

# POLITICAL DISCUSSION GROUP PACKET



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# Wild Elephants Live Longer Than Their Zoo Counterparts

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for **National Geographic News**

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Wild [elephants](#) in protected areas of Africa and Asia live more than twice as long as those in European zoos, a new study has found.

Animal welfare advocates have long clashed with zoo officials over concerns about the physical and mental health of elephants in captivity.



- [PHOTO: Elephant Shuns Jumbo Treadmill \(May 19, 2006\)](#)
- [More U.S. Zoos Closing Elephant Exhibits \(March 2, 2006\)](#)
- [VIDEO: Abused Elephants Saved \(March 26, 2008\)](#)

British and Canadian scientists who conducted the six-year study say their finding puts an end to that debate once and for all.

"We're worried that the whole system basically doesn't work and improving it is essential," said lead author Georgia Mason, a zoologist at the University of Guelph in Canada.

Obesity and stress are likely factors for the giant land mammals' early demise in captivity, she said.

Until these problems are resolved, the authors are calling for a halt to importing wild elephants and breeding them in facilities unless an institution can guarantee long, healthy lives for its elephants. The study will be published tomorrow in the journal *Science*.

(Related: ["Zoo Life Shortens Elephant Lives in Europe, Study Says"](#) [October 25, 2002].)

## Wild and Long-Lived

Mason and colleagues looked at data from more than 4,500 wild and captive African and Asian elephants.

The data include elephants in European zoos, which house about half of the world's captive elephants; protected populations in Amboseli National Park in [Kenya](#); and the Myanma Timber Enterprise in [Myanmar \(Burma\)](#), a government-run logging operation where Asian elephants are put to work.

Only the survival rates of females were analyzed because of their importance to future populations.

The findings show that captive elephants live considerably shorter lives. For [African elephants](#), the median life span is 17 years for zoo-born females, compared to 56 years in the Amboseli National Park population.

For [Asian elephants](#), the results are "much more worrying because they are the rarer of the two species," Mason said.

Zoo females only live 19 years—about half the life span of the Myanma timber elephants, which, on average, survive until 42.

What's more, the team discovered that Asian elephants bred and born in captivity died earlier than those imported into zoos from the wild.

"That really surprised us," Mason said.

"Something is happening very, very early in life in these zoo animals, and it's got to be happening before the age of three or four ... the average age when wild-caught animals arrive in [zoos]."

Mason doesn't know why captive-bred elephants are dying sooner than their wild-caught counterparts.

But if healthy adults are not able to live long enough reproduce, then the captive populations in Europe won't be self-sustaining—a problem that American zoos already face.

### **Survival Strategies**

To keep zoo elephants alive longer, the authors recommend routine screening for obesity (something that's done in U.S. captive elephant populations), as well as monitoring stress via a chemical known as interleukin-6.

Checking this biological marker, which shows that the body's immune system is battling sickness, would allow zoo officials to intervene before the animal is seriously ill, Mason said.

Robert Wiese, collections director at the San Diego Zoo in California, was not part of this study. He said making a comparison between the lifespan of captive and wild elephants may seem deceptively simple.

"There are just so many confounding issues, especially in small sample sizes [of] zoo animals, that it's hard to really separate and make sure you're comparing apples to apples," he said.

### **Huge Improvements**

In 2004 Wiese co-authored a paper in the journal *Zoo Biology* showing the opposite of Mason's findings: that zoo elephants live as long as those in the wild.

He said that within the last decade accredited facilities have made huge improvements in the care of captive elephants by providing better nutrition to combat obesity, as well as environmental enrichment activities that reduce stress.

"Typically anti-zoo critics throw ... in our face the things that the zoo community has already identified as issues that we need to work on," Wiese said.

## **Marine Mammals in Captivity**

### **Dolphins, sea lions and other marine mammals are taken from the wild for public displays**

*The Humane Society of the United States*

The public display industry captures many species of marine mammals from the wild, especially whales and dolphins. The Humane Society of the United States believes that these animals should not be taken from the wild simply to entertain and amuse people, for a number of reasons.

#### **Life in the wild**

The very nature of these animals makes them uniquely unsuited to confinement. In the wild, whales and dolphins live in large groups (called pods), often in tight family units. Family bonds often last many years. In some species, they last for a lifetime.

Whales and dolphins travel long distances each day, sometimes swimming in a straight line for a hundred miles, other times remaining in a certain area for hours or days, moving several miles along a coastline and then turning to retrace their path. These marine mammals can dive up to several hundred meters and stay underwater for up to half an hour. They spend only 10 to 20% of their time at the surface.

The sea is to whales and dolphins much as the air is to birds—a three-dimensional environment, where they can move up and down and side to side. But whales and dolphins don't stop to perch. They never come to shore, as do seals and sea lions. Whales and dolphins are always swimming, even when they "sleep." They are "voluntary breathers," conscious of every breath they take. They are always aware, and always moving. Understanding this, it is difficult to imagine the tragedy of life in no more than a tiny swimming pool.

### **Life in captivity**

Life for captive whales and dolphins is nothing like a life in the sea. It is almost impossible to maintain a family group in captivity. Tanks only allow a few strokes in any direction before coming to a wall. Because tanks are shallow, the natural tendencies of whales and dolphins are reversed—they spend more than half their time at the tank's surface.

