



Production Notes

Continuing the legacy born with the marriage of groundbreaking IMAX[®] 3D technology to out-of-this world subject matter that has resulted in such titles as *Into the Deep* and *Space Station 3D*, IMAX now catapults moviegoers into a world of amazement that lies just beneath the surface of the Earth's oceans in its latest IMAX 3D experience, ***Deep Sea 3D***.

Deep Sea 3D, the new immersive, underwater adventure from IMAX, transports audiences deep below the ocean surface in multiple locations around the waters of the globe and gives them never-before-seen, up-close encounters with a wide range of undersea life. There, moviegoers—with only their 3D glasses for a diving mask—will be able to swim alongside some of the most exotic creatures on the planet, from the bizarre Rainbow Nudibranch to the Giant Pacific Octopus.

Through the magic of IMAX and IMAX 3D—complete with the world's largest film format and movie screens and state-of-the art digital surround sound—audiences will be introduced to a colorful cast of characters and observe at arm's length these creatures living out their lives in a variety of unique and often humorous relationships...some predatory, some symbiotic, yet all ultimately dependent upon one another for survival.

From the Mantis Shrimp—who engages in a one-on-one, matador-like challenge with a threatening octopus—to the Green Sea Turtle—who allows schools of fish aestheticians to clean its shell of unwanted algae—***Deep Sea 3D*** focuses on the unusual and often surprising alliances struck between some of the world's most exotic creatures. Audiences are given much more than an underwater, front-row seat as they dive below the ocean surface and actually swim among these unusual animals, witnessing their innate day-to-day behaviors, all the while surrounded by the unbelievable beauty of a world hidden just underneath the waves.

An entertaining motion picture that will appeal to moviegoers of all ages, ***Deep Sea 3D*** is the newest underwater IMAX 3D film which includes the team of

HOWARD HALL as director and director of photography; multiple Academy Award® nominees JOHNNY DEPP and KATE WINSLET as narrators; TONI MYERS as producer; MICHELE HALL as producer for Howard Hall Productions; GRAEME FERGUSON and BRAD BALL as co-executive producers; and JUDY CARROLL as associate producer. Oscar®-nominated composer DANNY ELFMAN provides the score. The film is being produced and distributed by IMAX Corporation and financed by Warner Bros. Pictures.

About the Production

For filmmaker Howard Hall, diving and photographing the undersea world has been a lifelong passion. Hall has been involved in documenting the life supported by the world's oceans (through writing, photography and filmmaking) since the early 1970s, serving in a variety of editorial capacities for some of the most esteemed wildlife periodicals, including *International Wildlife Magazine*, *Ocean Realm Magazine* and *Fathoms Magazine*. His internationally recognized photographs have been published in hundreds of books and magazines (including *Life* and *National Geographic*) and he has authored several acclaimed books on the subject.

It was only natural that his career should evolve from still photography to filmmaking, working in a variety of roles including director, producer and cinematographer. With the pioneering development of a large-format, underwater IMAX 3D camera, Hall was then invited by co-founder of IMAX and producer Graeme Ferguson to share his superlative skills and knowledge, shifting into this technically challenging art form with the entry of the acclaimed 1994 IMAX 3D title *Into the Deep* (the first-ever, giant-screen undersea motion picture).

Hall's collaboration with Graeme Ferguson brought him (by association) in contact with Toni Myers, who had earlier built a career for herself in film, television and music in England and Canada. Myers had been given the opportunity to start work on the ground floor with the developers of IMAX technology—her foray into large-format films began with an assistant editor position on Graeme Ferguson's multi-screen documentary for EXPO '67, *Polar Life*. She then went on to edit the second film featuring IMAX technology, Ferguson's groundbreaking large-format film *North of Superior*. She later became a key member of IMAX's "space team" (writer/editor of *The Dream Is Alive*, *Blue Planet*, *Destiny in Space*; and producer, writer and director of *Space Station*).

Myers explains, "IMAX had made—in partnership with director Howard Hall—a 3D underwater film back in 1994 called *Into the Deep*, in the very early days of 3D filmmaking; the IMAX 3D camera had never been underwater before. Graeme Ferguson—the co-inventor of IMAX—had admired Howard's work. He

thought he'd be a perfect match for the IMAX 3D medium. At the time, *Into the Deep* was highly experimental, and we had some technical bugs to work out of the camera. We were more or less limited to one location, which was never our intention, but that's the way it turned out. The film was incredibly successful and, ever since, we had been wanting to do another one. We've always wanted to go back and film more diversified creatures and in multiple locations, because it's such a wonderful medium for 3D. It's taken us 10 years, but it's been more than worth the wait."

Director Hall comments, "I like working with the big, 70mm, IMAX 3D camera because it's certainly challenging. We had always wanted to return to the subject matter, ever since *Into the Deep* came out. It was somewhat surprising to us that it took a decade for that to happen. The learning curve was so steep when we were making that film, that by the time we were finished with the project, we were just beginning to figure out how to use the camera system and how to capture good, 3D images. For a long time, we just really wanted to build on our experience and try to do better. With this new movie, we have done that."

As with any technological advancement, it takes time for not only the refinement of the equipment, but also for technicians to become fluent in their use of the hardware. Now, years after their first undersea 3D film, Hall was better able to maximize all that the IMAX 3D camera had to offer.

The director explains, "When we made *Into the Deep*, the system hadn't been completely finished, so there were some options that the camera was eventually going to have that weren't available to us during filming—lenses that were on the drawing board that hadn't been finished, that sort of thing. For ***Deep Sea 3D***, we had a better selection of lenses and a few other devices that made the images we acquired much more exciting. The biggest change was the addition of the macro lens, which enabled us to get closer shots than we were able to shoot during *Into the Deep*."

The IMAX 3D camera simultaneously captures left- and right-eye images on two separate strips of 15/70mm film; it stands as the highest resolution film camera ever created and the most sophisticated dual-filmstrip camera in existence. The camera features stereo 3D lenses spaced to match the distance between the human eyes—each lens sees what each eye sees, and these separate images are registered on the two filmstrips. Encased in the specially created underwater housing (essentially rendering the camera an effective mini-sub), the entire 3D camera system weighs more than 1,200 pounds...which, thanks to its ability to achieve neutral buoyancy, is made virtually weightless underwater.

The task of maneuvering this camera on-site is strictly a two-man operation. Per Hall, "It takes two people to operate the camera system, because it is so large. Camera operator Bob Cranston is on one side of it and I'm on the other. I have the various controls of the camera, but if we're doing any kind of a camera move, we have to collaborate on it; it's just too big for one diver to handle. For that reason, each of us has a video viewfinder so we can both look at the picture while we're shooting. And, we also used a specially built underwater communications system so we can talk to each other underwater. With communications, we're able to discuss how the camera move is proceeding and collaborate on what it is we're trying to capture—that's not always easy. You can imagine trying to do composition with two people's hands on a camera. Bob and I have worked together enough over the years—since the '70s—and practiced things enough that we can often make it work very well. The technical aspects of working with that camera underwater are very, very challenging and it makes the diving very exciting and lots of fun."

