

MEG

HELL'S AQUARIUM

STEVE ALTEN

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-----Steve Alten, Ed.D.

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To my father, Lawrence Alten
for always rescuing me when I need it.

Thanks, Dad.

PROLOGUE

Philippine Sea, Pacific Ocean

Encompassing sixty million square miles, the Pacific Ocean is the largest and oldest body of water on our planet, and with an average depth of fourteen thousand feet, it is also the deepest, possessing some of the most biologically diverse creatures ever to inhabit the Earth.



The Pacific is all that remains of the *Panthalassa*, an ancient ocean that was once so vast it covered everything on our planet but the super-continent of Pangea. Life first began in these waters 3.5 billion years ago as a single-celled organism and remained that way with very little change over the next 3 billion years. And then, 540 million years ago, life suddenly took off! From multi-cellular organisms sprang trilobites and corals, jellyfish and mollusks, sea scorpions and squids. Amid this Cambrian Explosion arose one other creature—a unique animal, tiny in size, that possessed a backbone, which separated its brain and nervous system from the rest of its organs.

The age of fish—the Devonian Era—had arrived.

The first of these vertebrates were filter feeders, possessing no jaws in which to seize prey. Because their internal skeletons were composed of cartilage, many species grew a thick armor-like, bony shield that covered their heads as a means of protection. Others developed senses that allowed them to see, taste, smell, hear, and feel within their watery environment. And then, some 80 million years

after the first fish appeared, a revolutionary feature came into being—a set of biting jaws.

It would be an innovation that would lead to mass diversification, separating predator from prey, instantly reshuffling the ocean's food chain. The planet's first true hunters evolved, and with them the wolves of the sea—the sharks.

For many species of fish, the Panthalassic Ocean quickly became a dangerous place to live.

Necessity is the mother of invention, adaptation the means to survival. One hundred seventy million years after the first vertebrates hatched in the sea, a lobe-finned fish crawled out of the *Panthalassa* onto shore ... and gasped a breath of air. Gills would evolve into nostrils and internal lungs, ventilated by a throat-pump. Within 20 million years these new animals had colonized the land.

The age of amphibians had arrived.

Adapting to a terrestrial lifestyle demanded more evolutionary changes, propelled by the need to survive more efficiently. Limited by their need to rehydrate and their ability to ventilate their lungs, amphibians developed a rib cage that allowed for expansion and contraction while increasing the volume of air that could be processed by the lungs. Changes in internal fertilization and the composition of the egg shell further protected the developing embryo from drying out.

Sixty million years after the first lobe-finned fish crawled out of the sea, the first reptiles were born.

More anatomical adaptations would follow. Positioning of the hip girdle gave some reptiles the ability to stand and run on their hind legs. Skull weight was reduced with the addition of new temporal openings that replaced heavy bone with tendon-like materials. These openings also served to increase the bite power of the jaws ... and a new subclass of reptile rose to prominence—the dinosaur.

By this time, Pangaea had separated into two continents—Gondwana and Laurasia. As the planet's landmasses continued to break apart and drift, the Panthalassic Ocean divided into the Atlantic and Arctic Ocean basins and, eventually, the Indian and Pacific Oceans. Changes in atmospheric and geological conditions would lead to global warming and ice age cycles, affecting the inhabitants of both land and sea. The survivors evolved into the next dominant species; the weak dead-ended into extinction.

While the dinosaurs ruled the land and air, another subclass of reptiles—the placodonts and ichthyosaurs—returned to the ocean. These were the planet's first true sea monsters; the long-necked elasmosaurus; the massive-skulled *Kronosaurus*; *Shonisaurus*, a sleek, dolphin-like, fifty-foot, forty-ton ichthyosaur; and

the largest beast of all—Liopleurodon.

Over the next 170 million years these fearsome predators would dominate the land and sea ... until one fateful day, 65 million years ago, when a seven-mile-in-diameter hunk of rock fell from the sky and, once again, everything changed.

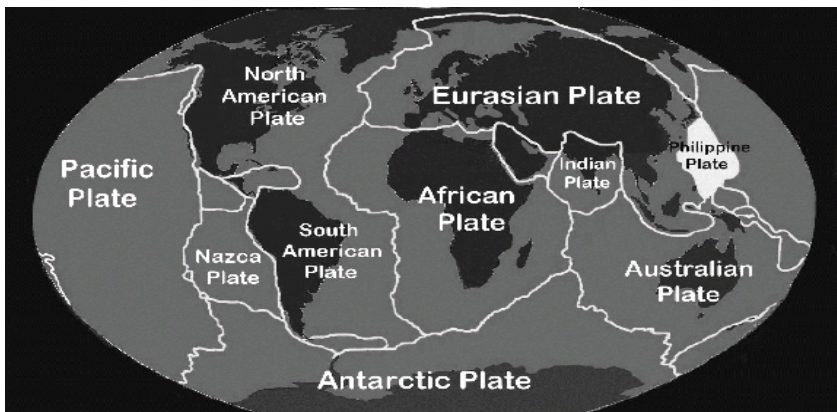
The firestorms brought on by the asteroid strike caused a global nuclear winter of sorts by emitting caustic gasses and millions of tons of ash and soot into the atmosphere, blotting out the sun. The fires subsided, giving way to an ensuing ice age that officially ended the age of the dinosaurs, sparing only those species that could adapt to the sudden drop in temperatures.

But there were other planetary changes going on as well.

Earth's continents and ocean floors rest on a giant jigsaw puzzle of crust known as the lithosphere. Composed of fourteen massive tectonic plates and thirty-eight minor ones, the lithosphere floats over our planet's hot interior like a constantly moving glacier. These movements are driven by volcanic forces that appear along the plates' boundaries—the engine behind the planet's drifting continents.

When molten rock (magma) pushes up through the sea floor, it forces tectonic plates to spread apart, or diverge, creating valleys known as rifts. Should two or more continents collide, the result is an upheaval that creates mountain ranges. When the collision occurs underwater, the denser of the two tectonic plates slips beneath the lesser at the “subduction zone,” creating deep fissures, or trenches—the deepest parts of the ocean. The denser plate melts into magma, reemerging as erupting lava, which leads to the formation of island chains.