This unnatural situation can cause skin problems. In addition, in captive killer whales (orcas), it is the probable cause of dorsal fin collapse, as without the support of water, gravity pulls these tall appendages over as the whale matures. Collapsed fins are experienced by all captive male orcas and many captive female orcas, who were either captured as juveniles or who were born in captivity. However, they are observed in only about 1% of orcas in the wild.

In a tank, the environment is monotonous and limited in scope. Sonar clicks, the method by which individuals define their surroundings, have limited utility in such an environment. These animals, who are perpetually aware, have nothing like the varied stimulation of their natural environment. In perpetual motion, they are forced into literally endless circles. Life for these animals is a mere shadow of what it was in the wild.

### **The problem**

What must life be like for these complex, gregarious, three-dimensional creatures who suddenly find themselves in a comparatively bland, isolated, two-dimensional enclosure? And what of the capture process itself? It violently disrupts social groups, splits up families, and snatches individual animals from the water; it is a completely unnatural event. Capture stress can be very severe and even fatal. And the act of capturing betrays the trust of dolphins in particular, who often come to play at the bow of the capture boat, only to be netted and hauled aboard, an incredibly traumatic ending to an innocent and joyous behavior.

At first look, a whale or dolphin show may seem exciting, even for the animals. But when you look past the show to the high mortality rates and stress-related causes of death in captive whales and dolphins, the effects of captivity suggest a far harsher reality. The public display of whales and dolphins in marine parks and aquaria is waning in Europe and Canada, but it is still prevalent in the United States and is increasing in developing countries, particularly those in Asia.

Although seals and sea lions may breed readily in captivity, only a few species are held in numbers large enough to sustain a breeding population. Whales and dolphins, on the other hand, do not breed well in captivity. Some species have never produced surviving offspring, while the calves of others suffer high mortality rates. Therefore, many of the marine mammals on public display in the world still come from the wild.

The U.S. government allows the capture of wild marine mammals for public display, justifying this exemption from the Marine Mammal Protection Act's prohibition of exploitation and harassment by contending that public display serves educational and conservation purposes. However, experience has proven that public display does not effectively educate the public and that profit is the main motive for conducting traumatic and stressful captures. For a marine mammal, tanks are prisons. The monotonous, confined life of animals in captivity is a mere shadow of what life was like for them in the wild. The HSUS believes that animals in bare tanks do not present a realistic image of natural behaviors or natural habitats. Marine mammals are best protected by cleaning up and protecting their natural environment, not by removing them from it.

**External Link:** [The Killer in the Pool](#) (*Outside Magazine*) Read Article Below



An orca at Seaworld San Diego. Photo: Britta Jaschinski/laif/Redux  
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*He glanced through the glass and saw Tilikum staring back, with what appeared to be two human feet hanging down his side. There was a nude body draped across Tilikum's back.*

To work closely with a killer whale in a marine park requires experience, intuition, athleticism, and a whole lot of dramatic flair. Few people were better at it than top SeaWorld trainer Dawn Brancheau, who, at 40, was blond, vivacious, and literally the poster girl for the marine park in Orlando, Florida, appearing on billboards around the city. She decided she wanted to work with killer whales at the age of nine, during a family trip to SeaWorld, and loved animals so much that as an adult she used to throw birthday parties for her two chocolate Labs.

This past February 24, Brancheau was working the Dine with Shamu show, featuring SeaWorld's largest killer whale, a six-ton, 22-foot male known as "Tili" (short for Tilikum). Dine with Shamu takes place in a faux-rock-lined, 1.6-million-gallon pool that has an open-air café wrapped around one side. The families snacking on the lunch buffet that Wednesday were getting an eyeful. Brancheau bounced around on the deck of the pool, wearing a black-and-white wetsuit that echoed Tilikum's coloration, as she worked him through a few of the many "behaviors" he had learned during his nearly 27 years as a marine-park denizen. The audience chuckled at the sight of one of the ocean's top predators performing like a circus animal.

The show ended around 1:30 P.M. As the audience started to file out, Brancheau fed Tilikum some herring (he eats up to 200 pounds a day), doused him a few times with a bucket (killer whales love all sorts of stimulation), and moved over to a shallow ledge built into the side of the pool. There, she lay down in a few inches of water, talking to him and stroking him, conducting what's known as a "relationship session." Tilikum floated inert in the pool alongside her, his nose almost touching her shoulder. Brancheau was smiling, her long ponytail flaring out behind her.

One level down, a group of families gathered before the huge glass windows of the underwater viewing area. A trainer shouted up that they were ready for Tilikum. That was Brancheau's signal to instruct the orca to dive down and swim directly up to the glass for a custom photo op. It's an awesome sight when six tons of Tili come gliding out of the blue. But that day, instead of waiting for his cue and behaving the way decades of daily training in captivity had conditioned him to, Tilikum did something unexpected. Jan Topoleski, 32, a trainer who was acting as a safety spotter for Brancheau, told investigators that Tilikum took Brancheau's drifting hair into his mouth. Brancheau tried to pull it free, but Tilikum yanked her into the pool. In an instant, a classic tableau of a trainer bonding with a marine mammal became a life-threatening emergency.

