

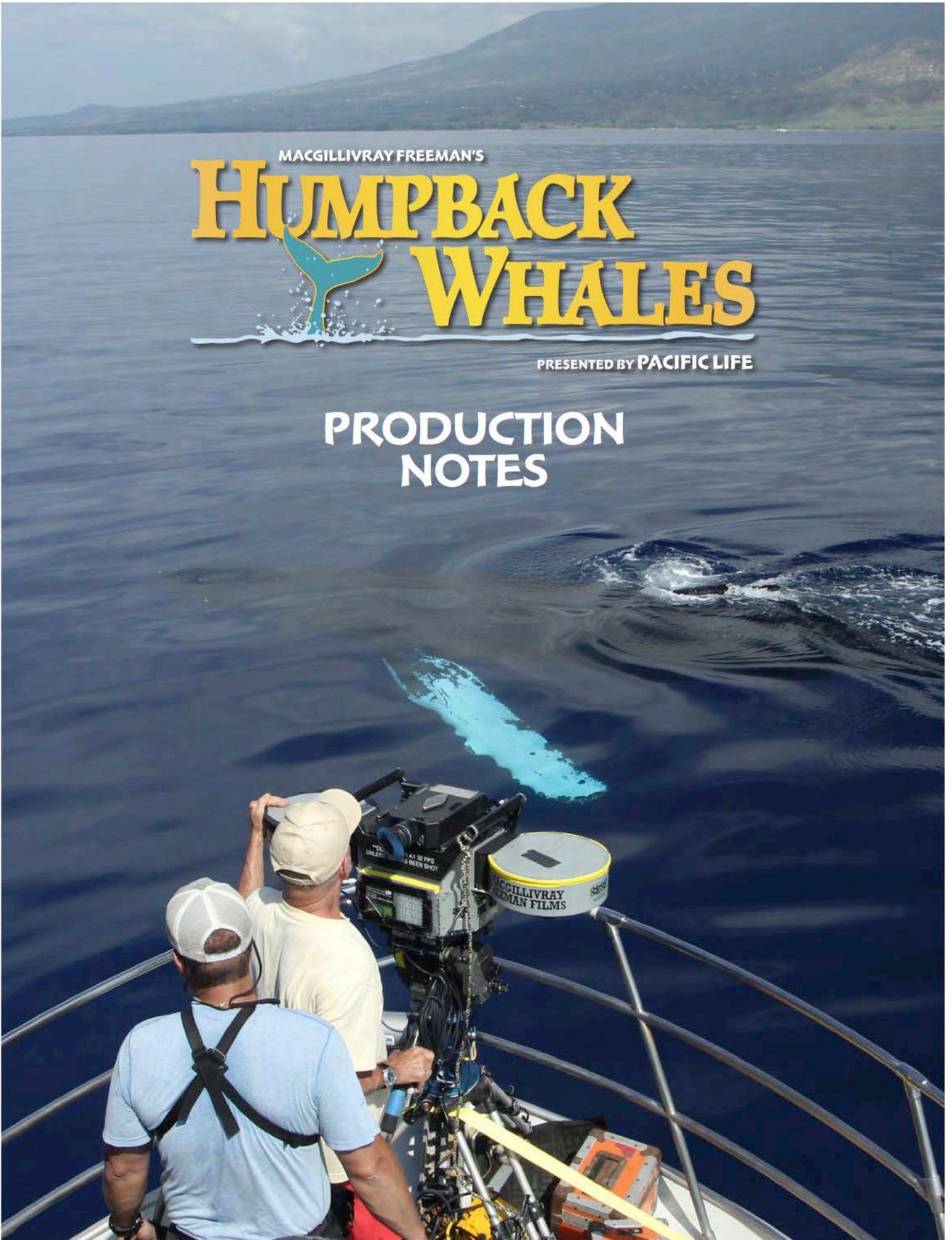
MACGILLIVRAY FREEMAN'S

HUMPBACK WHALES



PRESENTED BY PACIFIC LIFE

PRODUCTION NOTES



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SYNOPSIS

Narrated by two-time Golden Globe® nominee Ewan McGregor, ***Humpback Whales*** is an extraordinary journey into the mysterious world of one of nature's most awe-inspiring marine mammals. Set in the spectacular waters of Alaska, Hawaii and the remote islands of Tonga, this ocean adventure offers audiences an up-close look at how these whales communicate, sing, feed, play and take care of their young. Captured for the first time with IMAX® 3D cameras, and found in every ocean on earth, humpbacks were nearly driven to extinction 50 years ago, but today are making a slow but remarkable recovery. Join a team of researchers as they unlock the secrets of the humpback and find out why humpbacks are the most acrobatic of all whales, why they sing their haunting songs, and why these intelligent, 55-foot, 50-ton animals migrate up to 10,000 miles round-trip every year.

A MacGillivray Freeman film presented by Pacific Life, ***Humpback Whales*** is directed by Greg MacGillivray (*The Living Sea, Dolphins, Everest*) and produced by Shaun MacGillivray (*To The Arctic, Grand Canyon Adventure*). Filmed with 15perf / 65mm IMAX® cameras, ***Humpback Whales*** is written and edited by Stephen Judson (*Everest, To The Arctic*) with a musical score by Steve Wood. (*Journey to the South Pacific, To The Arctic*). A One World One Ocean production.

MacGillivray Freeman Films is the world's leading independent producer and distributor of giant-screen 70mm films with 38 films for IMAX theatres to its credit. Throughout the company's 50-year history, its films have won numerous international awards including two Academy Award® nominations and three films inducted into the IMAX Hall of Fame. ***Humpback Whales*** follows in the company's long tradition of films known for their artistry and celebration of science and the natural world.

www.humpbackwhalesfilm.com

ABOUT THE PRODUCTION

MacGillivray Freeman Films (MFF) bring their exhilarating giant-screen storytelling to one of the most enormous and vastly fascinating creatures on earth in ***Humpback Whales*** – an immersive ocean adventure that invites audiences to dive head-first into the mysterious realm of these 55-foot, 50-ton aquatic mammals. In a splashing, exuberant, musical mix of 3D imagery, underwater splendor and scientific exploration, the film beckons the compelling question: *what might life be like from a humpback POV?*

Narrated by two-time Golden Globe® nominee Ewan McGregor (*Star Wars Episode I: The Phantom Menace, Salmon Fishing in the Yemen*) and presented by Pacific Life, it's a whale of a tale that begins with promising news. Once feared as monsters, and very nearly hunted to extinction, today humpbacks appear to be in the midst of a slow but remarkable recovery. Now protected by global bans on whaling, the image of the humpback has transformed 180 degrees into a wellspring of wide-eyed human curiosity, passion and inspiration. The result has been a golden age of cetacean science now tackling the many puzzles of their intriguing behaviors.

Splashing right into this exciting new era, ***Humpback Whales*** tags along with leading whale researchers using pioneering methods to better understand what whales do when no one's watching. As the film sails from the tropical Kingdom of Tonga to lush summertime Alaska to the invitingly warm waters of Hawaii, moviegoers have the chance to follow along on the humpback's epic migration, while experiencing its devoted bonds, amazing songs and underwater acrobatics.

In some of MFF's most movingly intimate footage – as intimate as you can get with a 50-ton seafarer – the humpbacks croon their long, complex songs, raise their jumbo-sized babies, display their acrobatic feats, work in cooperative teams and chase one another in high-speed competitions. It all leads up to an edge-of-your-seat whale rescue – and an unforgettable reminder that the future of whales depends in large part on us humans allowing them to sing their own tune.