Nowhere are these volcanic interactions more evident than along a minor lithospheric plate known as the Philippine Sea Plate.



Forming the basin beneath the Philippine Sea, shaped like a diamond, the Philippine Sea Plate is unique in that it is completely surrounded by subduction zones. Bordering the plate to the east is the massive Pacific Plate which is converging and subducting beneath its geology, forming the Mariana Trench, the deepest gorge on the planet. To the west is the Eurasian Plate, to the south the Indo-Australian Plate, and to the north the North American, Amurian, and Okhotsk plates—each tectonic border forming a deepwater trench.

With an average depth of 19,700 feet, the Philippine Sea Basin represents the most unexplored, isolated region on our planet, its tremendous pressure making it inaccessible to all but the world's deepest-diving submersibles.

Scientists have had to rely on bathymetric equipment in order to obtain any kind of significant data on this ancient geology. In the process, they had failed to discover the sea plate's true anomaly—an isolated sea, hidden deep beneath the basin's crust, that dates back to the *Panthalassa*. Harbored within this enclosed habitat is a thriving food chain that has sustained primitive life since the very first marine reptile returned to the ocean over 240 million years ago.

IT MOVES EFFORTLESSLY through depths' perpetual darkness, its albino hide casting a soft glow along the silent sea floor seven thousand feet below a tempest surface. Streamlined from the tip of its blunt bullet-shaped snout to the upper lobe of its powerful half-moon-shaped caudal fin, the fifty-eight foot, thirty-ton behemoth reigns over its habitat.

Concealed behind the barely visible gum line are hundreds of razor-sharp teeth, each edge serrated like a steak knife. The bottom teeth, totaling twenty-two, are stiletto-sharp, designed for puncturing and gripping prey. The wider upper quadrants, twenty-four in number, are powerful weapons capable of cutting and penetrating bone, sinew, and blubber. Behind the upper and lower front row are four to five additional rows of replacement teeth, folded back into the gum line like a conveyor belt. Composed of calcified cartilage, containing no blood vessels, these dentures are set in a ten-foot jaw that, instead of being fused to the skull, hangs loosely beneath the brain case. This enables the upper jaw to push forward and hyperextend open—wide enough to engulf, and crush, an adult bull elephant.

As if the size and voraciousness of its feeding orifice were not enough, nature has endowed this monster with a predatory intelligence, honed by 400 million years of evolution. Six distinct senses expose every geological feature, every current, every temperature gradient ... and every creature occupying its domain.

The predator's eyes contain a reflective layer of tissue situated behind the retina. When moving through the darkness of the depths, light is reflected off this layer, allowing the creature to see. In sunlight, the reflective plate is covered by a layer of pigment, which functions like a built-in pair of sunglasses. While black in normally pigmented members of the species, this particular male's eyes are a cataract-blue—a trait found in albinos. As large as basketballs, the sight organs reflexively roll back into the skull as the creature launches its attack on its prey, protecting the eyeball from being damaged.

Forward of the eyes, just beneath the snout, are a pair of directional nostrils so sensitive that they can detect one drop of blood or urine in a million gallons of water. The tongue and snout provide a sense of taste and touch, while two labyrinths within the skull function as ears. But it is two other receptor organs that make this predator the master of its liquid domain.

The first of these mid-to-long-range detection systems is the lateral line, a hollow tube that runs along either flank just beneath the skin. Microscopic pores open these tubes to the sea. When another animal creates a vibration or turbulence in the water, the reverberations stimulate tiny hairs within these sensory cells that alert the predator to the source of the disturbance—miles away!

Even more sensitive are the hunter's long-range receptor cells, located along the top and underside of the snout. Known as the ampullae of Lorenzini, these deep, jelly-filled pores connect to the brain by a vast tributary of cranial nerves. This "neural array" detects the faint voltage gradients and bio-electric fields produced by aquatic animals as their skin moves through the water, by the breathing action of their gills ... or by their beating hearts. So sensitive is the ampullae of Lorenzini to electrical discharges that the creature, while moving through the depths of the Philippine Sea, could locate a thin copper wire connected to two D-size batteries if it were stretched from Japan to the Chinese mainland several thousand miles away.

Carcharodon megalodon: prehistoric cousin of the modern-day great white shark. The alpha predator of all time, the Meg bears a ferocity and disposition that condemns it to a lone existence. And yet, while its numbers have dwindled over the last million years, members of the species have survived extinction by adapting—in this case by inhabiting the nutrient-rich, hydrothermally warmed waters of the Philippine Sea Plate's trenches.

RINGING THE CREATURE'S gray-blue right eye and football-size nostrils are a series of gruesome scars that extend down to its upper jaw line and an exposed

section of gum. These wounds, along with a near-lethal bite that stole a twenty-inch chunk from its six-foot dorsal fin were inflicted by a larger rival sibling many years earlier.

To the few humans who have crossed this adult male's path and survived, the Meg is known as Scarface. To the sea creatures that lurk within its considerable range, its pale bioluminescent glow means death.

Scarface's deformed mouth twitches as the sea enters its orifice, held open in a cruel, jagged smile. Driven by hunger, the predator has abandoned its ancestral birthplace in the Mariana Trench to stakeout the Western Mariana Trough.

Rising to the surface at night, it had attacked and killed a juvenile whale shark just outside the shallows of the Palau Atoll. But before it could complete its feeding, dawn had chased it back into the depths, its nocturnal eyes still quite sensitive to direct sunlight. For six hours it had circled a thousand feet below its bleeding kill, then, growing impatient, abandoned the whale shark to continue its westerly trek.

Scarface swims along the sea bed in water temperatures just above freezing, yet the warm-blooded goliath is not bothered by the cold. Running the length of the Megalodon's body, sandwiching its spinal column, are two thick bands of red muscle that not only empower its massive keel and tail, but act like a giant radiator, driving heat into its circulatory system—an internal thermostat operating at a full fifty degrees higher than its skin temperature.