Topoleski hit the pool's siren. A "Signal 500" was broadcast over the SeaWorld radio net, calling for a water rescue at G pool. Staff raced to the scene. "It was scary," Dutch tourist Susanne De Wit, 33, told investigators. "He was very wild." SeaWorld staff slapped the water surface, signaling Tilikum to leave her. The whale ignored the command. Trainers hurried to drop a weighted net into the water to try and separate Tilikum from Brancheau or herd him through two adjoining pools and into a small medical pool that had a lifting floor. There he could be raised out of the water and controlled.



Dawn Brancheau with an orca, December 2005 Photo: Orlando Sentinel

Eyewitness accounts and the sheriff's investigative report make it clear that Brancheau fought hard. She was a strong swimmer, a dedicated workout enthusiast who ran marathons. But she weighed just 123 pounds and was no match for a 12,000-pound killer whale. She managed to break free and swim toward the surface, but Tilikum slammed into her. She tried again. This time he grabbed her. Her water shoes came off and floated to the surface. "He started pushing her with his nose like she was a toy," said Paula Gillespie, one of the visitors at the underwater window. SeaWorld employees urgently ushered guests away. "Will she be OK?" one asked.

Tilikum kept dragging Brancheau through the water, shaking her violently. Finally—now holding Brancheau by her arm—he was guided onto the medical lift. The floor was quickly raised. Even now, Tilikum refused to give her up. Trainers were forced to pry his jaws open. When they pulled Brancheau free, part of her arm came off in his mouth. Brancheau's colleagues carried her to the pool deck and cut her wetsuit away. She had no heartbeat. The paramedics went to work, attaching a defibrillator, but it was obvious she was gone. A sheet was pulled over her body. Tilikum, who'd been involved in two marine-park deaths in the past, had killed her.

"Every safety protocol that we have failed," SeaWorld director of animal training Kelly Flaherty Clark told me a month after the incident, her voice still tight with emotion. "That's why we don't have our friend anymore, and that's why we are taking a step back."

Dawn Brancheau's death was a tragedy for her family and for SeaWorld, which had never lost a trainer before. Letters of sympathy poured in, many with pictures of Brancheau and the grinning kids she'd spent time with after shows. The incident was a shock to Americans accustomed to thinking of Shamu as a lovable national icon, with an extensive line of plush dolls and a relentlessly cheerful Twitter account. The news media went into full frenzy, chasing Brancheau's family and flying helicopters over Shamu Stadium. Congress piled on with a call for hearings on marine mammals at entertainment parks, and the Occupational Safety and Health Administration (OSHA) opened an investigation. It was the most intense national killer whale mania since 1996, when Keiko, the star of *Free Willy*, was rescued from a shabby marine park in Mexico City in an attempt to return him to the sea. Killer whales have never been known to attack a human in the wild, and everyone wanted to know one thing: Why did Dawn Brancheau die?

KILLER WHALES have been starring at marine parks since 1965. There are 42 alive in parks around the world today—SeaWorld owns 26 of them—and over the years more than 130 have died in captivity. Until the 1960s, no one really thought about putting a killer whale in an aquarium, much less in a show. The public knew little about them

beyond the fact that they sounded dangerous. (Killer whales, or orcas, are the largest members of the dolphin family.) Fishermen tended to blast them with rifle fire if they came near salmon and herring stocks.

But Ted Griffin helped change all that. A young impresario who owned the Seattle Marine Aquarium, Griffin had long been obsessed with the idea of swimming with a killer whale. In June 1965, he got word of a 22-footer tangled in a fisherman's nets off Namu, British Columbia. Griffin bought the 8,000-pound animal for \$8,000. He towed the orca, which he named Namu, 450 miles back to Seattle in a custom-made floating pen. Namu's family pod—20 to 25 orcas—followed most of the way. Griffin was surprised by how gentle and intelligent Namu was. Before long he was riding on the orca's back, and by September tens of thousands of people had come to see the spectacle of the man and his orca buddy. The story of their "friendship" was eventually chronicled in the pages of *National Geographic* and in the 1966 movie *Namu, the Killer Whale*. The orca entertainment industry was born.

Namu was often heard calling to other orcas from his pen in the sea, and he died within a year from an intestinal infection, probably brought on by a nearby sewage outflow. Griffin was devastated. But his partner at the aquarium, Don Goldsberry, was a blunt, hard-driving man who could see that there was still a business in killer whales. He and Griffin had already turned their energies to capturing orcas in the Puget Sound area and selling them to marine parks. Goldsberry first built a harpoon gun, firing it by accident through his garage door and denting his car. Eventually, he and Griffin settled on the technique of locating orca pods from the air, driving them into coves with boats and seal bombs (underwater explosives used by fishermen to keep seals away from their catch), and throwing a wall of net across their escape path. Goldsberry and Griffin would then choose the orcas they wanted and let the remaining ones go. They preferred adolescents, particularly the smaller females, which were easier to handle and transport.