The filmmakers were adamant about expanding the vision first visited with the 1994 film, which would translate into much more location work in a diversity of waters. With the principal photography of ***Deep Sea 3D*** set to take place sporadically throughout the course of a year (fall 2004 to fall 2005) and in as many as nine locations, it was going to take more than two divers and one very special camera to make it all happen.

"This time we definitely wanted to film a broader range of animals than covered in *Into the Deep*. We really wanted to bring to the audience a sense of the huge diversity of the life that is the ocean. A lot of people have no clue in terms of what a wonderful parade of strange and exotic-looking creatures share our world with us," supplies producer Myers.

All In A Day's Shoot

While compared to a crew employed by an average, Hollywood (2D) film production, Hall's crew might be considered small in number. But there is might in the number of seven...eight when Hall's colleague, producer and wife Michele joins the crew of divers, which is augmented with a handful of surface crew who remain on deck. The team also included marine biologists and local guides – hand-picked for their knowledge about each location.

Because of the size of the 70mm film negative, the IMAX 3D camera holds a magazine of only three minutes of film—and every second of that film is made to count. As if preparing to cut a diamond, all preliminary work is painstaking, to enhance the probability that the scene wanted is the scene captured; and, as with a diamond cutter, the nature documentarian usually has only a single chance to capture the desired shot. So, the majority of the principal photography time is spent in preparation (and after-shooting activity)...so much

so that shooting three minutes of film can take upwards of two hours by the time everything is set up.

A typical shoot goes something like this:

Once a location is finalized by the “film team” of Hall, Cranston and two assistant divers (who scout unencumbered by camera equipment), two or three “launch and recovery” divers descend to the selected location to deliver the tripod, as much as 150 pounds of stabilizing weight for the tripod, the camera and a lighting rig. It takes around 30 to 45 minutes to dispatch and assemble all the gear. All of the activity often roils the water and decreases visibility, so the filmmakers sometimes wait another 30 minutes for the water to clear. By the time the subjects have cooperated, the camera has rolled and the desired images have been captured on film, more than two hours may have passed, resulting in only three minutes of exposed film.

The divers responsible for filming (Hall and Cranston and two assistants) have remained at depth all that time and, as a result, must often undergo decompression before they’re able to surface. Returning to the surface with all of the equipment while undergoing decompression is not practical, so using diver-to-surface communications Howard calls for the same crew that delivered the camera and accompanying rig to retrieve it. As the launch and recovery teams do not remain at depth longer than it takes to accomplish their tasks, no decompression is required for them to immediately return to the surface.

The film team, who remain at depth throughout the location scouting, camera rig assembly and filming, utilize mixed-gas re-breathers, which allow them to remain underwater for these extended periods of time. These divers undergo stage decompression (surfacing in stages and lingering at certain depths on their way back up) before rejoining the crew above.

Sometimes the film team stays underwater during film and lens changes instead of decompressing and returning to the boat. A film change usually takes about 45 minutes. This process can be extended to allow for a variety of variables. The camera must be delivered to the surface to accomplish both of those tasks. (Two technicians who specialize in the IMAX 3D camera are onboard expressly to load film, execute lens changes and generally maintain the health of the camera and underwater housing). And some locations chosen by Hall and his crew required even more preparation and precaution (more explained below).

With all of this prep work and diver activity happening well within view of the proposed subjects, the question must be asked: How do you keep an octopus from “returning to his trailer” and refusing to take part when it’s his turn to film?

Howard Hall shares one of the secrets of underwater filming: “One of the tricks of doing this kind of film is choosing subjects that are predictable enough—you know what they’re going to do and you pretty much know how much activity they will tolerate. There are a lot of things that would make wonderful scenes in IMAX 3D that we don’t even think about shooting. Lots of times we’re down there and there’s something going on with an animal nearby...and one of my crew will call and say, “Look over here! Look what’s happening. This is great!” And my attitude is usually, “Well, so what?” Being able get the camera, move it to the animal and shoot it just isn’t practical, the animal isn’t going to tolerate it. The subjects we do choose will tolerate all the diver activity it takes to set everything up, along with the accompanying noise and ruckus.”

Toni Myers observes, “This film includes moments that Howard himself has never filmed before, even in his long and varied career in undersea photography...he’s pretty much seen it all. And these moments have definitely never been seen in 3D, 70mm, that’s for sure. These creatures are scary, beautiful, funny—it’s such a vivid illustration of the astonishing array of the diversity of life. It’s a testament to Howard’s and Bob’s skill—when you realize that they’re handling a camera system that weighs more than 1,200 pounds - you wonder how they ever get these unbelievable scenes.”

An Array of Locations

To capture their survey of the diversity of life, filmmakers decided upon taking their IMAX 3D camera to a long list of differing locations. As with any kind of nature documentary work, there is always a chance that the subject you were hoping to find might not be “home” when you arrive. But thanks to Hall’s decades of experience, along with the valuable skills and knowledge of his accomplished crew, the team was able to predict the whereabouts of the undersea “stars” on their wish list with a high percentage of accuracy...and set about globetrotting underwater to film their hoped-for sequences.

The director elaborates, “One of the interesting differences between ***Deep Sea 3D*** and *Into the Deep* is that in the earlier film, there were two or three sequences that were quite spectacular and proved to be really memorable with the audiences. In this film, there are so many things that are spectacular that it’s very hard to pick out one or two sequences that really stand out as a favorite. I think if you ask people coming out of the theater what their favorite part is, you’ll get a whole range of answers. That’s the way I feel about it. There is no favorite sequence out of the many that we shot.”

Beginning in the fall of 2004, the filmmakers and crew set out for the Sea of Cortez, between the Baja peninsula and Mexico. There, they filmed the Humboldt Squid, which presented a few challenges to Hall and crew. He comments, “It was probably the most difficult thing we did.”

The nighttime sequences were filmed at a relatively moderate depth of about 30 feet...yet over a chasm that reached a depth of 500 feet...and sometimes lasted until 5 A.M. Humboldt squid, some weighing over 100 pounds, are considered dangerous predators with a voracious nature that can switch from carnivore to cannibal in an instant. Additionally, they literally change their color about four times a second, flashing from an ivory white to a deep brownish red. "They're actually hard to look at. They change color so quickly, it's like a strobe is illuminating them. When you look at the sequence on film, it almost appears that the camera is malfunctioning. Squid are there and then they're gone. All of that plus the relative danger made for a tough shoot," relates the director.