Though it travels in depths that would crush a marine mammal, the fish, lacking an air bladder, remains impervious to water pressure. Buoyancy comes from the Megalodon's liver. Weighing more than 25,000 pounds, the organ is set internally in folded layers and contains a buoyant oil that allows for optimum maneuverability through any depth.

As it moves through its dark underworld, the Meg's ampullae of Lorenzini detect a strange object along the sea floor. Attracted by the faint electrical field, Scarface alters its course to investigate.

Its would-be-prey rests half-buried along the bottom, 12,145 feet below the surface. The rusted steel hull of the World War II Japanese destroyer teases the hungry predator, the diseased metal still producing an electrical current in the water.

Determining the object to be inedible, Scarface moves on, eventually coming to a steep rise—the Western Mariana Ridge. It ascends along the steep basalt escarpment, its ancient surface covered in thriving coral reefs. Gas bubbles percolate from the rocky formations—methane gas and hydrogen sulfide escaping from the ancient sea below.

At 7,670 feet, the ridge levels out, revealing a vast, deep sea basin, the geology of which predates the Megalodon species existence by some 200 million years.

THE GEOLOGICAL ANOMALY had formed 180 million years ago when Pangaea had broken apart, separating into Laurasia (North America, Europe, Asia, and Greenland) and Gondwanaland (Australia, Antarctica, India, and South America). The “slow rift” that had occurred between the two continental plates had created an expanding sliver of crust adjacent to modern day southern China. The stretched section of hardening magma, hundreds of miles long, had thinned and subsided underwater, creating an undersea shelf. While some of this shelf was subsequently destroyed due to other tectonic forces, the crust at the southern part of the West Philippine Basin had thickened, creating, in essence, a false bottom 7,775 feet below the surface of the Pacific Ocean, concealing the ancient subduction zone that dropped to the ocean’s true depths another four miles down.

Over the next 30 million years, the magma spewed from this volcanic subduction zone gradually sealed up the shelf, isolating the habitat from the rest of the Pacific. Nutrient-filled currents insured a perpetual food chain, while the warmth provided by the region’s hydrothermal vents attracted a wide variety of prehistoric life to an abyssal sea that spanned almost five thousand square miles beneath the hardened magma shelf—concealing the true depths of the Philippine Sea.

REVERBERATIONS IN THE water excite the neuromast cells located within the Meg’s lateral line. Scarface alters its course, heading for the alluring current.

It is a hole in the sea floor—a black void—four hundred feet across. Warm water rises from the dark geological orifice—a tropical outflow mixed with methane gas ... and something else!

The Megalodon circles the crater-like aperture, its nostrils inhaling the enticing alien outflow—a scent-filled stew that feeds information to its brain. Scarface grows excited, his mouth opening wider, the increased flow of water causing his gills to flutter even faster, his pulse to race. The Meg’s muscular keel, as wide as a sewage pipe, pumps the hunter’s powerful caudal fin briskly through the water as it arches its back in an involuntary spasm, its senses on fire.

Something is rising from the hole!

The ray-finned fish is ten feet *longer* than Scarface and eight tons heavier. A

docile giant, the juvenile plankton feeder races out of the gap into open ocean—
—unaware of the lurking Megalodon.

Scarface drives its hyperextended jaws sideways into the startled fish, burying its teeth across the filter feeder's pelvic fin, crushing its lower vertebrae.

The sixty-eight-foot Leedsichthys quivers as if shocked by 50,000 volts of electricity, its spasming torso creating a sawing action that assists the Megalodon's serrated upper teeth to cut quicker and deeper. Scarface whips its mammoth head to and fro until its prey's vertebrae snap off in its mouth, separating the tail from the torso in a cloudburst of blood.

Propelled by its heavy ray-shaped, forward pectoral fins, the prehistoric fish continues swimming up and away from the hole without its lower extremity!

Its jowls full, Scarface allows its prey to escape, satisfied to continue grinding the two-thousand-pound bite of gristle and meat into swallowable pieces. Slug-gish, its senses momentarily distracted, the Meg detects the presence of another creature rising from out of the hole—failing to distinguish prey from predator.

Fully aware of the circling creature, the leviathan shoots out from the hole, its imposing jaws—thirty-two feet from snout to mandible—slamming down upon the Megalodon's pelvic girdle. Dagger-shaped fangs emasculate Scarface, snapping off its twin claspers before grinding the cartilage supporting the base of the shark's thick caudal fin into mince meat.

Scarface whips its head around, its jumbled senses taking in the larger hunter as it continues rising majestically from the hole to circle the wounded Meg.

At 122 feet, the female pliosaur is longer than a blue whale and just as heavy. Behind its immense crocodile-like skull is a long, muscular torso powered by forward and rear flippers, ending at a stout tail. Incredibly agile for its size, the monster banks hard, performing a series of quick, tight loops around its adversary, ever mindful of the Meg's fearful set of jaws. Possessing a keen sense of smell, the hunter's sensory system has locked in on the steady stream of blood pouring from the Megalodon's partially severed tail. It can feel the pulsating rhythm of the shark's two-chambered heart, it can taste the hot, pungent blood pumping from the wound.

Barely able to propel itself forward, Scarface fights to stabilize itself against the circling predator's powerful current.

What happens next is as fast and furious as it is deadly.

With a colossal thrust of its powerful forward flippers, the one-hundred-ton pliosaur shoots off into the darkness. Then, with the grace of a sea lion, it banks into a 180-degree turn and, circling in from behind, strikes the floundering Megalodon with its open maul, the force like that of a charging locomotive hitting a

stalled car.

A burst of bloody excrement explodes out of Scarface's mouth as its internal organs are crushed beneath 22,000 pounds per square inch of pressure. The Megalodon's stomach convulses and turns inside out, protruding from its cavernous mouth like a pinkish balloon as it regurgitates the undigested remains of its own partially swallowed meal. The shark lashes back and forth as the larger predator sets its jaws harder into its belly's yielding flesh, the pliosaur rolling its head back and forth like a crocodile to quiet its prey—the rocking motion allowing its ten-inch, spike-shaped teeth to sink deeper into the shark's albino hide.

