## Tom Clancy Shadow of the Dragon

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Dr. Patti Moon sat bolt upright in her plastic deck chair, startled at the sudden noise coming across her headset.

The biting wind blowing off the Chukchi Sea didn't realize it was spring and pinked her round cheeks and smallish nose. Apart from her hands, which she needed to work the Toughbook portable computer, her face was the only part of her not bundled in layers of wool or fleece. Dr. Moon leaned toward the folding table, situated on the afterdeck of the research vessel Sikuliaq, straining to hear the noise again. Sikuliaq was Inupiaq for young ice-appropriate for a science vessel capable of traveling through more than two feet of the stuff.

They were in open water now, taking advantage of a large lead, more than a mile wide, to set some research buoys before the wind blew the ice pack back in.

Moon touched a finger to her headset as if that would help her make more sense of the sudden burst of sound. A former sonar technician on a Navy destroyer, she'd listened to a lot of noises from the deep, but nothing like this.

She sat up again, shook away a chill, telling herself it was just the wind.

The scientist slouching beside her turned to look at her with sleepy eyes that dripped barely veiled contempt. She didn't take offense. He looked at everyone and everything on the boat that way. Steven "Snopes" Thorson had spent his entire adult life in the world of academia. He knew he was smart-and he liked to make sure everyone around him knew it, too, fact-checking everything anyone said-especially his colleague and fellow Ph.D., Patti Moon.

Her academic bona fides were stellar-but she'd also had the experience of a life growing up in the Arctic, which apparently burned Dr. Thorson worse than the bitter wind.

Moon spent her first seventeen years in the tiny coastal village of Point Hope, Alaska, just four hundred miles south of where the Sikuliaq now motored to stay hove-to against the wind. She'd been in Anchorage for a high school basketball tournament when the USS Momsen, an Arleigh Burke-class destroyer stopped for a port call. A female sailor had come ashore with the skipper-and that changed her life. No one pressured her to enlist-they didn't have to. She'd grown up on the ocean, fishing and seal-hunting with her father. The sea was in her blood, and though she wasn't sure how she felt about the U.S. government, the beautiful gray warship off the coast of her home state was all the inducement she needed to sign on the dotted line as soon as she graduated. She served six years as a sonar technician.

Her test scores were through the roof, and though she had a reputation for believing most every conspiracy theory she heard or read online, her sea-daddies (and-moms) pushed her to go to school when her enlistment ended. The GI Bill put her through undergrad at the University of Alaska Fairbanks,

after which she'd gone on to attain a first-class graduate degree, and her doctorate in physics from Oxford.

She was just as smart as Dr. Thorson. And frankly didn't give two shits if he judged her for being human and touching her headset in hopes that it would make her hear better. Something was down there. A sound that didn't belong.

And then it was gone, yielding to the other squeals and grunts and songs of the ocean as quickly as it had arisen.

A strand of black hair escaped her wool beanie and blew across Moon's wind-chapped cheek. The wind had shifted, coming from the northeast now-beyond the pack ice. She ignored the cold, focusing instead on the sound she'd heard for only an instant as the hydrophone descended beneath the Sikuliaq.

Ballpoint pens were iffy in the cold, so Dr. Moon used a pencil to record the depth and time in her notebook. She shot a quick glance at Snopes Thorson.

## "You didn't hear that?"

Wind fanned the ash on the end of Thorson's cigarette, turning it bright orange-like a tiny forge. Bundled in layers of merino wool, fleece, and orange arctic bibs, it was difficult to tell much about him, except that he wasn't very tall, and was, perhaps, very well fed. He wielded his sideways glares like weapons when he was annoyed, or, more often, when he was about to annoy someone else by fact-checking every little detail of a conversation. Thorson relished the notion of calling everyone out on the slightest error. Patti Moon made it a point to speak as little as possible around the man-not an easy thing to do when their jobs overlapped and their office was a 261-foot boat in the middle of the Arctic Ocean.