Myers adds, "The squid are consummate swimmers. You can hardly say, 'Okay, could you go over there and pose?' It took every single crew person that we had, including the boat crew, to accomplish all the shots. You had to be attracting the squid with bait—you had to have crew carrying bait down from the boat and continuously replenishing the supply, along with lookouts to report on incoming squid locations. We filmed from around nine at night straight through until the early morning. It was absolutely exhausting and all-consuming because of all of the challenges...the water's pitch dark -- you can't see them coming until they're about 10 feet away. Not to mention, they're quite slimy!"

From there, team Deep Sea moved to the coast of California and eventually shot in three different places on and off the coast of the state. First stop was Catalina Island. There, they filmically captured the tiny powerhouse called the Mantis Shrimp; after the squid, the shrimp proved to be a welcome subject who, because of his "fearless" attitude, was more than ready to stand his ground (which made for easier filming).

The crew was able to document a face-off between the shrimp and a hungry octopus, intent on capturing and eating the shrimp. The prey had other ideas, however, and utilized his legendary, powerful front claws to dissuade the octopus from having him for dinner.

Myers quips, "He looks like he was made on Pluto, with these eyes up on stalks and bright indigo tips—they look like blue suede shoes. He is only about 11 inches long, but he is probably one of the most powerful creatures on earth for his size. His claw has been clocked at the same speed as a 22-caliber bullet and it's been known to shatter aquarium glass. The octopus finally thinks better of it and leaves him alone."

Hall was thrilled to have captured such an antagonistic encounter on film, which he knew would play even better with the IMAX 3D experience. He says, "I really love the Mantis Shrimp sequence—he's quite spectacular. He does a display

where he extends all of his appendages and stands up, which says to the octopus, 'Careful, I'm dangerous, too.' Eventually, he actually goes out with his claw and whacks the octopus a couple of times to scare it off. It looks great in 3D—as you sit in the theatre it's happening right in front of you."

Utilizing the same boat, the crew moved on to The Breakwater off Monterey, where jellyfish were filmed, along with a multicolored thief called a Rainbow Nudibranch. A member of the sea slug family, the nudibranch has developed a singular relationship with the Tube Anemone—one that probably doesn't thrill the anemone at all. At certain times, the nudibranch will stage a kamikaze dive attack, ripping tentacles from the anemone and ingesting them—the venomous stinging cells from the tentacles are transferred to the nudibranch's defense system of venomous gills on its back. The anemone eventually grows replacement tentacles.

The team headed south to San Diego, where they filmed a scene of the incoming surf in La Jolla. Michele Hall explains, "We mounted the camera in the housing on a cart and wheeled it down the beach at La Jolla Shores; we tied a rope to it and pushed the housing into the surf line and let waves break over the top of it. That was a challenge, but the effort resulted in beautiful footage – and the film's opening shot."

Next stop, a special spot off Kona, Hawaii, to film a sequence the filmmakers call "The Turtle Spa." In direct contrast to the relationships between Mantis Shrimp and octopus and nudibranch and anemone, the symbiotic arrangement between the Green Sea Turtles and various Surgeonfish is one of mutual benefit.

Howard Hall offers, "These turtles come from long distances to this one spot in Kona, Hawaii, where reef fish will clean the algae off of their shells. If they didn't do that and if the fish weren't willing, algae would continue to grow and eventually the turtles would have a hard time swimming. They need this cooperative behavior in order to be healthy. And these fish benefit because they get something to eat. There are lots of kinds of symbiotic relationships like that in the ocean, and it was our aim to show just how vital these relationships are. And it's an absolutely beautiful sequence."

Myers quips, "And the turtles look absolutely tipsy with pleasure. They just glide in and hunker down and allow all these yellow and black fish to go to work."

Before departing the Hawaiian waters, cameras were also focused on the elegant and enormous Manta Ray, the harmless and gentle giant captured in a nighttime forage for food.

At the beginning of the summer of 2005, a change in location occurred, when production set down in North Carolina, along the 70-mile Outer Banks of Cape Hatteras National Seashore. Offshore, 120 feet down, lies the remains of the Papoose, a ship sunk by a German U-Boat during the Second World War, which serves as the manmade and animal-adopted habitat of the Sand Tiger Sharks.

Filming in the deepest waters yet, Hall and company tackled the new challenges with their customary can-do attitude: “Certainly filming on the shipwrecks off North Carolina was really interesting work, because we were doing really deep dives and we were staying down for long periods of time. Our longest dive was in North Carolina; we were underwater for four-and-a-half hours. We spent two hours underwater at 120 feet, and then we had to spend two-and-a-half hours of decompression at the end of the dive. And we did that dive on four consecutive days.”

Those untrained in study of the ocean’s inhabitants might assume that sharks, by their very nature, are dangerous to humans; this is not always the case—there are few known man-eaters. Ferocity depends on a range of factors, including disposition, environment, food availability and other contributors. Hall and his crew did not employ shark cages while off the coast of North Carolina, as the area’s Sand Tiger Sharks are not harmful and are frequently joined by divers who routinely swim with the denizens of the WWII wreck.

The crew immediately hopped south to the Bahamas, where production set down for close to a month and shot a wide range of sequences involving diverse groups of animals: Lemon Sharks, Caribbean Reef Sharks, grouper, coral reef and a litany of fish and other creatures who call the reef home. The filmmakers were also confronted by Tiger Sharks (not to be confused with the Sand Tigers), which do have an aggressive nature and have been known to eat humans. Again, Hall did not employ shark cages, but instead, relied upon his years of experience to maintain safety during filming in the warm Caribbean waters.

The month of August brought a deadline situation, as the crew was committed to filming the annual coral spawning at the Flower Garden Banks National Marine Sanctuary in the Gulf of Mexico—which scientists have been able to pinpoint as occurring on the eighth night after the August full moon.

Myers explains, “The reef is 115 miles, which is about a 12 hour ride out into the Gulf, and the spawning only happens one night a year for two hours, eight days after the full moon in August—and you’d better be there. The whole reef spawns and it’s just astonishing. It’s like watching something out of the Hubble Space Telescope—galaxies of eggs release in huge drifting clouds.”

Michele Hall picks up, “The coral in this area spawn and the scientists have studied it enough that they can predict which species will spawn at what time of the evening—it’s really quite a spectacular scene. You enter the water at night and even though it’s dark, the visibility is often pretty clear. But, within an hour of the coral’s spawning, the visibility has dropped to 10 feet or less; the whole sea is just filled with coral spawn.”

Filming such a once-in-a-year event, Hall and his crew took every precaution, going through a litany of “what ifs?” and coming up with failsafe measures to ensure that the coral spawning would be filmed. All equipment was put through quadruple checks and systems were a go just prior to the appointed spawning hour. With everyone and all the equipment ready to begin filming the sequence, and within moments of the spawning starting, the lights literally went out.