For twenty long minutes the two titans remain interlocked, their bodies bathed in the warm outflow of the hole's rising current—the Megalodon held sideways, suspended in a vice grip as it bleeds out and drowns, its killer's fang-filled mouth clamped down in an unyielding death-hold, its locked jaw muscles tensing against its dying prey's final throes.

Finally, Scarface's once-rigid form goes flaccid, its massive cardiac muscle ceasing to pump. The pliosaur shakes the dead Megalodon back and forth several more times just to be sure, then whips its body into snake-like gyrations as it disappears back down the fissure with its young's next meal—

—leaving behind a dispersing trail of blood.

PART 1

“MAY THE HINGES OF FRIENDSHIP NEVER RUST, NOR THE WINGS
OF LOVE LOSE A FEATHER.”

—E.B. RAMSAY, *REMINISCENCES OF SCOTTISH LIFE*

Monterey Peninsula Airport
Monterey, California

Saturday

The black Lexus JX sedan is double-parked outside Gate B, the vehicle's driver—Jonas Taylor—eyeballing the airport cop who has sent him circling the airport four times already. The sixty-six-year-old paleobiologist glances at his twenty-four-year-old daughter, Danielle, curled up in the passenger seat next to him. The model-pretty blonde, who works part-time for a local NBC-TV affiliate as a news reporter and weekends emceeing shows at the Tanaka Institute, is staring at the digital clock on the dashboard, growing impatient. "Almost 4:30. If his plane doesn't get here soon, I'll miss the evening show."

"His plane just landed. Relax." Jonas taps the steering wheel to an old Neil Diamond tune on the radio. "Anyway, Olivia can always emcee the show in a pinch."

"Olivia?" Dani looks at her father as if she just swallowed turpentine. "Dad, the Saturday night show is my gig, period. Now would you please turn off that annoying song."

"I like Neil Diamond."

"Who?"

"Come on, I'm not that old."

"Yeah, you are. Seriously, Dad, I will pay you to let me change the station."

"Fine, only no gangster rap."

"It's 'gangsta,' and get with the times. Ghetto is in. It's what we relate to."

"My mistake. I forgot your mother and I raised you as a poor Black child in a gang-infested neighborhood."

The airport cop approaches the Lexus. Before he can signal Jonas to move the car, twenty-year-old David Taylor steps out of the baggage claim exit, an orange and blue University of Florida duffle bag slung over one broad shoulder. Jonas's son is wearing a gray Gator's Football tee-shirt, faded jeans, and sneakers. He is fit and tan, his brown hair long, speckled with golden highlights from being in the sun, his almond-brown eyes hidden behind dark sunglasses.

David tosses his duffle in the back seat of the Lexus and climbs in. "Sorry. Plane was an hour late."

"No worries, we just got here. Right, Dani?"

"Wrong. You know dad, he had to leave an hour early." She allows David to kiss her cheek. "You look good ... Jesus, Dad, drive!"

Jonas pulls into traffic, following the signs leading to Highway 68 West. "You look like you gained a few pounds. Lifting weights again?"

"Yes ... and no, for the last time, I am not trying out for football."

"Sure, I know. I just saw the shirt and thought—"

"It's just a shirt."

"—because the coach called our house twice last week. He lost two wide-outs to injuries in spring training. With your speed—"

"Dad, enough! My playing days ended in high school."

"Okay, okay. I just remember my playing days at Penn State ... those were the best of times—"

"Please, that was half a century ago." Dani ruffles her father's thick mane of snowy-white hair. "David, what do you think of Dad's new look?"

David smiles. "It's as white as Angel's ass. It was still gray last time I saw you."

"Comes from working too closely with monsters."

"I thought you enjoyed working with Angel's pups?"

Jonas smiles at his daughter. "I was talking about you."

Dani smacks him playfully across his head. "I told him he should use that hair stuff that gets rid of the gray."

"Don't listen to her, Dad. It makes you look more intelligent. Sort of like Anderson Cooper, only a lot older."

"Good. I can use all the help I can get. David ... about this internship—"

"Dad, we talked about this."

"There are other specialties in marine biology. We just completed the *Manta Ray* sale with the Naval Warfare Center, thanks, in part, to your piloting demo. The Navy knows you're the best pilot we have, and the Vice Admiral mentioned they could use a good trainer—"

"You know I love piloting the subs. I just like working with the Megs more. There's something about big predators—"

"You want big predators? San Diego needs a new trainer for their female Orca. I could make a call—"

"Pass."

"What's wrong with Orcas?"

"Nothing, if you enjoy teaching dog tricks to a whale. Angel's pups have special needs—"

“Pups? Christ, you make them sound like a litter of cocker spaniels. The three runts are already larger than an adult great white, and the two sisters ... you tell him, Dani.”

Dani nods, text messaging on her cell phone. “The sisters are evil. They’ll be as big and nasty as their mother.”

“Why do you call them ‘the sisters?’ Technically, all five are sisters.”

“When you see them every day like Dani and I do, you’ll understand. They may have shared the same womb, but the three runts look and act nothing like Bela and Lizzy.” Jonas exits Highway 68, heading south on Highway 1. “How’s Corrine?”

“We broke up.”

Dani looks up. “Seriously? Because I never liked her.”

“Wait,” Jonas jumps in, “what was wrong with Corrine?”

“She was getting too serious.”

“What’s wrong with serious? Is serious so bad?”

“How’s mom?”

“She’s good. And don’t change the subject.”

“Mom’s stressed out,” Dani says.

“Not PETA again?”

“Worse. A thug off-shoot. They call themselves R.A.W. Stands for ‘Return Animals to the Wild.’ Dad had to hire a security outfit; they were puncturing the staff’s tires. I’m trying to convince my producer to let me do an exposé. These assholes don’t give a damn about the Megs. They’re just after the free publicity.”

David says nothing, preferring to gaze out his passenger window at the Pacific Ocean peeking through the rolling hillsides.

Jonas weighs the sudden silence. “Go ahead and say it, David. ‘The pen’s too small. The pups are getting too big.’”

David looks at his father. “What did the State Assembly say?”

“Same as they’ve always said. No more expansion, at least not along the coast. They offered us six hundred acres in Bakersfield—”

“Bakersfield? Why not Death Valley?”