In October 1965, Goldsberry and Griffin trapped 15 killer whales in Carr Inlet, near Tacoma. One died during the hunt. Another—a 14-foot female that weighed 2,000 pounds—was captured and named Shamu (for She-Namu). In December, a fast-growing marine park in San Diego, called SeaWorld, acquired Shamu and flew her to California. Goldsberry says he and Griffin were paid \$70,000. It was the start of a billion-dollar franchise.

Over the next decade, around 300 killer whales were netted off the Pacific Northwest coast, and 51 were sold to marine parks across the globe, in Japan, Australia, the Netherlands, France, and elsewhere. Goldsberry, who became SeaWorld's lead "collector" until he retired in the late 1980s, caught 252 of them, sold 29, and inadvertently killed nine with his nets. In August 1970, concerned about backlash, Goldsberry weighted some dead orcas down with anchors and dumped them in deep water. When they were dragged up on a Whidbey Island beach by a trawling fisherman, the public started to understand the sometimes brutal reality of the "orca gold rush."

In 1972, the Marine Mammal Protection Act prohibited the taking of marine mammals in U.S. waters, but SeaWorld continued to receive killer whale capture permits under an educational-display exclusion. In March 1976, Goldsberry pushed his luck and the limits of public opinion. He sighted a group of killer whales in the waters just off Olympia, Washington's state capital. In full view of boaters—and just as the state legislature was meeting to consider creating a Puget Sound killer whale sanctuary—he used seal bombs and boats to chase six orcas into his nets at Budd Inlet. Ralph Munro, an aide to Governor Dan Evans, was out on a small sailboat that day and remembers the sight. "It was gruesome as they closed the net. You could hear the whales screaming," Munro recalls. "Goldsberry kept dropping explosives to drive the whales back into the net."

The State of Washington filed a lawsuit, contending that Goldsberry and SeaWorld had violated permits that required humane capture, and as the heat and publicity built, SeaWorld agreed to release the Budd Inlet killer whales and to stop taking orcas from Washington waters. With the Puget Sound hunting grounds closing, Goldsberry flew around the world looking for other good capture sites. He settled on Iceland, where killer whales were plentiful. By October 1976, SeaWorld's first Icelandic orca had been captured.

Over the next few years, Goldsberry spent freely to help create the infrastructure to net and transport whales out of Iceland. In November 1983, in the cold, rough waters off Berufjördur, Icelander Helgi Jonasson drew a large purse-seine net around a group of killer whales. Three young animals—two males and a female—were captured and transported to the Hafnarfjördur Marine Zoo, near Reykjavík.

There they were placed in a concrete holding tank. The smaller male, who was about two years old and just shy of 11.5 feet, would remain there for almost a year, awaiting transfer to a marine park. In the pool, he could either cruise slowly in circles or lie still on the surface. He could hear no ocean sounds, only the mechanical rush of filtration. Finally, in late 1984, the young orca was shipped to Sealand of the Pacific, a marine park just outside Victoria, on British Columbia's Vancouver Island. He was given a name to go with his new life: Tilikum, which means "friend" in Chinook.

SEALAND, SITUATED at Oak Bay Marina, was a wholly alien world for a wild orca. Its performance pool—about 100 feet by 50 feet, and 35 feet deep—was created by suspending mesh netting from the floating docks. The pool was open to the marina water, and thus to any bilge oil or sewage pumped into it by boaters. Marina traffic and motors created a cacophony of artificial underwater background noise, obscuring the natural sounds Tilikum had known in the wild. In the 14 years before his arrival, seven orcas had died under Sealand's care. Their average survival time was just shy of three and a half years.

At Sealand, Tilikum joined two female killer whales, Haida and Nootka, who were sorting out the social pecking order. (Orca society is dominated by females.) That meant conflict and tooth raking for all three orcas, and even after Haida established herself as dominant, both females continued to push the young Tilikum around. The stress was

worse at night. Sealand's owner, a local entrepreneur named Robert Wright who'd captured his share of Pacific Northwest killer whales in the early 1970s, worried that someone might cut the net to free his orcas, or that they might chew through it themselves. So at 5:30 P.M., after the shows were over, the orcas were moved into a small metal-sided pool that was 26 feet in diameter and less than 20 feet deep. The trainers referred to it as "the module," and the orcas were left in it for the next 14 and a half hours.

According to Eric Walters, who was a trainer at Sealand from 1987 to 1989 while working toward a bachelor's degree in marine biology at the University of Victoria, the module was so tight that the orcas had difficulty avoiding conflict, and their skin would get scratches and cuts from rubbing against the sides. About once a week, Walters says, one or more of the orcas would simply refuse to swim into the module and would have to be left in the performance pool overnight.

The orca show was performed every hour on the hour, eight times a day, seven days a week. Both Nootka and Tilikum had stomach ulcers, which had to be treated with medication. Sometimes Nootka's ulcers were so bad she had blood in her stool.

Walters was interested in the science of training and was encouraged when Sealand brought in Bruce Stephens, a former SeaWorld head trainer, to make recommendations to improve Sealand's practices. Stephens gave each trainer a handbook, which warned, "If you fail to provide your animals with the excitement they need, you may be certain they will create the excitement themselves." He emphasized that killer whales needed constant change to keep them engaged and responsive, and made a series of recommendations for new learning sessions and playtime for Sealand's orcas. But within a month, Walters told me, Sealand was back to its usual routines. "They basically ran it like you would run McDonald's," he says. "It just can't be good for an animal that is so intelligent to do the same thing every day." (Wright still runs a marina at Oak Bay but declined to speak to *Outside*.)