Michele Hall explains, “I was on the boat coordinating the deck-side activities, when Howard frantically notified me via his underwater communication system that the lights had suddenly gone out! At first, we thought it might be a blown fuse, but we quickly determined that there was a problem with one of the light cables.”

Luckily, Hall’s preparatory steps had included providing an additional lighting cable chord, so the back-up was employed and there was light once again...just in time to capture the cinematic wonders of the night. Per Michele: “The divers had a back-up cable and lamp with them underwater, so we rigged it up just seconds before the coral started spawning. When we looked at the cable the next morning, we discovered that a barracuda had bitten through it—we have no idea what the result was for the fish, but thanks to preparedness and a fast-thinking crew, we got the shot.”

A welcome break of a few weeks followed the shoot in the Gulf, after which everything shifted north to the final location in the company’s year-long global trek: the waters around British Columbia, Canada. There, off the eastern coast of Vancouver Island, Hall and Cranston’s camera captured swarms of jellyfish, several Wolf Eels and a Giant Pacific Octopus on the hunt.

To film these creatures, the divers and crew again faced a particular set of geographically related challenges. Howard Hall remembers, “Working in British Columbia was probably the most interesting diving that we did, because it was so technically difficult. Water temperature was as low as 46 degrees and the diving gear that we were using was even more elaborate than what we typically use. All of the camera crew was diving with mixed-gas re-breathers—as we always do—heavy dry suits with lots of insulation under the suits. Instead of the usual air that is injected into the suits as an insulator, we injected argon gas, which insulates better. We wore full-face masks, so that we’d have better

communication and also so that we could keep our faces warm, and dry gloves that went on with o-ring seals. It was all really complicated diving gear, in addition to this complex camera system that we were using.”

Adding to all of that was the consideration of the powerful currents that occur in the Inland Passage, where filming took place, which is heavily influenced by tidal changes. So the cumbersomely outfitted divers had to combat strong and shifting oceanic currents while looking after their expensive camera set-up...all the while trying to film several planned sequences. And yet, according to Hall, “It was very challenging technically and yet everything we seemed to do up there just turned to gold. We had one sequence after another that just came off beautifully.”

Throughout the yearlong shooting schedule, the filmmakers and crew were always at the mercy of the weather and were caught literally outrunning hurricanes on three separate occasions. Per Toni Myers, “We avoided three different hurricanes over a year of filming. The first one, Javier, was headed right at us when we were in the Sea of Cortez—we had to get the boat back into a safe harbor, unload it and get to the safety of a motel to avoid it. The crew missed Katrina by hours, literally, in the Gulf of Mexico. And then they escaped Dennis in the Caribbean by a couple of days.”

The destruction waged by Mother Nature during the hurricane season of 2005 was nearly unfathomable, and all considered themselves lucky that only their shooting schedule had been affected. Hall and his crew feel fortunate to have filmed relatively unhindered by the storms and are more than enthusiastic about the footage they shot during the year. Not only are amazing arrays of life forms brought to the IMAX screens, but also astounding relationships along with moments of surprising humor.

Myers observes, “One of the amazing things about *Deep Sea 3D* is that you’ll see astonishing creatures that could inspire science fiction. You couldn’t invent these things. Our goal is really to take you on a magical journey underwater to places that most of us have never been—even with a large number of people who do scuba dive, lots of them have never met these characters or seen how they interact with other animals. What I would hope is that people will be delighted, awed, made to laugh as they meet these different characters...and ultimately, that they will be inspired when they leave the theatre to help preserve the health of our oceans.”

Michele Hall adds, “This comes back to why we made the film. Besides dealing with the technical challenges and enjoying getting out to dive, for me, being able to bring these stories and bring the ocean to life to people around the world is a very big motivation for getting out and doing the work.”

The director acknowledges the moments of wonder, of beauty, of humor in the film, but also realizes that there is—in simply pointing out the interrelatedness of all of his subjects—an explicit theme to it as well.

He closes, “One of the things that people don’t really seem to understand is the relationship between biodiversity and the health of the environment. The eco-systems work because of the interrelationships between the animals. It’s very simplistic to think that you can just take an animal out of the eco-system and it’s not missed. Remove one species, and many other species are influenced by that removal. Remove enough species, and the eco-system will actually collapse. In order for the system to work, it requires all these different animals cooperating with each other. When they’re gone, the interrelationships are also gone.

“In the rainforest, in the ocean—it’s the same thing. Coral reefs and various ocean habitats are communities of animals, and there are certainly predator/prey relationships that are important, but there are also cooperative ones between species that are of critical importance. The message that we’re trying to get out in the film is that biodiversity is important because these ecosystems are communities. When too many members are removed, the community goes.”

But Hall is quick to add, “But when watching the film, none of this feels like medicine. We’ve made a beautiful, entertaining, funny film about the ocean communities. And I don’t think you’re going to believe what you actually are seeing when you watch it.”

About the Filmmakers

HOWARD HALL (Director / Director of Photography) and **MICHELE HALL (Producer for Howard Hall Productions)** are perhaps best known for their underwater IMAX films. In 1994, Howard directed the IMAX 3D feature *Into the Deep*; Michele was a location manager. In 1998, Michele produced and Howard directed the IMAX feature *Island of the Sharks*, which was an enterprise of Howard Hall Productions. Howard was director of underwater cinematography for the Primesco Productions film *Lost Worlds*, the MacGillivray Freeman film *The Living Sea* and was underwater cinematographer for MacGillivray Freeman’s *Journey Into Amazing Caves*. In 2002, Howard served as underwater sequence director and Michele as production manager for MacGillivray Freeman’s large format feature *Coral Reef Adventure*, a film in which he and Michele are both featured on-camera.

Howard's career as an underwater natural history film producer, cinematographer, still photographer and writer began in the early 1970s. He has been a roving editor for *International Wildlife Magazine*, a senior associate editor

for *Ocean Realm Magazine* and is on the panel of experts for *Fathoms Magazine*. His photographs have been published internationally in hundreds of books and magazines, including: *Life*, *Natural History Magazine*, *National Geographic*, *GEO*, *Terre Sauvage*, *London Illustrated News* and *BBC Wildlife*. Howard has authored several books, including: *Sharks*, *Dolphins*, *The Kelp Forest*, *Successful Underwater Photography* and *Secrets of the Ocean Realm*.

Michele Hall left a 19-year nursing career to join the family business in 1991. She is an accomplished still photographer whose images have been published by *National Geographic*, *Fathoms*, *National Wildlife*, *Ocean Realm* and many other magazines and books. Michele has also worked as an assignment photographer for *National Geographic*.

Between them, Howard and Michele have won seven Emmy Awards. Howard has worked on more than 100 underwater film projects. He has produced and/or directed many award-winning natural history television films, including a *National Geographic Special* (which he co-produced with Michele) and three episodes of the PBS series *Nature*. Howard also directed and Michele produced the award-winning, five-hour series *Secrets of the Ocean Realm* for PBS.