“There may be another option. Mac and I have a meeting on Monday with Emaar Properties out of the United Arab Emirates. Rumor has it they’re constructing some kind of new state-of-the-art aquarium and hotel in Dubai.”

“I heard about that. The place is supposed to be incredible, ten times the size of the Georgia Aquarium. You think they want one of the pups?”

Jonas nods. “I’d bet the house on it.”

THE LEXUS HEADS south on Cabrillo Highway, exiting onto Sand Dunes Drive. David stares at the ocean, mesmerized by its crashing surf, marveling at the differences between Monterey's rough Pacific and Florida's calmer Atlantic, where he has spent the last three summers interning at the Harbor Branch Oceanographic Institution in Fort Pierce, completing field work in order to earn his bachelor's degree in marine biology. Up ahead he sees the familiar concrete and steel bowl, the arena's ocean-access canal running out to meet the deeper ocean waters like a submerged pier.

The Tanaka Institute and Lagoon: home to the most dangerous creatures in the planet's history.

BUILT BY DAVID'S maternal grandfather, Masao Tanaka, more than thirty-five years ago, the lagoon had originally been designed to function as a field laboratory to study cetacean behavior. Each year, tens of thousands of whales migrated south from the Bering Sea along California's coast, searching for shallow, protected harbors in which to birth their calves. The Tanaka Lagoon, essentially a man-made lake with an ocean-access canal, was thought to be the perfect birthing place for pregnant females who were struggling to make it down to Baja.

Masao had mortgaged his family's future to build the facility, but when rising costs had depleted those funds, he had been forced to seek help from the Japanese Marine Science Technology Center. JAMSTEC was more interested in creating an early-warning, earthquake detection system off the Japanese coast, and Masao held the patents on U.N.I.S.—a new Unmanned Nautical Information Submersible. In exchange for funding his whale lagoon, Masao accepted a high-risk contract with JAMSTEC to deploy twenty-five UNIS robots seven miles below the Western Pacific, along the seismically active sea floor of the Mariana Trench.

To complete the mission, Masao's son, D.J., had to escort each UNIS to the bottom using an Abyss Glider, a one-man, deep-sea submersible resembling an acrylic torpedo with wings. It would take months to deploy the robots, but once the system was up and running the network worked like a charm. And then, one after another, the drones stopped transmitting data. JAMSTEC froze funding on the whale lagoon, insisting Masao fix the problem. To do that required retrieving one of the damaged UNIS robots—a two-submersible job—but Masao refused to allow his other pilot—his daughter, Terry—to make the dive with her younger brother. Instead, he turned to an old friend for help.

Before he became a paleobiologist, Jonas Taylor had been the best deep-sea submersible pilot ever to wear the Navy uniform ... until his last dive in these very waters seven years earlier. Working in a three-man submersible below 33,000 feet, Jonas had suddenly panicked, launching the Navy's vessel into a rapid emergency ascent. The duress of the maneuver had caused a malfunction in the cabin's pressurization system and the two scientists on board died. Jonas, the only survivor, claimed he had performed the risky ascent after being confronted by "an enormous, ghost-white shark with a head that was bigger than the entire sub!"

The Navy diagnosed their prized argonaut with psychosis of the deep. His naval career over, his confidence shot, Jonas set out to prove to the world that he was not crazy, that the unexplored 1,550-mile-long gorge was indeed inhabited by *Carcharodon megalodon*—a sixty-foot, prehistoric version of a great white shark, an ancient predator long thought extinct.

Masao cared little about Jonas's bizarre theories. What he needed was a second deep-sea pilot to accompany his son on a salvage operation. Forced to confront his fears, Jonas accepted the mission, but only because he was convinced he could recover an unfossilized white Megalodon tooth—proof that the creatures were still alive.

What he found was a nightmare that would haunt him the rest of his days.

Jonas Taylor was right, the deepwater's of the Mariana Trench contained an array of undiscovered life forms comprising part of an ancient food chain dependent on chemicals originating from hydrothermal vents. These volcanic pumps created a tropical bottom layer capped off a mile above the sea floor by an insulating silty plume of debris. For tens of millions of years this isolated habitat had been a haven for prehistoric sea life, its deadly pressures discouraging man from venturing into its forbidden depths.

After an hour's descent in suffocating darkness, Jonas and D.J.'s one-man subs managed to penetrate the hydrothermal plume and were soon tracking down one of the damaged UNIS robots. The titanium shell had been crushed, but what Jonas had taken to be a white tooth was merely the severed arm of an albino starfish. Feeling the fool, he assisted D.J. in digging out the half-buried seismic device.

But the vibrations created by the sub's robotic arms reverberated sound waves throughout the underwater canyon, attracting a forty-five-foot male Megalodon! D.J. was attacked and killed when his sub imploded, while the Meg became hopelessly entangled in the sub's retrieval cable. As the surface ship unwittingly

tingly hauled the entrapped beast topside, an even larger Meg—a pregnant female—showed up and attacked its struggling mate, following its gushing trail of blood topside.

Because of Man's intrusion into the abyss, history's most dangerous predatory species had been released from its 100,000 year old purgatory.

The Tanaka Institute was charged with the task of hunting down the female. Their goal: to quarantine the monster within the whale lagoon. Jonas was eventually forced to kill the Meg, but one of the female's surviving pups was captured and raised in Masao's cetacean facility.

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Over the years, Angel had grown into a seventy-four-foot-long, seventy-thousand-pound monster, her presence attracting millions of visitors. Jonas and Terry were married. And then one day ... Angel broke through the giant steel doors of her canal and escaped, making her way across the Pacific to the Mariana Trench, returning to her species' ancient habitat to mate.

Two decades later, the creature would find its way back home to California waters to birth a second litter of pups inside the man-made lagoon.

Masao died tragically in the interim, but Angel's return gave his institute a new lease on life. With help from the State of California, the Tanaka Lagoon once again became the most popular tourist attraction in the world.

But success is fleeting, bringing with it its own innate set of problems. Running an aquarium as large as "Angel's Lair" required an extensive staff: marine biologists and animal husbandry specialists to care for the Meg as well as her new pups; an environmental team charged with maintaining the lagoon and the new Meg Pen; along with administrators and public relations staff, security and food handlers. Working with a fully-mature, fifty-one-ton Megalodon and her five offspring created its own unique challenges, where any mistake could be a fatal one.