A MacGillivray Freeman film presented by Pacific Life, ***HUMPBACK WHALES*** is directed by Greg MacGillivray (*The Living Sea, Dolphins, Everest*) and produced by Shaun MacGillivray (*To The Arctic, Grand Canyon Adventure*). Filmed with 15perf / 65mm IMAX® cameras, ***HUMPBACK WHALES*** is written by Stephen Judson (*Everest, To The Arctic*) with a musical score by Steve Wood (*Journey to the South Pacific, To The Arctic*). A One World One Ocean production.

The Humpback's Delicate Comeback

Academy Award®-nominated director Greg MacGillivray and his devoted team of filmmakers have spent thousands upon thousands of hours filming the magnificent variety of living creatures teeming in earth's oceans on a mission to excite, inform and inspire. But ***Humpback Whales*** marks the prolific large-format film company's first entertainment focused exclusively on whales. The MFF team took it as an occasion to apply all their cumulative cinematic experience to the telling of one of the most compelling wildlife stories of our time: how humpbacks were brought back from the brink of destruction to set off a new wave of scientific discovery and human fascination with their one-of-a-kind, gargantuan beauty.

More than anything else, says Greg MacGillivray, the filmmakers were driven by the hope of sharing with audiences of all ages and backgrounds the sheer wonder and emotion of getting close to these astounding creatures. They are at once so different from humans in their grand size (with fins that have the wingspan of a Lear jet) and aquatic territory-- yet we can relate to their communal social groups, their mother-child bonds and even the art of song.

Says MacGillivray: "Whales are awesome animals. They are critical to the ecological health and survival of the ocean and since they are the largest animals to ever live on earth, it is simply amazing to see them life-size on the big screen. Even among whales, humpbacks are the coolest. For one thing, they are the one species of whale whose males sing. They have the longest pectoral fin of all whales, so they can maneuver like no others and turn on a dime. They also have a unique love of leaping, or breaching, from the water -- and they're very playful and high-energy."

Adds executive producer Tennyson Oyler, VP of Brand Management at Pacific Life: "Humpback whales are at the center of an environmental story that offers great promise. With the end of all commercial whaling, humpbacks are making a slow but steady recovery from near extinction – and we now have a tremendous chance to help with that recovery by focusing on improving the health of our oceans."

Enthralled as the MFF filmmakers were by the prospect of learning more about whales, they knew they faced a wet, wild and very challenging expedition ahead to film them in new ways.

After all, photographing humpbacks in the wild is an iffy proposition at best. Their sheer size and power can make them unwittingly dangerous and their lives in the great wide expanse of the oceans are dauntingly difficult to observe at any length. Just finding a single humpback can be like searching for a needle in a watery haystack. But MacGillivray notes that he and his crew were able

to bring an arsenal of filmmaking techniques they've perfected over the years to the process – and that this experience seemed to lead to many moments of awe-inspiring luck.

“We're pretty sure this has been the largest production ever mounted to film a story of whales in the wild,” the director points out. “With the support of our sponsor, Pacific Life – who have a long-term commitment to humpback whale preservation -- we had more cameras, more cameramen, more days in and on the water than any other production that we know. We also had some incredible good fortune in terms of happening upon fantastic water clarity, perfect filming conditions and most of all, unique whale activity.”

MacGillivray continues: “We wanted to expend this kind of effort because we're thrilled to be able to bring to the public images of whales they've never seen before. It's an experience that we hope will allow people to get to know whales and want to better understand them. The more people fall for whales, the more strongly they will feel about protecting them – and their habitat – long into the future. It's a substantial goal, but we really hope the film delivers on that.”

As production approached, excitement about the project at MFF began spreading through the company, a close-knit mix of family and long-term colleagues who share a common passion to document the beauty, marvels and threatened realms of the planet.

“We knew this could be an audience experience unlike any other,” comments producer Shaun MacGillivray, who also serves as President of MFF. “In fact, humpback whales might just be the perfect subject for the giant screen. There's nothing else quite like seeing an enormous mother humpback and her calf – a calf which is still the size of a mini school bus! – swimming together in the crystal-clear waters off Tonga in 3D. Or watching humpbacks working together to herd herring with bubble nets in Alaska on IMAX screens six stories tall. Once we started filming, we were very driven to bring back these great images to audiences.”

Shaun notes that while no one outside of the most experienced and legally permitted divers should ever get into the water with whales, the experience of being close to one on screen is something that can be life-changing. “When you get that close to a whale, it is the most awesome, inspirational moment,” he says. “You can sense their power, yet also their gentle nature. Your adrenaline is pumping, your heart is pounding and when you're shooting, all you do is hope the cameras are working!”

Years before filming, as the MFF team began their groundwork, they were inspired by the work going on at Whale Trust, a leading Hawaiian center for marine research and education. There, they got to know scientist Jim Darling – one of several on-screen scientists – and the cutting-edge

observations his team has been making on humpback songs and social interactions that are broadening human understanding.

Early work by Darling became the foundation for the story MacGillivray wanted to tell about a species that went from the brink of destruction to the dawn of new discoveries.

MacGillivray then brought in his long-time creative collaborator Stephen Judson to hone a script befitting the MFF style – balancing vital educational information on cetacean science with a heartfelt experience beyond words. Judson dove into his own research, engaging with more than a dozen scientists about what we do and don't know about humpback whales.

“It's such an exciting time to be doing cetacean research,” Judson observes, “and you really could sense the deep commitment of these scientists. Scientists are a devoted bunch to begin with, but the intensity is perhaps even greater with the whale scientists. I think you have to be completely smitten by these wonderful animals because the research itself is so difficult to do!”

The film would ultimately bring on board not only Jim Darling but his colleague Meagan Jones, who has a scientific interest in female humpbacks; Fred Sharpe, who has spent several decades documenting bubble net feeding behaviour in Alaska; and Ed Lyman, who coordinates whale disentanglement missions from Hawaii.

The science was vital, but Judson's first aim was to focus on the visceral reaction so many people have when they see a whale – the awe and the sudden curiosity about what it's like to live in their parallel universe. Then, he began to explore the many scientific riddles that keep whale scientists' minds churning: unanswered questions about their songs, their mating, their social lives and their future in an ecologically threatened sphere of the world.

“We really wanted this film to give people the chance to see the beauty and personalities of the humpbacks. They're so very charismatic,” Judson says. “Right away, we knew we wanted their songs to play a featured role because it's one of those behaviors that are so distinctive to the humpback – and it has also played a real role in waking humans up to the crisis whales have been facing. In an interesting way, humpback whales contributed to rescuing themselves through their songs. Humans first heard their songs 50 years ago, which is when we started realizing these are very special animals. We're still trying to understand exactly *why* they sing – but it's so challenging to study whales that it makes every discovery we make very meaningful and profound.”

Judson also delved into the history of whaling, a cautionary tale of how we came within a hair of losing one of the greatest natural wonders of the planet forever. Before the humpback whaling ban was instituted in 1966, there were an estimated 5,000 to 20,000 humpbacks left, less

than 10% of their original populations. Today, their numbers are estimated to be over 100,000. That's a major success story – but one that is far from over. Humpbacks still face many threats and their populations remain vulnerable.

A native of New England, Judson recalls being brought up on romantic notions of brave, adventurous 19th century whalers facing leviathans at sea. But the reality in the 20th century was quite different. “There were commercial Russian fleets that wiped out whole populations,” he observes. “Once the whole whaling process became mechanized it became quite brutal.”

Judson's goal was to honor how far we've come without losing sight of the errors made in ignoring solid conservation practices for too long. “It's important for us to celebrate the beginnings of a humpback recovery and for people to feel good about our evolution in thinking about whales, our ability to significantly change how we see them. At the same time, we still want to bring greater awareness to today's threats, which are shifting,” he explains. “Right now, climate change may be having an impact on their food supply, shipping traffic is more prevalent than ever and there's a lot of debris in the ocean – and we need to learn more about how each of these things might be impacting the whales. The story we tell in ***Humpback Whales*** tries to strike a balance between conveying real joy at our success and reminding people that we have to stay awake so that the humpbacks continue to recover and thrive.”