Howard holds a BS degree in zoology from San Diego State University. He is a member of the Directors Guild of America and the Academy of Motion Picture Arts and Sciences. Michele is a Registered Nurse and holds a BS degree in Health Sciences. She is a member of the Television Academy of Arts and Sciences and the Women Divers Hall of Fame. Both Howard and Michele are on the board of directors of *Ocean.com*.

Producer, director and writer of the recent award-winning IMAX 3D film *Space Station*, **TONI MYERS (Producer)** began her career on early Canadian successes such as the television series *This Hour Has Seven Days*, *Forest Rangers* and *Seaway* and the National Film Board feature *Nobody Waved Goodbye*. Moving to England, she spent six years working on various films for the BBC and music projects for the Beatles' company, Apple. She returned to Canada to edit dramas for CBC-TV's *For the Record* series, working with directors Gilles Carle, Francis Mankiewicz and Claude Jutra.

Myers began her association with large-format films as assistant editor of Graeme Ferguson's stunning multi-screen documentary for EXPO '67, *Polar Life*, then with the debut of the IMAX technology, edited Ferguson's pioneering large-format film *North of Superior*. She then went on to edit many other IMAX films, including *Ocean*, *Snow Job*, *Nomads of the Deep*, *Hail Columbia!* and *Heart Land* and was associate producer of *Rolling Stones at the Max*. A key member of the IMAX space team, Myers also wrote and edited the space films *The Dream Is*

Alive, Destiny In Space and *Blue Planet* (which she also narrated), and was co-producer and writer/editor of *L5: First City in Space* and *Mission To MIR*.

Co-founder and past president of IMAX Corporation, **GRAEME FERGUSON (Co-Executive Producer)** has been an active filmmaker since the early 1950s. In 1967, his pioneering multi-screen film *Polar Life* was one of the hits of EXPO '67 in Montreal. Building on that success, Ferguson and his partners invented the giant-screen IMAX system, which has expanded to 261 IMAX theatres operating in more than 38 countries (as of September 30, 2005).

Ferguson has been involved in all stages of the development of the IMAX 15/70 format, as well as being one of the corporation's principal filmmakers. He has produced (or co-produced) such films as *North of Superior, Man Belongs to the Earth, Snow Job, Ocean, Hail Columbia!, The Dream Is Alive, Blue Planet, Destiny in Space, L5: First City in Space, Mission to Mir* and was consulting producer on *Space Station 3D*.

Ferguson also produced *Into the Deep*, the first large format 3D underwater film, which has been seen by more than 13 million IMAX moviegoers. Directed by Howard Hall, the popularity of *Into the Deep* led to the production of *Deep Sea 3D* by the same extraordinary filmmaking team.

Ferguson was invested into the Order of Canada and received an honorary doctorate from the University of Bradford and a Doctorate of Sacred Letters from Victoria University in the University of Toronto. Other awards include The Royal Canadian Academy of Arts Medal, The Canadian Government Environmental Achievement Award (for *Blue Planet*) and a Special Achievement Award from the Academy of Canadian Cinema and Television. Ferguson has also received the IMAX Founders' Award and been named an honorary lifetime member of the Canadian Society of Cinematographers.

BRAD BALL (Co-Executive Producer) has made a name for himself in the worlds of international advertising, marketing and the entertainment industry. After graduating from the University of Southern California with a degree in telecommunications, Ball began in the mailroom of an advertising firm and ended up as partner and president of the business; the client roster included such global heavy-hitters as McDonald's, ABC, Sanwa Bank, Toyota and Getty Oil. Ball then segued over as the Senior Vice President/CMO of McDonald's, responsible for the food giant's U.S. marketing plan (which included new product introduction, national promotions and co-operative marketing integration).

In 1998, Ball became President of U.S. Theatrical Marketing for Warner Bros. Entertainment, overseeing all domestic marketing aspects for the 25-plus yearly theatrical releases, including such titles as *You've Got Mail*, *The Perfect Storm*, *The Matrix* and *Harry Potter and the Sorcerer's Stone*. In November, 2001, Ball stepped into the role of Executive Vice President, Domestic Corporate Marketing, Warner Bros. Entertainment, charged with strategically guiding the company's cross-divisional brand marketing efforts involving film, television, home video, animation and consumer products and developing major third-party promotion opportunities and franchises. During this time, he also lead Warner Bros. efforts with IMAX and NASCAR to produce their first original IMAX release, *NASCAR 3D: The IMAX Experience*, which became the 2nd highest grossing documentary in 2004. Ball is currently the founder and head of the Ball Entertainment Group, which markets and consults with a large roster of mostly entertainment industry clients, including IMAX, *TIME* Magazine, NASCAR, Disney and Warner Bros.

JUDY CARROLL (Associate Producer) has served as associate producer/production manager on several large format 2D and 3D films. Most recently, Carroll served as the associate producer on the award-winning IMAX 3D film *Space Station*, narrated by Tom Cruise. Carroll worked with producer Graeme Ferguson and director Howard Hall as the associate producer on the first IMAX 3D underwater film, *Into The Deep*. Carroll's other collaborations as associate producer with Graeme Ferguson and Toni Myers include: *L5: First City in Space (3D)*, *Mission To Mir*, *Destiny In Space* and *Blue Planet*.

DANNY ELFMAN (Music By) was born in 1953, in Los Angeles, California, where he currently resides. Over the last 20 years, he has established himself as one of Hollywood's leading film composers. Elfman has written close to 50 film scores featuring his unique sound, including *Batman*, *Spider-man*, *Men in Black*, *Beetlejuice*, *Edward Scissorhands*, *The Nightmare Before Christmas* and *Pee Wee's Big Adventure*. In addition to these signature soundtracks, he has scored such diverse films as *Big Fish*, *Good Will Hunting*, *Dolores Claiborne*, *Midnight Run*, *To Die For*, *Dead Presidents*, *Sommersby* and *Chicago*. For television, Elfman created the infectious themes to *The Simpsons* and *Desperate Housewives*. His honors include a Grammy and three Academy Award nominations.

Elfman's first experience in performing and composition was for a French theatrical troupe, "Le Grand Magic Circus," at the age of 18. The following year, he collaborated with his brother Richard performing musical theatre on the streets of California. Elfman then worked with a "surrealistic musical cabaret" for six years, using this outlet to explore multifarious musical genres. For 17 years

he wrote and performed with rock band Oingo Boingo, producing such hits as “Weird Science” and “Dead Man’s Party.”