THE LEXUS TURNS right onto Masao Tanaka Way, a private drive that leads to the aquarium's grounds. Jonas pulls around three lines of cars seeking entrance into the facility, turning down an access road for the —

—blocked staff lot.

Several dozen protestors wearing Army fatigues, carrying signs in blood-red paint that read: FREE THE SHARKS; MEG-A-TORTURERS; and MONEY + EXPLOITATION = CRUELTY. Recognizing Jonas's car, the picketers swarm in, hurling raw eggs and insults. Bodies press against the windows, rocking the sedan, threatening to roll the vehicle over.

A thin Hispanic woman in her late thirties, wearing a red tee-shirt featuring dead, fin-less sharks lying on a pier, presses her bra-less chest against David's window as she yells an expletive-filled diatribe about slaughtering the shark population.

"What is wrong with these people? The Institute isn't about killing sharks. We *protect* them!"

"All I know is that these assholes are making me late!" Danielle leans over and honks the car horn, alerting a team of security guards. Armed with tasers, they rush out of their booth, scattering the crowd.

Jonas rolls down his window to speak with the head of security. "I thought these bozos were told they had to stay outside the main entrance?"

"Yes, sir. The cops have already been here twice. They issued citations. Even hauled a few of them off. They just pay the bail money and are back on the street in two hours. Local TV crew was out here earlier. I think it just encourages them. Maybe you ought to sic Angel on 'em, huh?"

Dani leans over her father. "What TV station? It wasn't Channel 5, was it?"

Jonas cuts her off. "Don't taser anyone—" he winks "—at least not while the film crews are around." He seals his window and drives onto the staff lot, cordoned off by a recently installed chain-link fence.

Despite the presence of the protestors, the adjacent public parking lot is packed with cars for the evening show.

Dani runs ahead to the Lower Level gate to get ready, while David follows his father through the staff entrance into the administration building. They take the elevator up to the third floor, then follow the main corridor to Terry Taylor's office.

David's mother sits behind her desk, speaking on the phone. She waves and smiles at her son, signaling, "One minute."

Jonas taps David on the shoulder, ushering him to the bay windows. He raises the Venetian blinds, revealing the lagoon and its surrounding arena, the bleachers packed with people of all ages. Dusk is settling over the Pacific, bathing the western horizon in shades of gold and magenta. With the sun fading fast, three light towers situated along the stadium perimeter slowly come to life, their bright beacons illuminating the azure-green, windswept waters of the main

tank—a three-quarter-mile-long, eighty-foot-deep artificial lake running north-south along the coast. Connecting this man-made body of water to the Pacific is a perpendicular channel located at the midpoint of the lagoon's western border. Consisting of two concrete sea walls running parallel to each other, the canal extends across the beachhead behind the facility like a highway off-ramp before it submerges a thousand feet into the Pacific, ending fifty yards short of the Monterey Bay Canyon drop-off. Only a pair of mammoth underwater doors made of reinforced steel prevent the lagoon's star attraction from escaping to the open sea.

David's eyes search the main tank. The lagoon is empty, its lone occupant preferring the depths of the canal and its steady rush of ocean current. Craning his neck, he looks to the northern end of the bowl to see its new section of bleachers still under construction.

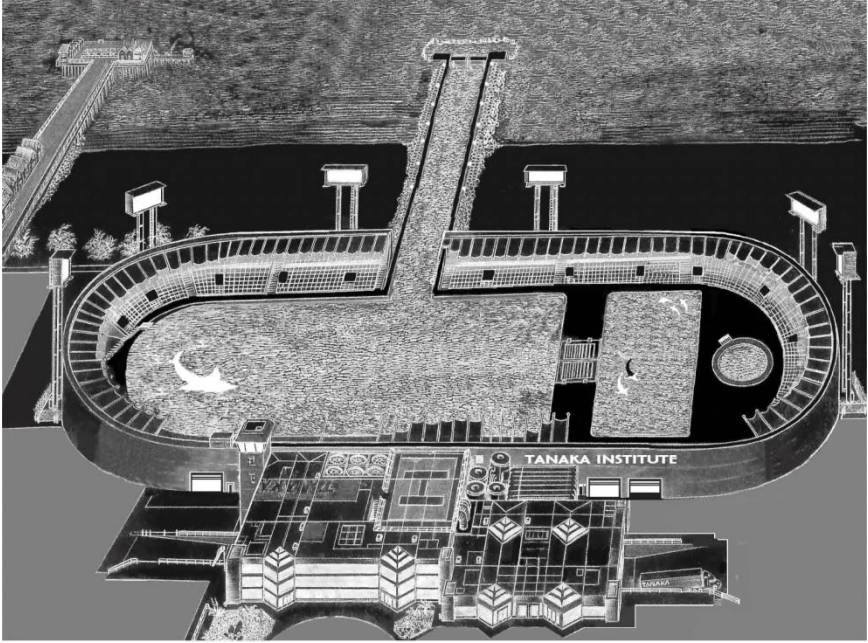
FIVE YEARS AGO, the stadium's original northern bleachers had been removed to expand the facility, allowing for the construction of a brand-new, state-of-the-art, sixty-million-gallon, saltwater aquarium. Dubbed the "Meg Pen," the rectangular tank, along with its "medical pool" became home to Angel's five female pups. Though designed as a separate habitat, the pen was technically connected to the larger lagoon via a twenty-foot, submerged concrete tunnel, the doors of which always remained sealed on both ends to protect the pups from their overly aggressive parent.

Situated on a boom truck, anchored close to the Meg Pen is the *Jellyfish*, a maintenance submersible featuring a twenty-two-foot-in-diameter, four-inch-thick spherical hull made of clear acrylic too wide for Angel and her aggressive brood to wrap their jaws around.

Two stories below the Meg Pen's main deck is the largest underwater viewing window in the world. Thirty-two feet tall by eighty-five feet wide, composed of four-foot-thick, clear acrylic glass and buttressed by seven-foot-thick concrete pillars, the Meg Pen Gallery was quickly rivaling Angel's Lair as the most popular attraction at the Institute.