Like Moon, Dr. Thorson was a science officer, managing the dispersal of five expendable buoys that would be sunk in the deep water six hundred miles north of the Bering Strait and eight hundred miles south of the North Pole. If there were any mysteries left on earth, they were in the sea, Moon thought. And some of the greatest mysteries of all lay here, in the Chukchi Borderland, where the relatively warmer and saltier Atlantic met the colder, fresher, and more nutrient-rich waters of the Pacific. Oh, the Navy had bathymetric charts of the seafloor, but she knew from experience that they were not entirely accurate. Hidden reefs and shoals appeared and disappeared. Some believed them to be thick clouds of sea life that rose from the depths fooling a ship's sonar techs into thinking they were in much shallower waters.

No matter where one stood on climate change, there was no denying that the Arctic Ocean was opening to more and more sea traffic during summer months, cutting the delivery time of fossil fuels from ports in Russia and the North Slope of Alaska to the rest of the world by as much as two-thirds. Polar nations like Russia, Canada, Denmark, and the United States were as busy as they had ever been collecting data on the Arctic. Even China had edged into the game, arguing that they were a near-polar nation and going so far as to plant a CCP flag beneath the ice on the seafloor. Other countries had laughed this off as a stunt, but everyone worked to enhance their own capabilities on and under the ice.

Where there were ships of commerce, there were also ships of war.

Dr. Moon noted the hydrophone's depth at the time she'd first heard the noise. Two hundred and fifteen feet, but descending rapidly as the buoy and her underwater mic dropped toward the seafloors

on the Kevlar cable. She adjusted the gain the old-fashioned way-by turning a knob, attempting to pick up the burst again.

"A passing whale?" Thorson said, his cigarette bobbing between his lips. "Sound can travel 4.3 times faster in water. Whatever you heard could be miles from here."

"Maybe," Moon conceded, ignoring the elementary physics lesson. She was professional enough not to rule out anything without a process. But even as she said the word, she knew that this was no whale.

The noise had not faded, but winked out, as if a switch had been thrown-leaving the rest of the ocean chorus to continue in its absence.

The sea was dark and cold, but it was not a quiet place. When she was only five, Patti's father had let her come with him seal-hunting beyond the jutting spit of land that gave Point Hope its Inupiaq name of Tikigaq-forefinger. Her father had showed her how to put the handle of the wooden paddle to her ear and listen to the undersea songs of uguruq-the bearded seal-as they vibrated up from the blade he'd left submerged in the water. The wooden paddle made for a rudimentary listening device, but she was able to hear the occasional song of a bowhead whale, bearded seals, and the ever-moving pack ice that shrieked and squealed like a badly fitting lid on a Styrofoam cooler. Later, during her time in the Navy, she'd learned that fish grunted, croaked, farted, and ground their teeth.

"Pack ice?" Thorson offered. Sullen, but wanting to guess correctly before she did.

She shook her head. "I'd still be hearing it if it was ice. No . . . it's gone dark, whatever it is."

Moon listened to the relatively dull burble of water as the science buoy continued to plummet toward the seafloor, taking the hydrophone with it. She stretched, glancing out at the sea. Calm today for this part of the world, the Arctic churned and swirled, looking like blue Gatorade and crushed ice-the good stuff, the kind you get from a drive-in.

Sikuliaq used her twin Wartsila ICEPOD azimuth thrusters, each capable of rotating 360 degrees, to stay in place relative to the seafloor. The big ice-the dangerous stuff that could gut even a tough polar ship like Sikuliaq-was still a half-mile away, glinting like silver on the northeast horizon.

Moon turned down the speaker and adjusted the headset over her ears, studying sound graphs on the screen of a second laptop, which was also attached to her hydrophone. Her primary laptop received readings from the expendable research buoy that Snopes Thorson had lowered into the water minutes before. The three-foot can was designed to remain under the ice all winter, far below the massive, fast-moving keels that raked the frigid water as deep as thirty meters. Surface buoys were a no-go in such harshly kinetic environments. They would simply be ground to bits. UAVs-underwater autonomous vehicles-drones-were useful. But they were also expensive. Frigid water sapped battery life and made them prone to loss. The Arctic, and the mysteries that lay beneath her surface, still baffled-and ate-technology.