In 2005, Elfman worked with longtime collaborator Tim Burton on the films *Charlie and the Chocolate Factory* and the stop-motion animated musical *Corpse Bride*. Other recent projects include the scores for the Disney CGI animated feature *A Day in the Life of Wilbur Robinson* and Paramount’s adaptation of *Charlotte’s Web*.

About the Narrators

JOHNNY DEPP (co-narrator) has earned both critical and popular acclaim for his unique work in a variety of memorable feature films. Most recently, he collaborated with director Tim Burton on *Corpse Bride* and the fantasy adventure *Charlie and the Chocolate Factory*. Both films opened to impressive critical and box office successes and continues to entertain audiences everywhere.

Recently, Depp received an Academy Award nomination, Golden Globe nomination, Screen Actor’s Guild nomination and BAFTA nomination for his role as J.M. Barry in Mark Forster’s *Finding Neverland*, in which he starred opposite Kate Winslet and Freddie Highmore. He has reunited with Kate Winslet to co-narrate the IMAX 3D underwater adventure, *Deep Sea 3D*.

English born actress **KATE WINSLET (co-narrator)** grew up in a family of actors and began performing for British television when she was thirteen. At the age of seventeen, she made her name internationally in Peter Jackson’s feature film “Heavenly Creatures.” She followed that in 1995 with her role as Marianne Dashwood in Ang Lee’s “Sense and Sensibility.” Kate received her first Academy Award nomination for this performance and was also nominated for a Golden Globe. She then went on to win the BAFTA and the Screen Actors Guild Award.

In her next film, she co-starred with Christopher Eccleston in Michael Winterbottom’s “Jude” and then as Ophelia in Kenneth Branagh’s “Hamlet.” She then went on to appear as the amazing Rose in James Cameron’s “Titanic” opposite Leonardo DiCaprio. At the age of 22, Kate received her second Academy Award nomination for this role and the honor of being the youngest actress ever to be nominated for two Academy Awards.

In 1997 Kate starred as Julia in “Hideous Kinky” directed by Gillies McKinnon, and in 1998 co-starred with Harvey Keitel in Jane Campion’s comedic drama “Holy Smoke.” She also starred in Philip Kaufman’s period drama “Quills” along with Geoffrey Rush, Joaquin Phoenix and Michael Caine.

Kate co-starred in the Richard Eyre production of "Iris." In her performance portraying a young Iris Murdoch, Kate received a Golden Globe and Oscar nomination. She next starred in Michael Apted's "Enigma," a spy drama about code breakers during early WWII period and "The Life of David Gale" with Kevin Spacey. Kate then came to New York and dyed her hair blue and orange for her amazing portrayal as the quirky Clementine in "Eternal Sunshine of the Spotless Mind," for which she has received Academy Award, Golden Globe and BAFTA nominations for Best Actress.

Currently, Kate can be seen opposite Johnny Depp in "Finding Neverland," which has been named 2004 Best Film by the National Board of Review.

Kate recently finished production on the new film by John Turturro titled "Romance and Cigarettes" and on "All the King's Men," opposite Jude Law and Sean Penn, directed by Steven Zaillian. Kate is currently in production on "Little Children" opposite Jennifer Connelly.

About the "Cast"

CORAL (a member of the phylum *Cnidaria*) is the common name for a large group of animals closely related to such familiar undersea faces as sea anemones and jellyfish. When millions of these tiny organisms are grouped together in colonies to form a reef, they are often mistaken for a set piece rather than a star—that's because each individual coral polyp builds its own shell out of calcium carbonate or limestone. The only difficulty is in their numbers—send out a casting call for a coral, a million will probably show up...so craft services better have an ample supply of plankton on hand to feed them all. And being nocturnal, they definitely prefer night shoots.

The **FRIED EGG JELLYFISH (*Phacellophora camtschatica*)** would not appear out of place in a cameo role on a breakfast plate—but that plate would need to be large enough to accommodate the jellyfish's two-foot "bell" with a venomous web that may reach more than thirty feet across. This web is covered by thousands of nematocysts, or small capsules that house harpoon-like stingers—this star jelly is touchy, to say the least. The **MOON JELLYFISH (*Aurelia aurita*)** is both smaller in stature and more humble in attitude than its relative, with the bell measuring 12 to 18 inches and a less toxic stinging venom. The Moon is frequently spotted in the mid-Atlantic region, as it is one of the most abundant jellyfish in the area. More "mushroom" than "moon," this creature could make final callbacks for the role of a swimming Portobello. Not into deep character work, they are commonly found hanging out near the surface...of the ocean.

The **GIANT PACIFIC OCTOPUS (*Octopus dofleini*)** is one of the largest octopods working in the business today, sometimes weighing in at up to 400 pounds and measuring up to 25 feet across. Its reputation for being difficult is somewhat unwarranted, unless you ask some of its former co-stars (shrimps, crabs, scallops, abalones, clams, various fishes, and smaller octopods), most of whom became dinner while on-set. It currently resides anywhere off the West Coast (southern California to Alaska), from tide pools to rocky shores to depths of up to 1,600 feet—so best to leave a message with his reps...he'll get back to you.

The **GREEN SEA TURTLE (*Chelonia mydas*)** has been performing since the earliest days of show business, having permanently returned to the sea to live around 150 million years ago. This “been there, seen it all” veteran even remembers when dinosaurs were the next big thing. The scaly reptile depends upon its shell for protection and is better suited for plodding drama rather than screwball comedy—it’s not exactly the quickest one in the deep. Carnivorous when young, the adult sea turtles become strict vegetarians and are green from their diet of algae, which turns their body fat that distinctive color (vanity is not an issue when you’re 150 million-years-old).

The elusive **HUMBOLDT SQUID (*Dosidicus gigas*)**—who also goes by “Jumbo”—is a mysterious and vicious carnivore, and tales of his destructive, rock star-like antics are legendary (even sailors balk at the squid’s excesses). While some claim the rep is a bad rap, others maintain that the aggressive predator is just that...thanks to its size (up to six feet long), powerful arms and tentacles, superior underwater vision and a razor-sharp beak that can rip prey (and trusting co-stars) to shreds. Their rapid changes in skin color also make them a challenge to lighting designers. While not on-set, their whereabouts remain primarily a mystery—they prefer depths far beyond the reach of most undersea paparazzi.

Although related to the ubiquitous stock villain, the shark, the **MANTA RAY (*Manta birostris*)** shares none of her relative’s infamous habits—think of it as more Garbo than gangsta. The docile loner is a graceful, elegant swimmer, in spite of its enormous size (her fin span can measure up to 18 feet wide, and she can top the scales at 3,000 pounds). They are harmless and usually indifferent to humans, possessing no teeth and no stinging spine. The Manta prefers tropical shoots, but has been known to appear on locations worldwide, both close to shore and in open seas.