Greg MacGillivray notes that, although cautious optimism may be warranted, no one studying humpbacks is ready to turn off the alarm. “We don't want to lessen our concern just because the numbers appear to be increasing. Numbers are not the whole story,” he notes. “We have to keep in mind the fact that our knowledge is still so limited on many aspects of whale lives. One doesn't want to get too overly excited at this point. We need to keep up our concern for their future.”

MacGillivray believes that one of the most important things right now is simply raising public awareness of whales. “I think the message of a film like this is how remarkable these animals are and that the more we can learn about them, the more amazing they will become,” he summarizes.

MacGillivray says the power of an IMAX film about humpbacks is that it can reach people in that unique, personally inspiring way that only happens in a dark theatre. To that end, he and Judson approached ***Humpback Whales*** as something more than a documentary about people observing whales from afar. Instead, they saw it as a chance to turn the tables – to plunge audiences directly *into* the water and open up their imaginations to existence in an enormous body that excels at life in the sea.

“A big challenge on this film for me as a writer was to not get too wrapped up in what the human perspective is here. I wanted to push away from that and try to think from the whale’s perspective,” Judson explains. “From the very opening image with the upside down whale, we try to bring audiences into the mindset of a whole different world. A big part of that is knowing people will be drawn in by Greg’s incredible images, which get to the heart of the whales’ poetry. The emotional side of the storytelling is always important to Greg, but on this one it was particularly essential to find the right mix of science and emotions, to allow people to feel their own curiosity at work.”

That’s an impact that the filmmakers felt deeply themselves while making the film. Shaun MacGillivray says little can prepare you for the way the humpbacks challenge your ideas about animal complexity – or the way they hit your heart.

“For me, the most amazing moment on this film was being in Tonga with the mother and her calf – and realizing that she was looking at me looking at her,” he sums up. “The science of what is going on is incredible – seeing how quickly the babies go from relatively small to absolutely enormous and how the babies imitate the mothers. But there’s also something more ... something soulful that you sense when you look into the eye of a humpback.”

How to Film a Humpback

Greg MacGillivray is used to filming all manner of elusive, enormous and unpredictable wildlife, but capturing humpback whales up-close presented its own completely unique set of formidable challenges – not the least of which is that their vast home base is the entirety of the world’s oceans. Ultimately, the production followed the world’s leading researchers to where they have had the best success observing whales in their daily lives.

“Each animal is very different in terms of the ‘tricks’ needed to capture them on film,” MacGillivray explains. “Of course, we started with lots and lots of research into the best methods, best boats and best locations to find humpbacks. But with humpback whales, it turns out that there are not any places that are typical to film them – there’s nowhere you are guaranteed at all to find them, so there’s an element of luck involved.”

He continues: “We went to three places where we determined we might have the best chances to see a variety of whale behavior: the Kingdom of Tonga, Alaska in the summer and Hawaii in the winter. But no matter where you are, you pretty much have to go through the same process:

wait and wait . . . and wait . . . for the animals to show up, knowing they aren't ever going to show up two times in a row in the same spot. So that means every day you head out pre-dawn and you stay out until it is dark, sitting in the boat hour after hour, rocking and rolling, waiting . . . but at the same time, you've got to be 100% ready to jump into action at literally any moment because when it happens, it happens lightning fast – and if you don't get the shot, it might be gone.”

The task of getting those shots fell to director of photography Brad Ohlund, who also worked with renowned underwater photographers Howard Hall and Peter Kragh as well as Whale Trust's Jason Sturgis, who used non-intrusive snorkeling equipment and the cutting-edge RED digital camera to capture on-the-fly underwater images.

It was a dream assignment. “Our first shoot was in Alaska, filming the bubble net behaviors,” Ohlund recalls. “It was just a fantastic experience going out on Zodiacs into the calm Alaskan bays and getting so close to the whales. Then we moved on to Tonga and Hawaii where we saw mothers caring for their calves and males competing for females, and it was as if we had died and gone to photographic heaven. It was incredible to have these intimate experiences with whales.”

Ohlund particularly loved shooting in the Kingdom of Tonga, a grouping of 170 South Pacific islands ringed by azure waters. “One of the things that were so wonderful about Tonga is that they still live the traditional Polynesian lifestyle and they're in such close contact with their heritage. It feels a lot like what Hawaii must have been 100 years ago,” he observes. “It also offered some of the greatest underwater visibility we've ever seen.”

Joining the team in Tonga was legendary underwater filmmaker Howard Hall, who has been photographing sea creatures large and small for most of his life. Hall has decades of experience with a variety of whales and knew what to expect when photographing them.

“The thing to remember is you are not in control, the whales are,” he explains. “The times you get good footage of humpback whales are when they either don't know you're there or when they're curious about you and come right up and hang around you for hours being very friendly and playful. While shooting whales, I have often had the feeling that they're actively inspecting you even as you're watching them. You feel this sense of calm, as if this whale would never hurt you. That might be totally naïve, because they are very powerful animals, but that feeling is there. And if a whale is displeased with you, it can be gone in seconds.”

Even mother whales will allow their babies near filmmaker divers, Hall notes. “If the mother doesn't want you near, of course all she has to do is swish her tail fin in the slightest way. But

sometimes they actively bring their calf over almost purposefully. It sounds anthropomorphic but I've seen it many times with many different whales."

Hall says one of the biggest obstacles to filming whales is simply keeping track of them in the great expanse of the open ocean. "The ocean is a surprisingly large place and we would sometimes spot whales in the boat but then when we got in the water, we couldn't find them, because they're no longer in the same place that we expected. They're actually easier to spot at the surface, so when shooting whales, we use scuba gear infrequently and more often choose to snorkel dive. That can be quite challenging when you're hauling a 250-pound camera the size of a small refrigerator!"

The other thing Hall says is hard to appreciate is just how unbelievably speedy a swimming whale can be. "One thing we do is shoot the whales in slow motion, slowing things down by a factor of 2. They move so fast at times it can almost seem unrealistic, so slowing them down on-screen gives you a better look and a greater sense of their majesty."

For Hall, the highlight of the Tonga shoot was hearing the male whales sing up close. "It's very hard to convey what that's like because the sound is so loud in the water. It's very low frequency so it goes directly to your middle ear and pulses go right through your body tissues. The vibrations are so strong you can actually feel the air vibrating in your lungs. The magnitude of the sound is just amazing – I hope we have captured a little of this experience."

In Hawaii the filmmakers chartered a boat owned by the appropriately named Tad Luckey, who has worked in the local waters for 30 years.

Says Greg MacGillivray: "We were blessed by many opportunities on Tad Luckey's boat. On one day it was rough seas with winds at 30 knots. It really looked like we shouldn't even go out. But Tad thought it looked possibly calm on the north side of Lanai. Surprisingly, when we got there, it was perfectly glassy, with 100-foot visibility down below. We stopped and suddenly, two humpbacks came up to the boat. They were kind of circling around each other, and Jim Darling, said, "This is courtship, they're a couple trying to get to know each other." I asked, "Is this something you see all the time?" And Jim said, "Oh, about once every 10 years you might get this opportunity."

"So we immediately called in a helicopter to fly over for aerial shots and we also were able to put underwater cameraman Jason Sturgis in the water," he continues. "It was an exhilarating, one-of-a-kind opportunity and we were able to get shots from underwater, from the helicopter and

from the boat, and to have scientists there to help us piece together everything that was happening.”

Throughout, MFF’s emphasis was not only on capturing the most evocative, compelling images – it was also on letting the whales lead their whale lives undisturbed.