That's where the under-ice buoys came in. Three feet tall and eight inches in diameter, the metal cans were relatively cheap, though expendable seemed not quite the right word for something with a three-thousand-dollar price tag. Attached to a fourteen-hundred-pound anchor, the device would remain on the ocean floor for most of the year, recording measurements on currents, temperature, and salinity at depth. At a predetermined time, shortly before the surface ice was expected to melt, a mechanism

would release the buoy from its anchoring tether, allowing it to float to the surface, collecting more data about flow and thickness and melt rates. When the ice melted and the buoy peeked above the surface, it would send a message to its handlers via short-brust data transmission over the Iridium satellite system.

Ice data was all well and good, Dr. Moon thought. It was, after all, what paid the bills for now, but her real interest was in underwater sounds. To that end, she had begged permission to attach the hydrophone to the deploying cable as the buoy went down. She kicked herself for not rigging a camera at the same time. Even a GoPro might have given her video of whatever had made the sound.

She checked both computer screens, and then looked at Thorson. He surely thought the thick collar of his wool turtleneck made him look like a Nordic fisherman. Patti thought he looked like a little boy wearing his daddy's sweater.

"My money is on bubbles," he said, folding his arms across his chest. He nodded toward his computer. "It's not on the charts, but the sonar's showing a tall ridge jutting up from the seafloor about fifty meters northwest of our position. It's likely you're hearing current burbling around the rocks."

It was Moon's turn to shake her head. "I don't think it's burbling bubbles . . ." She fiddled with the touchpad on her computer. "What depth are you showing now?"

He checked his computer, then leaned sideways, squinting at her screen.

"Same as you. Three-six-five feet."

She gave Thorson her best imploring look, going so far as to bat her eyes a little. "Think we could bring it up a hundred feet, see if I could get that sound again?"

The numbers on her screen kept climbing as the buoy went deeper.

"Sorry, kiddo," Thorson grunted. "Entanglement danger if we reverse the winch right now."

Damn him, but he was right.

Moon thought of begging him more, but Sikuliaq's first officer, a thirtysomething woman named Symonds, trotted down the steps from the wheelhouse and strode over to them, her head bowed against the wind. She also wore a wool turtleneck under waterproof orange Grundens bibs, but she wore hers better than Thorson, like she'd been born in them. A shock of curly blond hair jutted from beneath a black wool watch cap. One of the handful of people on the boat who didn't hold a graduate degree in science or engineering, Kelli Symonds possessed more common sense than most of them put together.

"Low pressure toward Wrangel Island is sucking a knife ridge of heavy pack ice south and west, right on top of us," she said. "The first course looks to be about the size of a cruise ship, and there's city blocks of the stuff after that. The skipper wants us up and outta here in five minutes."

Faces glued to their screens, both scientists gave Symonds a thumbs-up.

Sikuliaq was a Polar Class 5 vessel, fully capable of operating year-round in two and a half feet of new ice, with a few chunks of the previous year's stuff mixed in. Even now, a slushy soup of seawater and baby ice rattled and thunked against the powder-blue hull.

"... and ... we have touchdown," Thorson said. "Can is stable. Detaching now. Cable's coming up."

Patti Moon hunched over her computer again, ready this time, focusing intently on her headset as the winch wound in the Kevlar cable, raising the hydrophone faster now that there was only the counterweight and not a half-ton of gear dangling on the end of it.

The azimuth thrusters under Sikuliaq's hull had already begun pushing her south, away from the jagged teeth of oncoming ice.

And there it was-at least part of it.

The noise started again at two hundred and fifty feet, continuing for almost four seconds before going quiet.

Dr. Moon marked the position in her journal and looked aft, past the red cranes and over the transom at the wake Sikuliaq left in the churning blue-green water. She shivered, and not from the bitter wind. This could not be what she'd initially thought. That was impossible.

Banging metal.

Screams.

Human screams.

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Today, the lesson was on field-expedient weapons, a subject with which John Clark was intimately familiar. Two-by-fours, pointy mop handles, socks full of sand, a handy magazine rolled into a tight tube if it came down to that-all of them could be useful in a pinch when an operative found him-or herself without a gun or a suitable knife. Campus director of transportation Lisanne Robertson was proving herself to be an able student as they walked through the teeming Ben Thanh Market.