The scrappy fighter **MANTIS SHRIMP (*Hemisquilla ensigera*)** is, pound for pound, one of the most antagonistic presences appearing onscreen in underwater (or, if it could, on dry land) film work today. The Mantis is able to back up his attitude with an impressive set of front claws, which can be flicked

with such speed (it has been clocked at the speed of a 22-caliber bullet) and force that can shatter not only the hard shells of prey, but also double safety glass; it is, therefore, much more suited to location work than soundstage filming. Extremely territorial, the little guy will invoke all of his fighting ability to defend his den, taking on all comers regardless of size—so assistant directors be warned: once he's in his trailer...

The **OCEAN SUNFISH (*Mola mola*)** may be one of the most intriguing novelty acts in the underwater film business. Taking its Latin name to heart, which means millstone, the two-ton Tessie (weighing in at as much as 4,000 pounds and stretching 11 feet long) has the distinction of being the largest bony fish around—sharks and rays are cartilaginous. Willing to work for zooplankton (jellyfish), small fishes and algae, the Sunfish will travel within all temperate waters. Its gentle and unprepossessing nature does not spare it from sometimes sparking a tourist mob reaction—the sight of its prominent, shark-like dorsal fin breaking the ocean surface has been known to cause more than one unintentional panic scene.

The **RAINBOW NUDIBRANCH (*Dendronotus iris*)** might come across as a common sea slug with a highly developed sense of fashion...because that's what it essentially is. Its flashy appearance (detractors compare the workaday wardrobe to a magenta dishrag—so late '80s), however, belies its skills at stealth, thievery and exploitation, all aimed at its usual co-star, the **TUBE ANEMONE (*Pachycerianthus fimbriatus*)**. The Nudibranch makes meals out of the Anemone's tentacles, showing up unannounced and staging surprise dive attacks, ripping the tentacles off of its supposed friend; these are digested and the venomous stinging cells are transferred to the Nudibranch, who uses them for its own defense. (The Anemone eventually re-grows more tentacles, which will undoubtedly wind up back in the stomach of its not-so-friendly colleague.)

The **SAND TIGER SHARK (*Carcharius taurus*)** has appeared in undersea projects around the globe— Australian audiences know it as the Gray Nurse and South African fans might recognize the shark as simply Ragged-Tooth. The North Carolina-based heavy has made its career by capitalizing on his fearsome appearance (catlike eyes, a mouth full of jagged, razor-like teeth) and size (up to 10 feet in length), but in fact, his level of aggression can vary from relatively harmless to actively dangerous—in American waters, he is thought of as non-aggressive and easy to catch. When not appearing on film, the denizen of the Outer Banks likes to call the wreck of a sunken WWII ship home.

The **WOLF EEL (*Anarrhichthys ocellatus*)** has to endure the fallout from a bad stage name coupled with a not-exactly-camera-friendly appearance—it is not an eel at all and is hardly the fearsome creature it appears to be. With his six-foot length, imposing head, crushing jaws and an impressive array of teeth

(thick, spiky front teeth and strong molars in back), he was originally cast in generic parts as the sea monster next door. But proving his docile and mostly shy nature, he was quickly accepted in other roles. The eel often mates for life and is happiest living, with his mate, in a cozy den they call home. Homebodies and truly devoted parents, Mr. Eel (and the Missus) trade off protecting their up to 10,000 gestating eggs, as only one parent will leave the den to feed while the eggs are maturing.

DEEP SEA 3D FILM FACTS

The Shoot

- The film crew shot in nine different locations: Sea of Cortez; The Channel Islands, CA; Monterey, CA; La Jolla, CA; Kona, HI; Outer Banks, NC; Gulf of Mexico; Bahamas; British Columbia.
- The coldest water the filmmakers dove in was 46°F in British Columbia.
- The film crew's scariest encounter was with Tiger Sharks in the Bahamas. One of the sharks was nearly 14 feet long, and they are one of the few shark species that actually prey on humans!
- 379,120 feet of 15/70 film was used to shoot *Deep Sea 3D*, which translates into about 73 miles of film.
- At least 67 unique species of sea creatures were profiled in *Deep Sea 3D*, with many being featured in IMAX 3D for the first time EVER!
- During the filming of *Deep Sea 3D*, the crew encountered a school of juvenile Mola molas—an occurrence never before seen by any of the crew members, nor believed to be captured on film ever before.
- The longest dive the filmmakers embarked on was 4 hours, 30 minutes in North Carolina—2 hours of which was decompression.
- The IMAX 3D camera, in its underwater housing, weighs more than 1,200 pounds.
- It typically required six divers to shoot underwater with the IMAX 3D camera: two camera operators, two gear handlers (lights, cables, etc.) and another two divers to retrieve the camera and gear once the shoot was complete. The retrievers were necessary because the camera operators and gear handlers often required decompression, so they weren't able to immediately surface with the equipment.
- Though seven-minute rolls of IMAX 3D film can be specially ordered, a typical roll runs for only three minutes before the camera must be returned to the surface for reloading. Reloading takes about 30 minutes, and then the camera system can be sent back down to shoot another roll of film.
- The *Deep Sea 3D* filmmakers communicated with each other, as well as the surface crew, via OTS (Ocean Technology Systems) microphones that were built into their regulator mouthpieces.
- During coral spawning in the Gulf of Mexico, an event that takes place for only about an hour on a particular night each year, a barracuda bit through the light cable just prior to filming. Thankfully the crew brought a spare light, because if they hadn't been so prepared, the filmmakers would have missed their chance to capture this spectacular event.

The numbers

- 1,850—total number of hours the crew spent underwater for filming
- 92—total number of nights the film crew spent on the boat
- 84—number of days spent diving

- 73—total miles of film shot
- 21—total number of crew members (although only 8 went on every expedition)
- 17—number of consecutive days spent diving
- 9—number of different shooting locations
- 2—number of hurricanes encountered while shooting

The Creatures

- The Mantis Shrimp uses its appendages to spear or smash their prey. The force of a strike from a large Californian species approaches that of a 22-caliber bullet, capable of breaking double-layered safety glass.
- The giant Pacific Octopus can reach more than 25 feet tentacle-to-tentacle and weigh over 200 pounds.
- The Wolf Eel crushes and eats spiny sea urchins—spines and all!
- For every human killed by sharks, more than two-million sharks are killed by humans.
- Some nudibranchs 'steal' their venomous stinging cells from sea anemones. When the nudibranch eats the anemone's tentacles, the tentacles pass through the nudibranch's gut and are deposited in its gills to serve as protection; the anemone's tentacles grow back.
- Octopuses can change their size to maneuver through the tiniest hole. As long as their beak can get through, they can squeeze the rest of their body through a tight spot.
- Barracuda and other fish change color to signal cleaner fish that they are willing to be cleaned of the parasites that live on their skin.
- Scientists have been observing corals spawning in the Gulf of Mexico so closely for so many years that they are able to predict within moments when a species of coral will spawn.