“It’s obvious that the presence of humans can create issues, but we’re very sensitive to working among wildlife,” says Ohlund. “We saw a wide range of responses. Some whales didn’t want to have anything to do with us, while others would bring their babies right up to the boat. But we all had great respect for the rules set by the researchers we were working with, and governmental regulations. We were very aware that we weren’t going out to chase the whales; we were always positioning ourselves and waiting for them to come to us. You learn their tricks, learn to follow their songs and their patterns. But often it’s about waiting, and then waiting even longer.”

Yet, even these experienced wildlife filmmakers were floored by what they were seeing. Says Greg MacGillivray: “I was so awed by their majesty, agility and curiosity, and moved by the instinct the females have for motherhood and the way calves bond so deeply with their mothers. We have a great shot of a mother who let her baby get about ten feet away and then she suddenly shot over the camera, as if to say “I’m here to protect.” I was also constantly reminded that we almost lost these spectacular animals and what a profound absence that would have been for the world.”

Singers in the Sea

Few stories from the animal kingdom have stirred human hearts and minds quite like the discovery of whale songs. It started in the early 1950s when a U.S. Navy base listening for Soviet submarines first picked up mysterious “voices” coming from the depths that turned out to be emerging from humpbacks. No one could begin to explain what was going on. But soon, recordings of their songs were not only being probed by fascinated biologists and linguists but even being sold in record stores as ordinary people became mesmerized by the questions of how and why whales might produce such haunting and complex musical interludes.

Today, we know more about humpback songs than ever before . . . but the answers to *why* the humpback sings remains among nature’s most compelling mysteries. While both males and females produce a variety of grunting, moaning and creaking calls, it is the males alone who sing these highly organized songs. Considered among the most complex music in the animal kingdom, the songs carve distinctive melodies out of repeating themes, using both high and low frequency

sounds. In some areas, the humpback males all sing the same song – but the songs also shift and change with new songs emerging from year to year.

Because the singing takes place at the start of the breeding season, scientists have hypothesized it is involved at some level in the process of mating. But are whales singing to potential lovers or to warn away male competitors or to establish social ranking ... or perhaps for reasons not yet considered? Even how the sounds are generated remains up for debate. We know the whales don't have vocal cords – so are the sounds coming from their unusually intricate nasal cavities?

Only time and a lot more scientific observation will tell. For the scientists whose life work is focused on studying humpback whale songs, patience is a major virtue.

“Since the discovery of the song, scientists have learned a lot about the structure of the song and how it seems to define different populations,” says Greg MacGillivray. “They’ve learned that it’s the males who sing, that they’re usually alone when they sing and that it happens at the peak of winter, which is presumed to be mating season, and they’ve observed that the song leads to interactions,” he explains. “They’ve learned a lot about the *context* of the song, essentially, but they still don’t know why they sing.”

The research is peeling back the layers of the riddle one at a time. MacGillivray continues: “Some of the biggest questions scientists are asking right now are how the song reflects specific populations; for example, it appears that all humpbacks in North America sing the same song version while in the South Pacific there are a number of different songs, so there is a question of what exactly is going on here? They’re also trying to get a better understanding of what the song leads to in terms of the social interaction of males.”

With limited research funds and only small groups of scientists addressing these vast questions, it can be challenging to make progress. “But progress is being made,” MacGillivray says, “and every year scientists are learning more and more.”

Technology is also having an impact. “We’ve been waiting for the technology to catch up,” muses MacGillivray. “The better the monitoring technology the better scientists are able to track not only individual animals but also who they interact with. It’s a process but it is extremely exciting as one starts to put together all the clues.”

For MacGillivray, the fact that there are so many unanswered questions about whale songs and other aspects of how they live, mate and interact only opens up opportunities for people to keep learning and exploring.

“There will always be mysteries about such a wonderfully complex species,” he says. “Technology has been helpful, but we’re still just starting to crack the surface of some basic questions. But it’s very important to learn more – because the more we understand, the better we can protect them. In fact, we really need more marine biologists out there and we really want to encourage more kids to go into marine biology to study these questions.”

Tiny Bubbles—Cooperative Humpback Bubble Nets

Singing might be the humpback’s most famous behavior, but the whales also stand out for their highly interactive social lives, which include cooperative food gathering on an intricate scale. In some parts of the world, humpbacks use a wholly unique group feeding strategy known as “bubble net fishing,” in which they work together in teams and release bubbles and loud “feeding calls” to herd and entrap herring, thus making them more easily accessible for gulping down in large quantities. To learn more about bubble nets and how humpbacks eat up to two tons of food a day (when in feeding grounds), MFF turned to Dr. Fred Sharpe, who has been studying this feeding behavior for more than 25 years in Alaska, where the same groups come summer after summer to feed in waters rich with krill and herring.

Sharpe notes that things have changed dramatically in the time he’s been studying humpbacks, and that the more insight he gains, the more he wants to know. “We’re at the dawn of a new age in our understanding of whales due to the hard work of many biologists and naturalists and also due to new monitoring technology that is giving us an unprecedented window into their lives,” he says.

Over the years, Sharpe has come to know more than 60 individual whales on sight and he continues to be smitten by their never-ending facets. He goes on: “Humpbacks sing, there’s evidence that they rhyme, they work in communal groups, they use tools, the mothers show incredible care for their young.”

Bubble-feeding among humpbacks had been observed throughout history by seafarers, but it was only in the 1970s that scientists started taking a closer look at the whale’s complex coordination. “It was a behavior recognized by whalers for a long time and then in the 70s, Charles and Virginia Jurasz first described the net hunting in beautiful detail,” Sharpe explains. “The fact that the whales were using tools in a goal-oriented way was very intriguing. I was fortunate enough to come along at that time and along with my colleagues we started looking into humpback

interactions and how they were working together as teams. Collaborative tool use like that really hadn't been explored outside of humans."

When the humpbacks gather to bubble-feed they divide the labor, working in close-knit unison: some blow and direct the disruptive bubbles, others herd the prey towards the surface and still others make haunting "feeding calls" that seem to help concentrate the prey and force them into the center of the bubble net.

Having the MFF crew tag along to see the majesty of these synchronized feeding sessions was a joyful occasion for Sharpe.

"I just so appreciated their sense of humor and their patience. It was a collaborative effort, and what's so wonderful is that their work shooting this film is also allowing us scientists to generate additional data sets," he points out. "I love that they're so focused on celebrating and raising awareness of these spectacular animals. I think the film will bring people an important message about how humans decided whales are of value to the world and how we then got together to stop killing them for consumptive use and how now we are realizing that we are all together part of the earth's amazing eco-system and we can do a lot more to keep it thriving."

The MFF filmmakers were equally taken by watching Sharpe at work. "Seeing the bubble-net feeding was a particularly fantastic personal experience," says cinematographer Brad Ohlund. "Watching Fred, you can see how deeply he knows these whales. And once he saw that we really respected these animals, he started lighting up and taking us closer to see more."

As for what ordinary people who fall in love with whales after seeing *Humpback Whales* can do in their own lives, Sharpe says: "You can calculate your carbon footprint, think about how your food is imported and become more aware of local and national efforts to improve oceanic health. We also use a lot of volunteers – we even use crowd-sourcing – to help us build dossiers on individual humpbacks. And there are lots and lots of different marine organizations out there that can use a hand. And of course you can also just get out there on the internet and at the library and start reading more about these animals."

He concludes: "And if you're really interested, follow your dreams. I started out by blindly, avidly coming to Alaska every year and I was just swept away. Your heart just gets stolen away by the Alaskan wilderness and then to have these magnificent beings in the ocean right here, I knew this was my path."

