is very silty, so care must be taken so as not to stir up the bottom.

Anemone Rock is named for the profusion of life covering this massive structure. Frilled anemones, colourful tunicates, beguiling nudibranchs and a wide variety of other small invertebrate life abound on this oasis in an otherwise nondescript sloping bottom. Wedged inside cracks in the rock are wolf fish, expertly positioned to avoid the range of our cameras! Looking more closely alongside the rock, we did find small bottom dwelling fish such as the Arctic sculpin. Close to four inches (10cm) in length, these wary denizens seemed unfazed by our attempts to photograph them… perhaps they were too cold to move!

Subsequent dives were alongside some of the islands. Small Cross is a rocky outcropping with a tumbling slope which we eagerly explored, photographing the kelp (*laminaria*) covered rocks and the dramatic ice ceiling above. Diving beneath the ice affords divers an out-of-this-world experience as the surface ice takes on a greenish tint from the surrounding water.

Towards the end of our week the temperatures plummeted from a rather comfortable 20°F (-7°C) to a bone-chilling -22°F (-30°C)! Suddenly our dives became more arduous as we struggled to stay warm and keep our equipment functioning. Residual water froze fast in the air so our equipment became encased in ice in mere minutes. The entrance to the dive site became a slushy mix of ice and snow, and any water exposed through the hole also quickly started to freeze over. As we descended through a two-foot (.6m), tunnel of slush and ice, it took all self-control not to breathe off the regulators until fully submerged lest we risk a free-flow. And once under the ice we preferred not to think too hard about whether the surface tenders were keeping the hole clear of solid ice!

At Biofilter Bay, named for its abundance of shellfish and filter feeders covering its rocky bottom, we descended into a cathedral of ice. The Bay isn't extraordinary in summer, but it completely changes in winter. The most interesting thing about ice diving here is the ice itself. Because of the strong tidal currents, the high and low water levels differ by up to six feet (2m), and the tidal cycle lasts about 12 hours. As the ice rises and falls within the water column, it freezes to the rock faces and other ice formations. It then breaks off and tumbles around bumping into each other, then freezes again to these surfaces. This constant tumbling and moving allows the ice to carve amazing underwater ice sculptures. As we drifted along the sloping shoreline just under the ice ceiling, we could witness and explore these chaotic jumbles of fragmented ice crushed together in magnificentl formations. Huge slabs of ice plus bulbous ice 'boulders' floated in the frozen sea, and as we swam amongst and around these frozen monuments to nature's beauty and power, we became even more aware of how special this place is. With only our line to lead us back to the opening and the spine-tingling cold world above, we were encapsulated in the silence of the frozen spectacle below. We floated among these grand ice displays, at one with its frozen beauty before reluctantly returning to the entry hole and the surface.

Beneath the White Sea, in the mysterious and seldom visited Russian Arctic, we'd experienced moments of true physical hardship along with fabulous and magnificent beauty. And now, as we stood in the bitter cold waiting for our transport back to Finland, we swapped stories and reflected on our experiences. Suddenly a shout rang out in the night: "Aurora!"
We all scrambled back to the edge of the frozen sea, our feet in newly frozen snow and looked upward. A shimmering, undulating miracle of nature was displayed across the night sky… the Aurora Borealis (Northern Lights)! The script couldn't have been written more perfectly… it was as if the Arctic itself was bidding farewell. With brilliant greens and yellows, the Aurora danced for us… a show of indescribable beauty that's beguiled people for millennia in the northern latitudes. And one that will continue for millennia to come.


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WHITE SEA INFO
Dive Time: Usually 20-45 minutes, diver dependant. **Breathing Gas:** Air, note Nitrox is not available. **Depth:** Rope dependant; usually not more than about 20m. **Water Visibility:** 15-50m. **Ice Thickness:** Up to 1.5m. **Water temperature:** -1°C to -2°C. **Air temperature:** +6°C to -30°C. **Salinity:** 27.5–28 parts per thousand, lower than the mean salinity of the Arctic Ocean. **Facilities:** Heated huts are available for divers to don/duff gear, and to relax between dives. Snowmobiles are used to transport divers and equipment to and from the dive sites. Diver tenders help divers exit the dive hole, ladders are not used.
White Sea Expeditions: ecophotoexplorers.com/whitesea.asp

1 *Anemone beneath the ice*
2 *Starfish can also be found*
3 *The region is home to picturesque cottages*
4 *Divers are secured to the surface using a system of ropes*
5 *An Arctic sculpin eyes us warily*
6 *Siberian Huskies are well suited for the Arctic environment*
7 *The dive team on the way to the dive site across the frozen surface of the White Sea*
8 *The Arctic environment was quite rigorous for the camera systems*
9 *Divers and equipment must be prepared for extreme conditions*
10 *The authors entering the water*