IMAX 3D

- The IMAX 3D projector flashes 48 individual images onto the screen every second!
- The lenses of the custom designed IMAX 3D glasses are carefully aligned to the polarized light of the projector lenses.
- The IMAX 3D screen is covered with a special silver paint that reflects twice the amount of light as a regular movie screen.
- The IMAX 3D screen has thousands of tiny holes in it that allow sound from the digital surround sound system to pass through the 3D images and into the audience.
- The IMAX film frame is 10 times larger than conventional 35mm film and captures 10 times the amount of information

The IMAX 3D Camera

- The IMAX 3D camera is the highest resolution motion picture camera ever created.
- The two lenses of the IMAX 3D camera are precisely spaced to match the distance between our eyes. This inter-ocular distance allows each lens to “see” a left- and right-eye view. The images register onto two separate rolls of film, which run simultaneously through the camera.
- The IMAX 3D camera is the only camera in the world that can simultaneously expose two separate strips of 15 perforation - 70mm film. With two strips of film, the camera can capture images of unparalleled sharpness, color and clarity for both the left and right eye. This allows audiences to have the highest quality 3D experience possible.
- In its underwater enclosure, the customized IMAX 3D camera becomes its own mini-sub, making it possible to capture spectacular images. On dry land the camera in its underwater housing weighs more than 1,200 lbs.; however, its ability to achieve neutral buoyancy makes it virtually weightless underwater.

IMAX OVERVIEW

About IMAX Corporation

Founded in 1967, IMAX Corporation is the newest distribution platform for Hollywood content and one of the world's leading entertainment technology companies. IMAX delivers the world's best cinematic presentations using proprietary IMAX, IMAX® 3D, and IMAX DMR technology. IMAX DMR (Digital Remastering) makes it possible for virtually any 35mm film to be transformed into the unparalleled image and sound quality of The IMAX Experience. The IMAX brand is recognized throughout the world for extraordinary and immersive entertainment experiences. As of September 30, 2005, there were 261 IMAX theatres operating in more than 38 countries.

IMAX®, IMAX® 3D, IMAX DMR®, The IMAX Experience® and An IMAX 3D Experience are trademarks of IMAX Corporation. More information on the Company can be found at www.imax.com.

About the IMAX 3D Camera

The IMAX® 3D camera has given filmmakers the ability to create some of the most spectacular images the world has ever seen. By simultaneously capturing left- and right-eye images on two separate strips of 15/70mm film, it is the highest resolution motion picture camera ever created. Its ability to advance two strips of film at up to 48 frames per second in a single housing also makes it the most sophisticated dual-filmstrip camera in existence. The IMAX 3D camera is the starting point of what ends up as an unparalleled 3D presentation that enables audiences to go past simply watching a film...to feeling like they're actually part of the action and adventure in the film.

The key features of the IMAX 3D camera that make it so unique include:

Stereo 3D Lenses

The two lenses of the IMAX 3D camera are spaced to match the distance between our eyes. This inter-ocular distance allows each lens to "see" a left- and right-eye view. The images register onto two separate rolls of film, which run simultaneously through the camera.

Dual Filmstrips

The IMAX 3D camera is the only camera in the world that can simultaneously expose two separate strips of 15 perforation - 70mm film. With two strips of film, the camera can capture images of unparalleled sharpness, color and clarity for both the left and right eye. This allows audiences to have the highest quality 3D experience possible.

Underwater Housing

The IMAX 3D camera has been used on many challenging locations—from the back of a NASCAR racecar to the base of a space shuttle launching pad. The most difficult location to film in is underwater and, to overcome this challenge, IMAX created a customized underwater housing. In its underwater enclosure, the IMAX 3D camera becomes its own mini-sub, making it possible to capture many of the most spectacular scenes in films such as *Deep Sea 3D* and *Into The Deep*. On dry land, the underwater housing and its accessories weigh more than 1,200 pounds. However, its ability to achieve neutral buoyancy makes it virtually weightless underwater and enables filmmakers to accurately track and photograph natural wildlife behavior.

About the IMAX 3D Experience®

IMAX has been revolutionizing the 3D-moviegoing experience for over two decades. The IMAX 3D Experience is recognized around the world as the highest-quality, most immersive cinematic experience ever created. With crystal clear, larger than life 3D images, complemented by exhilarating state-of-the-art surround sound, audiences feel as though they are actually in the movie they are watching.

The IMAX 3D Projector

The IMAX 3D projector simultaneously projects two strips of 15/70 film, one for each eye, onto a special silver IMAX 3D screen. Each member of the audience must wear IMAX 3D glasses, which channel the right-eye image to the right eye and the left-eye image to the left eye. Some IMAX theatres use P3D glasses, which have polarized lenses that separate the left- and right- eye images. The 15/70 film format used by IMAX is ten times larger than a conventional 35mm film and three times larger than a standard 70mm film. The sheer size of a 15/70 film frame, combined with the unique IMAX projection technology, is the key to the extraordinary sharpness and clarity of films exhibited in IMAX theatres.

The Theatres

IMAX theatres' specialized design and unobstructed views place audiences right in the on-screen action. Large IMAX 3D screens, up to eight stories high, eliminate the discomfort and decapitated edges of smaller-format 3D systems. The screen, coated with a special high-performance metallic paint, has a slight curvature that extends beyond the field of geometric recognition incorporating much of the audience's peripheral vision, enhancing audience members' feelings of being in the film. The images are enhanced by the state of the art digital surround sound system.

The Screens

The IMAX 3D screen (which can measure up to eight stories tall and 120 feet wide) is covered with a special silver paint that reflects twice the amount of light as a regular movie screen. It has thousands of tiny holes in it that allow sound to pass through the 3D images and into the audience. The backgrounds in IMAX 3D films reach just as far beyond the screen as the foreground images reach in front of the screen, creating the illusion that the screen has disappeared.

The Films

IMAX 3D films take viewers on fantastic journeys to places far beyond the reach of most people, through films such as *Magnificent Desolation: Walking on the Moon 3D*; *NASCAR 3D: The IMAX Experience*; or *SPACE STATION*, narrated by Tom Cruise. Exceptional 3D computer generated animation can be experienced in films such as *The Polar Express: An IMAX 3D Experience*, Steve Oedekerk's *Santa vs. the Snowman* and IMAX's *Cyberworld*.

IMAX 3D Polarized Glasses (P3D)

In theatres utilizing polarized 3D technology, each member of the audience wears custom-designed polarized IMAX 3D glasses with oversized lenses. The polarized projection system uses a carefully aligned polarized filter in front of each projector lens. The glasses' lenses are carefully aligned to the respective eye of the projector. The glasses channel only the right-eye image to the right eye and the left-eye image to the left eye, delivering the stunning, full color, 3D images.