Rescue at Sea: Humpback Disentanglement

Some of the most heart-pounding, suspenseful footage in *Humpback Whales* comes as the MFF cameras follow one of the most dramatic examples of humans aiding whales: a whale disentanglement. Humpbacks, like many other large marine mammals, face serious threats from oceanic debris, especially lost or abandoned fishing gear. Long, dangling ropes and lines can easily become wrapped around their spherical bodies and prevent them from properly moving and feeding, resulting in injuries, scarring and even death.

Recognizing the dangers, the U.S. government's National Oceanic and Atmospheric Administration (NOAA) oversees a federally-funded Large Whale Disentanglement Network, which rapidly responds when an entangled whale is spotted off the nation's coasts. Teams are quickly sent to the site to monitor and carefully assess the situation and whenever possible, free the animal.

It's an extraordinary instance of inter-species interaction going on in our oceans on a regular basis, but few people have ever witnessed it. Says Steve Judson: "We felt that filming a whale disentanglement was a really important element of the film. It's such a powerful symbol of how we've shifted our approach to one of care and commitment to these creatures. What someone like rescuer Ed Lyman demonstrates is that the way to help the whales is to identify the problems they face, adapt to the problems, and don't ever give up – keep doing whatever is necessary. It's a very inspiring idea – and it's lovely to see that kind of resourcefulness and inventiveness put into action."

Lyman is based in Hawaii at The Hawaiian Islands Entanglement Response Network, a community-based network led by the Hawaiian Islands Humpback Whale National Marine Sanctuary in partnership with NOAA's Pacific Islands Regional Office, Hawaii's Department of Land and Natural Resources, the United States Coast Guard -- as well as whale researchers, Hawaii's tour industry and many private organizations and individuals.

It's certainly among the most unusual of careers, but Lyman says he was deeply drawn to the oceanic environment. "For me, the draw is the animals, their environment and my love of the sea. There is the population level concern, but also that individual animal concern - the animal welfare side of things," he says. "And as majestic as these animals are, it is the people as well. This effort brings people together around a common cause that has a great deal of value for so many, both animals and people. We are talking researchers, managers, conservationists, fishers, the tour industry, state and federal agencies, NGOs, the general public, and many more. I have to admit a major driving force is working with all these great people. I feel lucky."

He began his work as an apprentice working with disentanglement pioneers Charles “Stormy” Mayo and David Matilla on the coast of New England. “At the time, there were a lot of entanglements in that region and the fishers were saying, ‘we don’t want to catch these whales, we’re looking for solutions,’ so that was the beginning of fishers and biologists working together to mitigate these threats to the environment,” Lyman explains. “Since then, we’ve been trying to take these ideas worldwide, spreading what we’ve learned.”

In Hawaii, Lyman is constantly on alert for reports of whales that might or might not need further assistance. “A large part of this work is just awareness because finding an entangled whale can become like a needle in a haystack, so we rely a lot on fishers and researchers to report the whales and to keep track of them until we can get there to assess things,” he explains.

Most entangled whales likely go unreported, Lyman notes. “This year, we received nearly 40 reports around the Hawaiian Islands – about half were confirmed as large whale entanglements and we determined it was about 13 different animals. We cut three free,” he says. “But we know we are only scratching the surface right now. We believe we only find about 4% of entangled whales.”

Once Lyman and his team do reach the whales, they face perilous work, not only because the whales can easily injure a human with sudden movements, but because rescuers, too, can become entangled in hundreds of feet of rope. So they follow very strict protocols designed to keep both whales and humans as safe as possible under such challenging circumstances.

It is not a job for the inexperienced, and Lyman underlines that no one should *ever* jump in the water with a distressed whale or attempt a rescue that could lead to further danger for human or whale. Instead, they should stay at least 100 feet away and report the whale to the Coast Guard or a local whale hotline. “There have been deaths when people have jumped in the water with the whales to try to help them,” Lyman cautions. “Anyone who sees an entangled whale should call one of our hotlines right away. They can take pictures, give us an initial assessment and stay with the whale – but only at a safe distance. We’ve got people with the right training and the right equipment and we have methodologies that have been worked out over time. This group has overseen 1,300 whales partially or fully freed from entangled gear with no major injuries.”

The disentanglers themselves don’t jump in the water with the animals – in fact their permits prohibit such action, which is illegal. Instead, they throw grapples or use long poles to attach to the gear wrapped around the animals. They use plastic buoys to slow the whales enough to get close, then use hooked knives to very carefully remove all debris. Once the gear is removed,

it's brought back to shore for analysis. In fact, re-thinking fishing gear design is a major element of whale disentanglement efforts – because it can prevent them in the first place.

“We’re not going to solve the problem by just cutting an individual whale free,” Lyman observes. “It’s the information we learn – the where, when and what of the gear and how the whale was tangled -- that is going to make the biggest difference. We’re looking at ways to modify gear, especially reducing the amount of line being used, and minimize its impact on marine life. We’ve been working with fishers to test different kinds of non-buoyant lines. We’ve also looked at a variety of noise pingers, although that has the potential of deterring whales from feeding grounds. But step-by-step, there is a collaborative effort to reduce the threats.”

Lyman also notes that there are no real “bad guys” in this rescue effort. “What we’ve found is that fishers really care very deeply about the animals – they don’t want to harm them and they don’t want to lose their gear, either,” he points out. “They know that the more we understand the whales’ behavior, the fewer entanglements or ship collisions we’re going to see. It’s important to all of us.”

He especially welcomed the chance to bring the MFF team out on a whale rescue because of their sensitivity to the mission. “They were much more accommodating and understanding than many members of the media. They put the filming on the back burner and were ready to change their hats to help us with the whales. In fact, the filmmakers were instrumental in helping us on what was one of the toughest disentanglements we’ve ever had,” he recalls. “And we were also really excited about being able to get this message out about whale threats. It’s a great opportunity for outreach.”

Lyman says that as much as he enjoys seeing an entangled whale liberated, he doesn’t kid himself about predicting their reactions. “Sometimes you do scratch your head and think ‘I wonder if they know I’m here’ but I’ve also seen animals taking a swing at us. We do not let ourselves be lulled,” he explains. “It can appear a whale is cooperating but that can change in a minute. It’s important for us to remember that in the process of trying to help the animal, we’re also harassing it to some degree. So no matter what our emotions, we follow the rules of always keeping your distance.”

As for how people who may never see a whale in the ocean can help, Lyman says everyone can do their part. “I think we can all be more aware of how much trash winds up in the ocean,” he says, “because it’s not only fishing gear that can entangle marine wildlife. We can all support our

national marine sanctuaries, which are very special places, and think more about the ocean's health.”

The Mysteries of Humpback Courtship

The mysteries of attraction are all around us, and this is equally true in the world of humpback whales, where much remains to be learned about the why, the how and even the where of humpback mating. In fact, remarkably, humpback whales have never been observed mating or giving birth by researchers in the wild, which leaves a whole host of questions with precious few concrete answers.

One thing that is well documented are the thrilling high-speed chases full of snorts, trills, lunges, pounding tail flukes and ramming bodies that occur every year around breeding season. Though some playfully call these events “heat runs,” scientists call them “surface active groups,” a more accurate description because no one is certain of their precise purpose.

It might be one of the most grippingly cinematic wildlife scenes on earth, one that Greg MacGillivray was thrilled to be able to capture with an IMAX® camera – especially because the filmmakers happened to record one of the biggest, fastest, most competitive chases seen in Hawaii recently.

Recalls MacGillivray: “Amazingly, we saw our first surface active group the very first day in Hawaii. We didn’t even have the IMAX camera yet – it was on its way – so we just had digital cameras. We were near Lanai when we saw eight whales blowing water but by the time we reached them there were already 15 males behind a female. Scientist Jim Darling told us ‘This could go on for two minutes or it could go on for two hours.’ But we ended up following them for almost four hours. Ultimately, we saw somewhere between 20 and 30 animals following the female, with some dropping out eventually. They swam maybe 10 miles toward Ka’anapali. No one had seen anything quite like it, not the scientists or the boat captain. Jim said, ‘You guys are being treated to a very special show.’”