As Stephens had warned, bored killer whales look to make their own fun. If any unusual object ended up in the water, Haida, Nootka, and Tilikum would race for it and play keep-away with the trainers. Once the orcas took something, they were determined to hang on to it. Walters worried about what might happen if one of the trainers—who worked in rubber boots on a painted fiberglass deck—fell into the pool. Many marine parks try to defuse the danger with desensitization training that teaches the killer whales to stay calm and ignore anyone who falls in. The training might start with just a foot in the water (the orca is conditioned to ignore it) but ultimately requires gradually easing an entire person into the pool. According to Steve Huxter, who was the head of animal training and care at the time, desensitization was a Catch-22. After thinking about it carefully, "Bob [Wright] was not willing to take that risk."

Each whale had a distinctive personality. Tilikum was youthful, energetic, and eager to learn. "Tilikum was our favorite," says Eric Walters. "He was the one we all really liked to work with."

Nootka, with her health issues, was the most unpredictable. According to Walters, Nootka pulled a trainer into the water. (He quickly yanked her out.) Twice she tried to bite down on Walters's hands. Not even the audience was safe. A blind woman was once brought onto the stage to pat Nootka's tongue. Nootka bit her, too.

Frustrated, Walters quit in May 1989. A year later, he wrote a letter to the Canadian Federation of Humane Societies, to share with participants at a conference on whales in captivity. In it, he detailed Sealand's treatment of its marine mammals and the safety concerns he had. In closing, he wrote, "I feel that sooner or later someone is going to get seriously hurt."

On February 20, 1991, Sealand had just wrapped up an afternoon killer whale show. Keltie Byrne, a 20-year-old marine-biology student and part-time trainer, was starting to tidy up when she misstepped and fell halfway into the pool. As she struggled to get out, one of the killer whales grabbed her and pulled her into the water. A competitive swimmer, Byrne was no match for three orcas used to treating any unusual object as a toy. "They never had a plaything in the pool that was so interactive," says Huxter. "They just got incredibly excited and stimulated." Huxter and the other trainers issued recall commands and threw food in the water. They tried maneuvering a life ring close enough for Byrne to grab, but the orcas kept her away from it. In the chaos and dark water, it was hard to see which killer whale had her at any one time. Twice, she surfaced and screamed. After about ten minutes, she popped up a third time for an instant but made no noise. She had drowned.

Byrne was the first trainer ever killed by orcas at a marine park. It took Sealand employees two hours to recover her body from Nootka, Haida, and Tilikum. They had stripped off all of her clothes save one boot, and she had bruises from bites across her skin. "It was just a tragic accident," Al Bolz, Sealand's manager, told reporters at the time. "I just can't explain it."

Paul Spong, 71, director of OrcaLab, in British Columbia—which studies orcas in the wild—did part-time research at Sealand before Tilikum arrived. He is not so befuddled. "If you pen killer whales in a small steel tank, you are imposing an extreme level of sensory deprivation on them," he says. "Humans who are subjected to those same conditions become mentally disturbed."

Byrne's death led to a coroner's inquest, which recommended a series of safety improvements at Sealand. The park responded, but according to Huxter, "the wind came out of [Wright's] sails for the business." In the fall of 1991, Sealand contacted SeaWorld to ask if it would like to buy Nootka, Haida, and Tilikum. Sealand closed in 1992.

IF YOU WANT TO TRY to get an inkling of what captivity means for a killer whale, you first have to understand what their lives are like in the wild. For that, there's no one better than marine biologist Ken Balcomb, 69, who has spent 34 years tracking and observing killer whales off the coast of Washington State.

In early May, I meet Balcomb in his cluttered yard on San Juan Island. He's trying to find the source of a leak on his Boston Whaler. His wood-framed house, which also serves as headquarters for his Center for Whale Research, sits perched atop the rocky shores of the Haro Strait, a popular orca hangout; Balcomb says he sees them about 80 days a year from his deck. Inside, there's gear all over the place—spotting scopes, cameras, tool kits—from a recent expedition to California. In the middle of it all, on a table, sits an enormous killer whale skull that he picked up in Japan in 1975, when he was a flier and oceanographic specialist for the U.S. Navy.

Balcomb, of medium build, with a ruddy, sun-baked face and a salt-and-pepper beard, has been carefully photographing, cataloging, and observing the Puget Sound orcas—also known as the Southern Residents—since he was contracted by the National Marine Fisheries Service in 1976 to assess the impact of the marine-park captures. Many people assumed there were hundreds of orcas around Puget Sound. After identifying each individual killer whale by its markings, Balcomb found that there were just 70 left.