Beside its smaller medical holding tank, the Meg Pen could be divided in half by a retractable, rubber-coated, titanium chain-link fence set on tracks. The intent was to give the facility's staff the option of segregating one or more of the pups ... should the need ever arise.

With each passing day, that need seemed to be gaining a new sense of urgency.



THE STANDING-ROOM-only crowd of 15,596 cheer as three men in orange staff jump-suits wheel a headless, skinned steer carcass toward the large steel A-frame that stands poised at the southern end of Angel's tank. Teddy Badaut, a French-Portuguese marine biologist, instructs his two "guest feeders" on how to prepare Angel's meal. Tucked within fatty pockets of the 225-pound side of beef are pouches of vitamins and mineral supplements. Using digestible plastic ties, Teddy and his two assistants attach the A-frame's four-inch-thick steel chain to the carcass's rib cage before swabbing the meat down with mop-fulls of fresh blood ... as the sound of voodoo drums simultaneously rise over the arena's sound system and thump through the lagoon's underwater speakers.

Danielle Taylor, the show's emcee, waves to the crowd as she approaches the southern end of the bowl and the more expensive seats. Her podium is located behind the A-frame, close enough for the nauseating scent of raw meat from the star attraction's prepared meal to wash over her. "Ladies and gentlemen, boys and girls ... Welcome to the Tanaka Institute."

HOVERING IN THE deepest part of the ocean-access canal, her snout rubbed raw from her ampullae of Lorenzini's attraction to the electrical discharges emitted by

the porous steel doors, is the twenty-seven-year-old female Megalodon known as Angel. The predator—pure white—inherited her albino features from an ancestral line that had inhabited the eternally dark recesses of the Mariana Trench over the last quarter of a million years.

Basketball-size pores situated along the face of the steel doors channel a steady current into the Meg's nostrils and open mouth, enabling her to breathe without exerting much energy. Upwards of a thousand gallons of seawater flow through her body every minute, providing oxygen to be processed by her gills while conveying a "sensory picture" of the environment just outside her realm. Angel can taste whale urine drifting from a passing pod of humpbacks three miles away and can feel the reverberations of their exertions. She can hear the annoying whine of speedboats and whale watchers. Farther to the south, she can sense the electrical pitter-patter of heartbeats—a family from New Jersey wading in the shallows off scenic Carmel.

And then, like a wave of white noise, the underwater cacophony of bass drums overwhelms Angel's sensory orchestra, sending the sensitive neuro-cells along her lateral line into spasms. Her routine disrupted, the Meg bashes her triangular snout against the gate several times, then circles, heading back into the lagoon to register her annoyance.

A GREAT ROAR rises from the crowd seated in the western bleachers, the cheers spreading throughout the rest of the bowl as a slow-moving wake, six feet high, rolls majestically into the main tank, the submerged creature's sheer girth pulling a river of current.

A cold Pacific wind whips through the open-air arena. Visitors adjust their collars against the sudden chill, parents zip their children's jackets and bundle their infants in souvenir blankets while they wait impatiently for the main attraction to surface. To the purists among them, simply bearing witness to *Carcharodon megalodon* circling along the bottom of the tank is worth the price of admission. Here was a living, breathing prehistoric monster everyone believed extinct—a giant great white shark that had ruled the planet's oceans over most of the last 30 million years.

Turn back the clock a mere 100,000 years and you would find Angel's predecessors stalking whales along this very coastline. Why these apex predators ever disappeared remained a mystery. How a sub-species managed to survive in the abyss was a paradox of evolution. To the millions who have seen her, the big female's presence in modern man's world seemed nothing short of a minor mi-

racle. But to some locals and experts alike, the Megalodon and her five maturing pups represented the potential revival of a dangerous species that many felt was better off left extinct.

Angel remains deep, moving along the bottom of the lagoon in a perpetual figure-eight pattern. Reaching the northern end of the tank, she circles back to the south, rushing head-first into her own oncoming current.

The sudden surge invigorates her gills while momentarily muting the annoying underwater acoustics—stimulating a cause-and-effect response.

DANIELLE TAYLOR'S BLUE eyes focus upon the approaching wake, its height rising noticeably as its speed increases. Crossing the length of the lagoon, Angel abruptly circles back again to the north, one swell running into the next—

—the sudden displacement of sea causing the water level in the far end of the tank to drop precariously.

Something's wrong. She's moving way too fast.

Dani grips her microphone, uncertain what to do. "Ladies and gentlemen ... Angel, Mother Nature's own angel of death!"

The side of beef is swung into place over the southern end of the tank. Blood drips from the chain, falling thirty feet to the surface. Patrons steady their camcorders and cell phone cameras, waiting for the "money shot," while up in his mother's velvet perch, David watches spellbound, his heart pounding in his chest. "I'm telling you, something's definitely setting her off. Dad, the swell—it's rising higher than the sea wall!"

"Sweet Jesus." Jonas grabs the walkie-talkie from its charger on his wife's desk. "Dani, get out of there, clear the deck! Dani, can you hear me? Dani!"

DANIELLE TAYLOR'S EARPIECE is tucked snugly inside her shirt collar; she can hear nothing but the echo of cheers and groans as the Meg races around the oval tank like a mad bull. The lagoon is essentially a giant bathtub, the female's moving mass creating an ever-increasing ebb and flow that lifts a mountainous swell at one end of the tank, a retreating valley in its opposing end, the inertia building, each swell growing exponentially higher until ...

Dani backs away from her perch beneath the A-frame, falling, stumbling over the concrete base as an eighteen-foot wall of water rolls out of the tank, its towering crest blocking the arena lights from her view.

Sound disappears, followed by an intense ocean roar as Danielle Taylor is

lifted off her feet and launched backwards over the suddenly submerged deck, her head striking the concrete riser in the second row. The wave pounds the south bleachers and blasts skyward, drenching the audience twenty rows up in bone-chilling water and foam before its backwash, an eight-foot, retreating torrent, rolls back into the lagoon, dragging the Institute's two "guest handlers" with it.