Continues MacGillivray: “To start things off that way was super emotional. It was one of those things where you pinch yourself because you’re seeing something many people who research whales have never seen. In preparation for this film, I think I watched every humpback whale movie that has ever been made, but I had never seen a ‘heat run’ like this one. It was a wonderful experience and we’re very glad to be able to share it. “

Brad Ohlund also remembers that moment with satisfaction. “Within a very well-defined area, there were so many whales you almost had to watch out to maneuver around them,” he muses. “We got so much footage in that area, it was spectacular. We had whales breaching, tails thrusting, fins slapping. We were all very impressed by how intense it was.”

Also along for the ride during these sequences was Dr. Meagan Jones, a Whale Trust scientist who for the last 20 years has been studying humpback communication and social organization, with a special interest in female humpbacks and reproduction.

Jones grew up feeling a deep connection to animals, but says, “I had no idea you could make a career out of studying whales!” It was while studying human child development in college that her horizons opened up when a professor asked for volunteers to go to Hawaii for a project looking at cognition in dolphins. She jumped at the chance. “Being there turned out to be one of the most magical moments in my life. I thought . . . ‘of course this is what I should be doing,’” she recalls.

She has never looked back, and now spends her days during Hawaii’s whale season from dawn to dark on the water tracking and observing the thousands of arriving humpbacks. The more she did so early in her career, the more she began to realize the great lack of knowledge on females in particular.

“We’ve been looking a lot at reproductive strategies here in Hawaii and the behavior of singers. That led us to ask: what do we know about females? And the answer was really nothing. The presumption was that all females are alike but that really isn’t the case. Some females come here to mate and some come here to have their babies and others are already mothers. They come to Hawaii for different reasons and they interact differently based on a number of factors.”

She continues: “We’ve also been asking: do females interact differently when they have a calf? That has meant trying to observe not just what they do but who they interact with, and then look at it in an experiential context. No one had ever really looked at their social interactions in this way, and the variability of associations we’re finding is very striking. We also were previously very focused on male-to-male competition – but now we’re discovering there’s also cooperation.”

Echoing the other whale scientists, Jones has been thrilled to find the more they learn, the more that leads to deeper and deeper questions.

“We’ve learned that whale behavior is much more complex than we ever thought,” she summarizes. “When you’re studying reproduction cycles and you don’t know the answers to even the really basic questions about their mating behaviors, it keeps you really engaged! You’re trying to piece together just a small part of the story with limited information – and there’s so much left to

be done. It's interesting that when you look back now at what we knew 25 years ago, we seem so naïve. We've been constantly learning, but the vast scale the whales live on is very challenging to the scientific process. But as a scientist it keeps you coming back for more. There's so much technological progress happening right now as well. There's new technology that is going to help us look at hormonal responses of females. So we are in a very exciting time."

As for why humpbacks have evaded any observers of their mating behavior, Jones surmises: "It's probably happening at great depth or it's happening at night or it's just happening so very fast that we miss it."

Working with the MFF crew was a lot of fun for Jones who says she hopes in addition to getting people excited about whales, the film will "inspire the next generation of marine biologists." She was thrilled that the filmmakers were able to capture such exceptional imagery of the surface active groups. "We had an interesting thing happen where a female hid under the boat," she recalls. "One of the things we know is that females will use a lot of different strategies to get away from males, but you don't see that every day. We also got really lucky with the conditions. It was so flat and glassy and clear that audiences will really get to see exactly what was happening."

Though answers about the full breadth of whale behavior won't come overnight, Jones is optimistic more knowledge is around the bend. "I think we will get closer to a greater understanding with more and more observations. But when you're dealing with social interactions, there's always an element of messy," she points out. "For now, we're excited to share what we know about these creatures with the world and hopefully that will bring even more support for research on our oceans."

Music From The Deep: The Score

Long-time MFF collaborator and award-winning composer Steve Wood had his work cut out for him imagining a score that might evoke the inner worlds of humpback whales. Though he's covered vast musical territory working with MFF, this was a fresh kind of challenge for Wood. Often on the company's wide-ranging projects, he immerses himself in the sounds of a specific culture – as he has done with regions spanning from Saudi Arabia to the South Pacific – but in this case the culture he wanted to explore musically was that of humpback whales.

Though humpback whales make their own music, he felt their dissonant, haunting songs should be showcased on their own. So instead of riffing on their sounds, he looked for a way to set the lives of the whales to a richly cinematic but unexpected score.

“I considered using the humpback songs as the starting point, but that seemed too obvious and on-the-nose,” says Wood. “I was looking for the kinds of sounds that might help bring you into the whale’s universe. So much of what’s happening in *Humpback Whales* is this beautiful kind of watery dance with an other-worldliness to it, and that became the inspiration.”

He continues: “So keeping that in mind I was looking for a palette of sounds that could evoke this world. I thought of the music as the script and the sounds as the characters in a story. I knew I wanted the richness of orchestration – but without using an orchestra! So I started looking at the retinue of synthesized sounds and at piano and especially acoustic guitar, which has such a wonderfully organic quality to it.”

After perusing many guitarists, Wood brought in young Canadian-born folk guitarist Calum Graham, known for his infectiously energetic style. “He’s someone who plays the guitar almost like it’s a piano, where he’s making sounds not only in the usual way but by tapping on the instrument, using harmonics and bringing tremendous energy to it,” says Wood. “I thought it would also be really fun to work with someone who has such a youthful frame of reference – I was excited by the opportunity to bring out the best in him.”

Also key to the music of *Humpback Whales* is the infectiously upbeat song “Best Day of My Life.” A major hit for the indie rock band American Authors in 2014, the song features an eclectic mix of banjo, mandolin and percussion – but the MFF team fell in love with the way it seemed to capture the irrepressible bliss they felt watching whales twirling and leaping with abandon from the ocean.

“It’s such a joyful piece and one that people already know and immediately respond to,” says Wood. “It makes for a terrific touchstone for the audience on this adventure in the ocean.”

For Wood, the most essential part of the music for the film is that it enhances the beyond-words imagery that Greg MacGillivray and his team are so attuned to finding in the wild.

“Ultimately, I think this movie is as much about wonder as it is about whales,” concludes Wood. “It’s about wonder, beauty, danger and gratitude. And it’s about being conscious that there are whole other conscious worlds out there.”

That was always Greg MacGillivray’s view way back when he first contemplated making a film about whales – that it could make the greatest impact by luring humans a little deeper into

their mystifying world, and leave them thirsting for continued understanding. It may have taken centuries for humans to wake up to the full magnificence of the humpback, but now there is no turning back.

Concludes MacGillivray: “Although there is still so much we don’t know about these wonderfully complex creatures, what we do know about humpback whales is so fascinating that it keeps propelling us on our quest to learn more. I hope with this film people see why scientists are so inspired to strive for new knowledge – because the more we understand, the more we can protect these magnificent animals and the ocean environment to which they are so vital. The better we get to know whales, the greater the harmony we can live in with them.”

(continued)

Fun Facts About Humpbacks

Humpback Home:

- Humpback whales are found in all oceans on Earth. Populations migrate between summer feeding grounds in temperate polar waters and winter mating grounds in tropical waters. In a sense, the humpback connects all of the world's oceans.