Since then, he's become the Southern Residents' scientific godfather, noting every birth and death, and plotting family connections. The population, he says, is now at 85 orcas, but he won't know for sure until they show up this summer. Talking on his sun porch, Balcomb stresses that one of the most important things to know about killer whales like Tilikum is that, in the wild, they live in complex and highly social family pods of 20 to 50 animals. The pods are organized around the females. The matriarch is usually the oldest female (some live to 80 or more), who has a wealth of experience and knowledge about where food can be found. Within the pod, mothers are at the center of smaller family groups. Males, who can live to 50 or 60 years, stay with their mothers their entire lives and often die not long after she does. According to Balcomb, separation is not a minor issue.

The Southern Resident population is made up of three distinct pods. Each pod might travel some 75 miles a day, following the salmon, and vocalizing almost constantly to keep the entire group updated on who's where and whether there are fish around. Killer whales are highly intelligent. They coordinate in the hunt, share food freely, and will help an injured or ill member of the pod stay on the surface to breathe. Most striking is the sophistication of their dialect. Each family group within a pod uses the same vocalizations, or vocabulary, and there are also shared vocalizations between pods. Balcomb says he can usually tell which pod is about to turn up simply by the sounds he hears through a hydrophone.

The social and genetic connections that bind orcas in the wild are intense. There's breeding between the Puget Sound pods. Sometimes they'll all come together at once and go through a distinctive greeting ceremony before mixing. But they will have absolutely nothing to do with the genetically distinct, transient killer whales that sometimes pass through their waters. (Transients travel in much smaller groups over vast distances and mostly feed on marine mammals instead of fish.) "When you get born into the family, you are always in the family. You don't have a house or a home that is your location," says Balcomb. "The group is your home, and your whole identity is with

your group." Aggression between members of a pod almost never occurs in the wild, he adds.



A wild orca, Kachemak Bay, Alaska Photo: Richard Johnson

Puget Sound is small enough that Balcomb used to run into Goldsberry from time to time. Despite their differences, the two men would talk killer whales, drink Crown Royal, and trade stories. Today, Goldsberry, 76, lives about 100 miles away, in a small, ground-level condo near Sea-Tac Airport. His only water view is of a man-made lake, and when I go to see him he's busy drilling a walrus tusk that's been made into a cribbage board. Goldsberry has a square head, with close-cropped white hair. His health is fragile and he has an oxygen tube clipped to his nose. But he still has the beefy arms of a waterman, and he appears unmoved by the controversy of his hunting days. "We showed the world that killer whales were good animals and all of a sudden people said, 'Hey, leave these animals alone,'" he says, sipping a mug of vodka and ice. "I had to make a living."

Goldsberry has mostly kept his mouth shut about his work for SeaWorld and doesn't much like talking to reporters. "I'm only speaking with you because those idiots out there, mainly the politicians, want to release all the killer whales," he growls. "You might as well put a gun to the whales' heads." He spends the next couple of hours telling me about his cowboy days in the orca business: how he helped build the global trade, how he kept one step ahead of Greenpeace and activists, and how he battled the media, dropping one TV newsman's camera into the water, asking, "I wonder if this floats?"

Goldsberry says he always got the resources he needed to keep the killer whales coming, and developed relationships with other marine parks around the world, which would often hold killer whales for him, many of which would eventually end up at SeaWorld. (Balcomb calls it Goldsberry's "whale laundry.") "I would go into SeaWorld and say, 'I need a quarter of a million' or 'a half-million dollars,' and they put it in my suitcase," he says with a grin. "It was good, catching animals. It was exciting. I was the best in the world. There is no question about it."

Asked about Goldsberry's work for SeaWorld, Fred Jacobs, vice president of communications, denies that killer whales were laundered. "Any killer whale that entered our collection from another facility did so in full accordance with their export and our import laws," he says. "We have imported whales that were collected by other institutions, but they were not collected on our behalf and held for us."

Goldsberry's last great haul of wild orcas came in October 1978, when he caught six off Iceland. (Five ended up in SeaWorld parks.) He continued to collect all sorts of other animals for SeaWorld for the next decade. When Goldsberry and SeaWorld finally parted ways, in the late 1980s, Goldsberry says he was offered \$100,000 to keep quiet

about his work for two years. He happily took it. SeaWorld's Jacobs explains that Goldsberry's relationship with SeaWorld occurred under prior ownership. "I have no way of knowing if this is true or not," he says.

Whatever his methods, Goldsberry had helped SeaWorld turn killer whales into killer profits. The company currently has parks in Orlando, San Diego, and San Antonio, which are visited by more than 12 million people annually. Most of those visitors, paying up to \$78 each for an entrance ticket, come to see killer whales. Last year, Anheuser-Busch InBev sold SeaWorld's marine parks—and seven amusement parks housed with SeaWorld under the Busch Entertainment umbrella—to private-equity giant the Blackstone Group. The purchase price was reported to be \$2.7 billion.

One of the keys to SeaWorld's success was its ability to move away from controversial wild orca captures to captive births in its marine parks. The first captive birth that produced a surviving calf took place at SeaWorld Orlando in 1985. Since then, SeaWorld has relied mostly on captive breeding to stock its parks with killer whales, even mastering the art of artificial insemination. "Early in the morning, the animal-care crew would take hot-water-filled cow vaginas and masturbate the males in the back tanks," says John Hall, a former scientist at SeaWorld. "It was pretty interesting to walk by."