Submerged beneath the wave, Andy Murch, a staff photographer at *Shark Diver* magazine, claws at the concrete sea wall, his left hand somehow maintaining its grip on painted cinder-block as he fights and kicks like mad against the powerful current, trying to outlast the wave before it sweeps him into the lagoon. Just as the water level recedes, he's struck by the floundering figure of the second guest handler—twenty-one year old Jason Francis, a varsity soccer player at USC.

The crowd gasps as the two men surface in the south end of Angel's Lair.

HAVING HEARD HIS best friend yelling to Dani over the walkie-talkie, James "Mac" Mackriedes races out of his office in the new Meg Pen annex and out onto the lagoon's main deck, confronted by chaos.

Two men in orange handler jump-suits are floundering in the water.

Drenched fans in the lower southern bowl seats are climbing over people in the upper rows to get to higher ground—

—while in the main tank, Angel is riding a two-story swell that could easily wash her over the five-foot sea wall and twenty feet of decking—all that separates the lagoon's waters from the Meg Pen.

Mac holds his breath, watching as the albino creature submerges a split second before the wave crashes against the sea wall, the wall of water rolling across the northern deck and into the Meg Pen.

Hurrying to an equipment closet, Mac grabs a rescue ring and rope from a hook—

—while on the far side of the arena, Jonas exits the eastern stairwell. Slogging through ankle-deep water, he searches for his daughter.

Three stories up, his wife shouts commands to him over the walkie-talkie, "Jonas, I see her! She's in Section D, in one of the front rows!"

Jonas rushes to Dani. Cradling his unconscious daughter in his arms, he looks up, bracing his legs against the aluminum bleacher in front of him as another swell—this one even higher than the last—breaches the lagoon sea wall. Pinching Dani's nose while maintaining mouth-to-mouth, Jonas breathes air into his old-

est child's lungs as the wave crashes atop the concrete deck and submerges them.

He holds on, closing his eyes as the surge threatens to rip him from his refuge.

Finally, the wave recedes, dissipating across the deck, returning the evening light.

Jonas struggles to his feet. Dani is breathing, but her head is bleeding badly. He yells into his radio, "Get an ambulance!" before carrying his daughter out of the southern end of the arena, racing to get out of the bowl before the next swell arrives.

Terry drops the walkie-talkie and dials 911 on her office phone.

David grabs the radio, changing frequencies. "Dr. Stelzer, it's David! Angel's going berserk! Shut off the acoustics, now!"

MAC EMERGES FROM the equipment room with a life ring and a hundred feet of towline, his eyes searching the lagoon's chaotic waters for the two missing men.

Jason Francis and Andy Murch are being dragged toward the center of the tank, struggling to tread water in a tumultuous sea, unable to reach the eastern wall as the water level beneath them suddenly drops from its eighty-foot depth to a mere forty-five, while at the northern end of the tank, Angel is knifing beneath the surface, catching up to a thirty-foot wall of water rolling towards the Meg Pen!

The crowd gasps as the wave washes over the northern sea wall into the juvenile's tank, beaching Angel as it recedes. Caught by surprise, the fifty-one-ton shark flounders like a giant eel along the flooded deck until she manages to slide back inside the lagoon.

Shaking its head, the stunned creature draws in mouthfuls of sea to breathe—
—as the reverberations in her brain suddenly cease.

The predator calms. She zigs, then zags, regaining her senses, which immediately lock onto the heartbeats of the two life forms that have entered her domain.

Mac runs along the eastern sea wall to get a closer shot at the two men. The crowd noise beckons him to turn around.

The white dorsal fin rises like a sail, the Megalodon is heading for the southern end of the tank!

Christ, she sees them...

Andy Murch and Jason Francis see the telltale dorsal fin, too ... just before it

disappears beneath another rolling mountain of water. The two men start swimming toward Mac, who tosses the life ring at them, the nylon rope feeding out sixty feet.

Jason is closest to the ring. The college senior lunges for it and holds on for dear life, hooking his elbow around the doughnut-shaped flotation device. Mac tows him in, guiding the ring towards the second man.

Andy Murch swims for Jason and the rope, missing both as he's lifted by the approaching swell and washed away.

Hand over hand Mac takes up the slack, several staff members rushing in to help, their combined effort propelling the USC student-athlete rapidly along the surface of the water...like bait on a hook.

Gliding just beneath the surface, Angel rolls sideways onto her left flank, her primordial senses locked in on the fleeing intruder. Her mouth opens, exposing a band of pink gum line and rows of seven-inch teeth.

A bizarre sensation rushes through Jason Bruce Francis's mind as his body suddenly becomes lighter. Maintaining his grip on the flotation device, he bounces along the surface before going airborne, his body lifted over the sea wall and dragged onto the flooded deck—

—while back in the tank, everything below his waist is devoured and swallowed.

Lying on the ground, going into shock, a relieved Jason stares up at Mac and smiles. "Man, that was a close one, huh?" —as a tide of blood drains from the dead man's face and out his open chest cavity onto the deck.

Back in the lagoon, Andy Murch is lifted over the southern sea wall by the dying fifteen-foot swell and tossed sideways into the fourth row of seats. Barely conscious, he wraps his arms around the aluminum bleacher and holds on until the wave recedes over his head and the evening sky returns its breath of cold night air.

Angel hovers along the bottom of the lagoon. Her appetite teased by the morsel of food still caught in her teeth, she circles back into the southern end of the tank and rises. The emotionally spent crowd lets out a collective gasp as the monster's enormous head and upper torso rise surreally out of the water. The Megalodon's upper jaw hyperextends as it opens, its retracting gum line, stained red with Jason Francis's remains, exposing a murderous upper row of triangular teeth that snatches the swaying side of beef like a steel bear trap striking a wild pig. Screams ripple through the arena as Angel whips her garage-size head to and fro on the iron support chain until she rips the entire carcass loose.

The A-frame snaps back on its base as the 102,000 pound predator falls side-

ways into the water, drenching the already-frazzled crowd in the lower bowl seats once more.

The audience swoons. A few applaud, then are silenced by the sheer horror of what they have just witnessed.

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