Humpback Profile:

- Humpback whales are named for the arching motion they make with their backs in preparation for diving. Their scientific name *Megaptera Novaeangliae* means "great wing," referring to their large flippers -- measuring from $\frac{1}{4}$ to $\frac{1}{3}$ the body length of the animal, which help them to maneuver and leap with keen agility for their size
- Some of earth's largest mammals, humpbacks can reach between 40 and 55 feet (about the length of a school bus) and weigh up to 50 tons (about the weight of 500 average-sized human beings). Their lungs alone are about the size of a compact car.
- Humpbacks are one of the few mammal species in which females are larger than males
- Humpbacks are baleen whales, which means they are filter feeders, straining their food through rows of bristle-like plates attached to their jaws
- The humpback diet consists of krill and varieties of small schooling fish and they have been observed eating up to a ton of food a day when in feeding grounds
- Humpback whales can swim in bursts up to 16 mph, but swim at slower speeds when feeding.
- Satellite tags suggest that whales travel in straight lines across ocean basins. One individual whale was seen in Alaska and then in Hawaii within just 39 days.
- Though humpbacks are seen breaching (leaping from the water) more often than some other whales, they spend up to 90% of their time submerged below the surface
- There are thought to be up to 15 distinct populations of humpbacks worldwide. Each population has its own traditional grounds, migratory routes and songs.

Humpback Babies:

- Mature female humpbacks typically have a single calf every 2-3 years
- The females are pregnant for 11-12 months before giving birth
- A newborn humpback calf can be 10-15 feet long at birth and weigh up to a ton
- Humpbacks nurse with gusto, consuming about 100-130 pounds of mother's milk per day for 5-7 months
- Humpback mother's milk is about 40-50% fat content, assuring the babies develop a healthy layer of blubber
- Calves grow quickly in the first year, about a foot and a half each month. By the time they are weaned after their first year, they are 25 to 30 feet long.
- Mothers have only one critical year of bonding with their calves before the calves must fend for themselves

Humpback Songs:

- Humpback whales produce some of the most complex songs known in the animal kingdom, with a series of unique sounds produced over and over in distinctive patterns
- The reasons why humpback whales sing remains unknown
- Only the males sing. They typically sing during mating season, but not always
- A humpback song can last as long as 20 minutes at a stretch, and sometimes the same song will be repeated for hours
- The composition of the song gradually changes as it is being sung. Yet all the singers in a given population sing the same version of this ever-changing song. Singers all match their songs to their neighbors.
- Typically, while singing, a humpback positions himself with head pointing down and tail at a 45-degree angle, nearly motionless except for gently fluttering fins
- Since whales don't have vocal cords, the sounds are likely produced by air moving through their large heads, but research remains to be done in this area
- Songs will often attract other male whales, including neighboring singers, but the exact nature of a singer's interactions with other whales is still being explored.

Humpbacks and Humans:

- Humans have hunted whales since prehistoric times, for their oil, meat and bones
- Whaling began in small, open boats but progressed to large commercial operations
- Humpback whale populations are estimated in the early 1960s to have been depleted by more than 90%
- In 1966, a moratorium on hunting humpbacks began the long, slow process of recovery
- In 1986, in response to dwindling populations of several whale species, the International Whaling Commission placed a moratorium on all commercial whaling
- Humpbacks are considered to be recovering with population counts rising, but continued threats -- including ship collisions, entanglements, noise pollution and climate change effects -- are being monitored
- Early scientific knowledge of whales often came from the observations of whalers
- Significant studies of whales began in the 1960s, with the first observations of their migration patterns, social interactions and songs
- One of the most important discoveries of the 1970s was that whales could be identified individually by using natural markings. This became the basis of more extensive research into their social lives and reproductive behaviors
- Today, non-invasive research techniques and cutting-edge monitoring technologies are opening up hidden windows in humpback behavior

About the Narrator

Ewan McGregor

Often hailed as one of the finest actors of his generation, Ewan McGregor consistently captivates audiences with a diverse line-up of roles across a multitude of genres, styles and scope. From his breakthrough role as the heroin-addicted “Mark Renton” in Irvine Welsh's *Trainspotting*, to the legendary “Obi-Wan Kenobi” in *Star Wars Episode I: The Phantom Menace*, to starring as “Christian” opposite Nicole Kidman in the Oscar and BAFTA award-winning musical *Moulin Rouge*, McGregor's career has been highlighted by a continuous string of bold and daring performances. McGregor can currently be seen on stage, making his Broadway debut as “Henry” in Tom Stoppard's Tony® Award-winning play “The Real Thing,” directed by Sam Gold, opposite Maggie Gyllenhaal. The play opened on October 30, 2014 and will run until January 4th, 2015 at the American Airlines Theatre in New York.

McGregor's upcoming film roles include *Mortdecai*, the film adaptation of Kyril Bonfiglioli's book “The Great Mortdecai Moustache Mystery,” opposite Johnny Depp. Lionsgate is set to release the film on January 23rd, 2015. He is upcoming in Rodrigo Garcia's *Last Days in the Desert* which is set to premiere at the Sundance Film Festival in January. He will also star in Gavin O'Connor's *Jane Got a Gun*, out September 4, 2015, where he plays the leader of an outlaw gang. The film also stars Natalie Portman and Joel Edgerton. Among McGregor's additional upcoming film roles are the action crime-drama *Son of a Gun* where he plays a notorious criminal who has escaped from prison, and the political thriller *Our Kind of Traitor* opposite Stellan Skarsgard as well as Don Cheadle's Miles Davis biopic. McGregor is a devoted and influential philanthropist, and serves as a Goodwill Ambassador for UNICEF UK, a non-profit organization dedicated to providing long-term humanitarian and developmental assistance to children and mothers in developing countries.

About the Whale Scientists In The Film

FRED SHARPE, Ph.D. has been investigating the behavior of humpback whales for over a quarter century. He has been awarded the Fairfield Award for Innovative Marine Mammal Research and the Society for Marine Mammology's Award for Excellence in Scientific Communication. Fred is also a naturalist in the classical tradition. He is co-author and illustrator of *Wild Plants of the San Juan Islands*, *Birding in the San Juan Islands* and *Voyaging with the Whales*. Fred is a principal investigator with the Alaska Whale Foundation and serves as a large whale disentangler with the Alaska Stranding Network.

MEAGAN JONES, Ph.D. has been leading whale research and education programs in Hawai'i for over twenty years. Her commitment to bridging marine science with education programs around whales and their ocean environment helped lead to the founding of Whale Trust Maui, where she now serves as the executive director. Meagan has worked on cetacean research programs in Hawai'i, Australia, Africa, Alaska, Canada and in the South Pacific, while creating and developing marine education programs for schoolchildren, high school and college students, naturalists, and the general public. In 1997, Meagan received a national award from the National Marine Educator's Association for her work in marine education. Her research focuses on the natural behavior and communication of whales, especially as it relates to the reproductive strategies of male and female humpback whales. In addition to her work with Whale Trust Maui, Meagan works with the University of Hawaii Maui College to develop and teach upper division courses in marine biology and sustainable science.

JIM DARLING, Ph.D. has led research programs on whales for more than 25 years. His primary studies include long-term investigations of behavior and ecology of gray whales in British Columbia and humpback whales throughout the North Pacific. Jim has been executive director of West Coast Whale Research Foundation, a Canadian research and education society, and research director of the Clayoquot Biosphere Project, a Vancouver Island community based organization that promoted field research in the temperate rainforest ecosystem. Jim has written numerous scientific and popular articles and several books on his work. Since 1997, Maui has been the base of his study on the function of the humpback whale song. His most recent book, *"Hawaii's Humpbacks: Unveiling*

the Mysteries,” was published in 2009 and helps to raise funds for Whale Trust Maui’s research programs.