Tilikum's sudden availability in 1991 was a boon to the captive breeding program. While preparing to transfer Haida, Nootka, and Tilikum, SeaWorld, one of only a few facilities with the expertise to care for them, discovered that Tilikum had already impregnated Haida and Nootka. A sexually mature male, even one involved in a dangerous incident, was a welcome addition. "It was not the only reason [SeaWorld] had interest but definitely a part of the decision," says Mark Simmons, who worked as a trainer at SeaWorld from 1987 to 1996 and was part of a team sent to Sealand to manage Tilikum's transfer. Media reports at the time pegged Tilikum's price at \$1 million.

IF SEALAND WAS LIKE a McDonald's, SeaWorld Orlando was like a five-star restaurant, with 220 acres of custom marine habitats, thrill rides, eateries, and a 400-foot Sky Tower. There were seven different killer whale pools, including the enormous Shamu show pool, and seven million gallons of continuously filtered salt water kept at an orca-friendly 52 to 55 degrees. There was regular, world-class veterinary care. Even the food was a custom blend, made up of restaurant-quality herring, capelin, and salmon.

The big question for SeaWorld was whether to teach Tilikum to perform with trainers in the pool. Called "water work," it has long been the most thrilling element of the Shamu shows. In contrast to Sealand's repetitive food-for-work equation, SeaWorld's training strategy was finely honed and based on intense variation. Daily activities were constantly altered, and the orcas were given a variety of rewards—sometimes food, sometimes stimulation (backrubs, hose-downs, toys, or ice), and sometimes nothing. "Variability makes the animals more flexible about what the outcome is and keeps them interested," says Thad Lacinak, who was SeaWorld's vice president and corporate

curator for animal training when Tilikum arrived and who left in 2008 to found Precision Behavior, a consulting firm for zoos and other animal facilities.

Lacinak believed that Keltie Byrne had died because Sealand's killer whales had never been trained to accept humans in the water. So when she fell in, they treated her like any other surprise object. Lacinak had confidence that Tilikum could be trained for Shamu-show water work. But he and SeaWorld's top management also knew that when it comes to killer whales (or any wild animal), there are no guarantees. Normally, SeaWorld begins training in-water interaction when its killer whales are 1,000 pounds or less, but Tilikum was by now a very large bull. Plus Tilikum had been involved in a death. "If something did happen, you would look like a fool," Lacinak says. "It was too risky, and from a liability standpoint it was decided not to do [water work]."

Some of the trainers at least wanted to desensitize Tilikum in case someone fell in. "There were several of us that pushed for water de-sense training. You don't run from the storm; you harness the wind," says Mark Simmons, who left SeaWorld in 1996 to earn a business degree and later co-founded Ocean Embassy, which consults on conservation and marine parks. "We wanted to make humans in the water so commonplace that it didn't elicit any response. And if that had been done, it would be very unlikely that we'd be having this conversation today."

But SeaWorld faced the same vexing Catch-22 that had given Sealand pause. SeaWorld's head trainer, Flaherty Clark, says that it's impossible to prove or disprove what might have happened if Tilikum had been desensitized. "It's easy for former trainers to frame that as a hypothetical," she says, "but we viewed water work with him and all the conditioning that might have permitted it to be effected safely as simply too great a risk."

Instead, SeaWorld focused on creating roles for Tilikum that showcased his size and power when no trainers were in the water. The sight of him rocketing into the air awed the crowds. One of his specialties was inundating the front rows—the "splash zone"—with a tidal wave pushed up by his enormous flukes. "He's a crowd-pleasing, showstopping, wonderful, wonderful wild animal," says Flaherty Clark.

Keeping Tilikum from water work made sense for another reason: As long as SeaWorld had been putting trainers in the water with killer whales, trainers had been getting worked over by them. Since the 1960s, there have been more than 40 documented incidents at marine parks around the world. In 1971, the first Shamu went wild on a bikini-wearing secretary from SeaWorld, who was pulled screaming from the pool. For every incident the public was aware of (the ones that occurred in front of audiences or that put trainers in the hospital), there were many more behind the scenes. John Jett was a trainer at SeaWorld in the 1990s. He left to pursue a Ph.D. in natural-resource management in 1995, having grown disillusioned with the reality of keeping large, intelligent animals in captivity. He says that getting nicked, and sometimes hammered, was just part of the price of living the killer whale dream: "There were so many incidents. If you show fear or go home hurt, you might be put on the bench." Flaherty

Clark says SeaWorld gives trainers wide latitude: "The safety of our trainers and animals is paramount. Our trainers are empowered to alter any show or session plan if they have even the slightest concern."

In 1987 alone, SeaWorld San Diego experienced three incidents that hospitalized trainers with everything from fractured vertebrae to a smashed pelvis. Jonathan Smith was one of them. In March, during a show, he was grabbed by two killer whales, who slammed him on the bottom of the 32-foot-deep pool five times before he finally escaped. "One more dunk for me and I would have gone out," he says. "They let me go. If they didn't want to let me go, it would have been over." Smith was left with a ruptured kidney, a lacerated liver, and broken ribs. In response to these serious injuries, as well as other incidents, SeaWorld shook up its management team, pulled trainers from the water, and reassessed its safety protocols. After a number of changes (including making sure that only very experienced trainers worked with killer whales), trainers were allowed back in the pools.