ED LYMAN is currently the Hawaiian Islands Humpback Whale National Marine Sanctuary’s Large Whale Entanglement Response Coordinator under NOAA’s Office of National Marine Sanctuaries. He works closely with NOAA Fisheries, and under the authority and supervision of their Marine Mammal Health and Stranding Response Program. Ed has worked with NOAA and states agencies in addressing large whale entanglement threat for more than 20 years. His efforts encompass Alaska, the East and West Coasts, Hawaii and other countries. Ed has participated in over 80 disentanglement efforts and helped free more than 40 large whales. He and the Sanctuary coordinate a community-based network to provide safe and authorized response to entangled large whales around the Hawaiian Islands. Response efforts, along with efforts to work with fishermen, have gained valuable information he hopes will help reduce entanglements.

Ed graduated from the University of New Hampshire, where he received a Masters of Science studying semi-aquatic mammals and island biogeography. He worked for the Shoals Marine Laboratory and Sea Education Association, where he gained a strong marine background. He has studied whales since 1994, when he worked for the Provincetown Center for Coastal Studies, a non-profit whale research and rescue organization. Ed also worked for the Massachusetts Division of Marine Fisheries, where he worked with fishermen to reduce entanglement impact.

About the Filmmakers

GREG MacGILLIVRAY (Director) is a giant-screen documentary filmmaker who has produced and directed many of the most successful films shown in IMAX® theatres, including the box-office hit *Everest* and the Academy Award®-nominated films *The Living Sea* and *Dolphins*. His 2012 film, *To The Arctic*, received the Best Film of the Year award from the Giant Screen Cinema Association, and he most recently directed *Journey To The South Pacific*.

With 37 giant-screen films to his credit, MacGillivray has shot more 70mm film than anyone in cinema history—more than two million feet. He is the first documentary filmmaker to reach the \$1 billion benchmark in worldwide ticket sales.

An ardent ocean conservationist, MacGillivray and his wife Barbara founded the One World One Ocean Foundation, a non-profit public charity devoted to ocean science education through giant-screen films and companion programming. *Humpback Whales* is the third film that MacGillivray Freeman Films has produced in association with the One World One Ocean Foundation (www.oneworldoneocean.org), following *To The Arctic* and *Journey To The South Pacific*.

STEPHEN JUDSON (Writer) has directed five films for IMAX® theatres, including most recently *The Alps* and *Journey into Amazing Caves*. He served as a producer, director, writer and editor on the giant-screen blockbuster *Everest*. Since 1982, Judson has edited all but two of MacGillivray Freeman's giant-screen films, making him the most experienced editor in the giant-screen field. He has written or co-written many MacGillivray Freeman films, including the Oscar®-nominated *Dolphins*. He also serves as the company's Vice President for Production and Post Production.

Before joining the MacGillivray Freeman team, Judson worked as a writer/director/editor in Hollywood, including long stints at ABC and Universal Studios. A graduate of Yale University with an M.A. from the USC cinema school, Judson is a member of the Writer's Guild of America, and the Academy of Motion Picture Arts and Sciences.

SHAUN MacGILLIVRAY (Producer) is Producer and President of MacGillivray Freeman Films and Managing Director of the company's One World One Ocean Campaign, a multi-year, multi-platform ocean media initiative aimed at inspiring greater public awareness about the world's oceans.

Producer of the award-winning 3D giant-screen films *Journey To The South Pacific*, *To The Arctic* and *Grand Canyon Adventure*, MacGillivray is also producing the company's forthcoming films: *America Wild: U.S. National Parks* and *Everest: Conquering Thin Air* (both working titles). The son of Academy Award®-nominated filmmaker Greg MacGillivray, Shaun grew up on film locations all around the world. To capture the breath-taking footage seen in *Humpback Whales*, he and the crew travelled to Alaska, Hawaii and the remote islands of Tonga.

BRAD OHLUND (Director of Photography) has worked in the giant-screen industry for 25 years. His projects with MacGillivray Freeman Films include the giant-screen films *Dolphins*, *Adventures in Wild California*, *Journey Into Amazing Caves*, *Coral Reef Adventure*, *Mystery of the Nile*, *Greece: Secrets of the Past*, *Hurricane on the Bayou*, *Grand Canyon Adventure*, *Arabia*, *To The Arctic* and *Journey to the South Pacific*.

After attending Brooks Institute of Photography in Santa Barbara, California, Ohlund began his career with the classic giant-screen film *To Fly!* Since then, his broad and varied assignments have included filming underwater reefs in the South Pacific and primitive tribes in New Guinea and Borneo. He has filmed from a plane through the eye of a hurricane and captured the fury of an approaching tornado with an IMAX camera.

HOWARD HALL (Director of Underwater Photography) is a pioneer of underwater IMAX® films. In 1994, he directed the very first underwater IMAX® 3D feature, *Into the Deep*. He then went on to direct the IMAX® feature *Island of the Sharks* and in 2005, he returned to IMAX 3D® films with *Deep Sea 3D*, which was awarded Best Picture at the Giant Screen Cinema Association Conference and Best Large Format Film at Wildscreen. This was followed in 2009 by *Under the Sea 3D*, winner of Best Cinematography at the Giant Screen Cinema Association Conference and Best Documentary at the International 3D Society.

Hall's credits as director of underwater cinematography for giant-screen films include *Lost Worlds*, MacGillivray Freeman's *The Living Sea* and *Hubble*. In 2002, he was underwater sequence director for MacGillivray Freeman's *Coral Reef Adventure*, a film in which both he and his wife and partner Michele are featured on-camera. Most recently, Hall served as director of underwater cinematography on MacGillivray Freeman's *Journey to the South Pacific*.

A multiple Emmy Award winner, Hall has produced and/or directed many award-winning natural history television films including a National Geographic Special and three episodes of the PBS series "Nature." He also directed the award-winning series "Secrets of the Ocean Realm" for PBS.

STEVE WOOD (Composer) has been scoring films with Greg MacGillivray since MacGillivray's surfing cult classic *Five Summer Stories* in 1975. Since then, Wood has worked on more than 20 giant-screen films, including *The Living Sea*, *To Fly!*, *Everest*, *Dolphins*, *To The Arctic*, *Journey to The South Pacific* and *Grand Canyon Adventure* with Dave Matthews Band. He worked with Sting on both *The Living Sea* and *Dolphins*, and with George Harrison on *Everest*.

Wood has been honored with six GSCA Film Achievement Awards for Best Soundtrack, presented by the Giant Screen Cinema Association.

About MacGillivray Freeman Films

MacGillivray Freeman Films is the world's foremost independent producer and distributor of giant-screen 70mm films with 38 giant-screen films to its credit. Throughout the company's 50-year history, its films have won numerous international awards including two Academy Award® nominations and three films inducted into the IMAX Hall of Fame. MacGillivray Freeman's films are known for their artistry and celebration of science and the natural world. It is the first documentary film company to reach the one billion dollar benchmark for worldwide box office. www.macgillivrayfreemanfilms.com.

About Pacific Life

Offering insurance since 1868, **Pacific Life** provides a wide range of life insurance products, annuities, and mutual funds, and offers a variety of investment products and services to individuals, businesses, and pension plans. Pacific Life counts more than half of the 100 largest U.S. companies as its clients. For additional company information, including current financial strength ratings, visit www.PacificLife.com. Pacific Life refers to Pacific Life Insurance Company and its affiliates, including Pacific Life & Annuity Company. Client count as of June 2014 is compiled by Pacific Life using the 2014 FORTUNE 500® list.

About One World One Ocean Foundation

Established by long-time ocean conservationists and filmmakers Greg and Barbara MacGillivray, **One World One Ocean Foundation** uses the power of giant screen films to educate and inspire people globally to protect the world's ocean. The cornerstone of the Foundation's philosophy is the belief that eco-literacy and lifelong learning are critical to an individual's development and important to inspiring people to become bold, passionate ocean ambassadors. One World One Ocean aims for a world of educated people who appreciate and advocate for the ocean, and who realize that the world's one ocean needs our protection.

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