Despite the modifications, in 2006 another serious incident took place at SeaWorld San Diego, when head trainer Kenneth Peters was attacked by a killer whale called Kasatka. Kasatka grabbed Peters and repeatedly held him below the surface of the pool for up to a minute. He came close to drowning, and Kasatka joined Tilikum and a couple of other unruly SeaWorld orcas on the "no water work" blacklist.

Following the Peters incident, OSHA opened an investigation. After digging into the inner workings of SeaWorld's killer whale shows, OSHA issued a report in 2007 that warned, "The contributing factors to the accident, in the simplest of terms, is that swimming with captive orcas is inherently dangerous and if someone hasn't been killed already, it is only a matter of time before it does happen." SeaWorld challenged the report as filled with errors, and OSHA agreed to withdraw it.

IN LATE MARCH 2010, a month after Brancheau's death, I visit Orlando's SeaWorld park for the first time. I pause for an instant to take in the sheer enormity of the place, with its hundreds of diversions, but there is just one thing I really want to see: a killer whale show. I thread my way through families and packs of ecstatic kids. Shamu Stadium, SeaWorld's colossal amphitheater, looms before me.

The current Shamu show is called "Believe," and Dawn Brancheau was one of the stars. Music, video, and killer whales are wrapped around the story of a kid who paddles out to bond with a wild orca and is inspired to become a trainer. Every element is intimately choreographed, with whales exploding into the air and onscreen in perfect synchronicity. Even though Brancheau's death has prompted SeaWorld to temporarily reinvent "Believe" without trainers in the water, it is still absolutely mesmerizing. The show builds to a climactic finale with a pack of orcas lining up and using their flukes to sweep a tidal wave of water onto the shrieking and willing inhabitants of the splash zone.

After the show, I sit down with Brad Andrews in front of the underwater viewing area of G pool. Two killer whales are amusing a crowd of people who probably have no idea of the scene the same windows revealed a month earlier. Andrews is SeaWorld's chief zoological officer, and he's been with the park since 1986. He explains that while part of the goal is entertainment, SeaWorld's aim is to use the shows to educate and inspire visitors, as a way to help conserve the environment and support wildlife.



The viewing window, Sea World San Diego

There's a lot of criticism that flies back and forth between SeaWorld and the hard marine-science community, but there's no question that SeaWorld's close contact with killer whales over the course of decades has contributed to the world's knowledge of them. "The gestation of killer whales was never

known to researchers in the wild. It was always assumed it was like a dolphin, 12 months," Andrews says. "Then we found out it's 17 to 18 months. We supplied an answer to a part of their puzzle."

The advances SeaWorld has made in veterinary care have also paid off when it comes to rescuing stranded or sick marine animals, and SeaWorld's state-of-the-art breeding techniques could be useful in trying to preserve marine mammal populations on the brink of extinction, such as the vaquita porpoise in the Sea of Cortez. SeaWorld also nurtures multiple partnerships with leading conservation nonprofits, from the World Wildlife Fund to the Nature Conservancy. "Every year we spend \$3 million to \$4 million on research and conservation programs outside our park and another \$1.5 million on rescuing stranded animals," Andrews says.

Head trainer Kelly Flaherty Clark still has faith in the benefits of SeaWorld's mission in the wake of Brancheau's death. One of her mantras, known around the park as "Kellyisms," is "Do the right thing." As we sit together in the stands of Shamu Stadium, "Believe" looks like pure family fun. But for the trainers, the shows are the product of countless hours of hard work and practice. They know there are risks. "These are not dogs," Flaherty Clark says. "Every day you walk into your job, you are walking into a potentially dangerous situation. You never forget that. You can't afford to forget that."

SeaWorld doesn't forget, and conducts safety and rescue training once a month. Among other things, trainers are taught to go limp if they are grabbed, so the whales will lose interest. The killer whales are taught to keep their mouths closed while swimming, and desensitized so they stay calm and circle the perimeter of the pool if someone accidentally falls in. They learn emergency recall signals—transmitted via a tone box and hand slaps—and are trained to swim to a pool exit gate if a net is dropped in. Scuba gear is always nearby. SeaWorld's intensive regime helped its trainers interact with killer whales more than two million times without a death. But when a killer whale breaks from its training, all bets are off.

It's hard to know exactly what triggers an incident. It could be boredom, a desire to play, the pent-up frustration of confinement, a rough night in the tank with the other orcas, the pain of an ulcer, or maybe even hormonal cycling. Whatever the motivation, some trainers believe that killer whales are acutely aware of what they're doing. "I've seen animals put trainers in their mouths and know exactly what the breaking point of a rib cage is. And how long to hold a trainer on the bottom," says Jeffrey Ventre, who was a trainer at SeaWorld Orlando from 1987 until 1995, when he was let go for giving a killer whale a birthday kiss, in which he stuck his head into an orca's mouth.

If you're a killer whale in a marine park, there's probably no better place than SeaWorld. Yet no matter how nice the facility, there's stress associated with being a big mammal in a relatively small pool. Starting at Sealand, Tilikum had developed the habit of grinding his teeth against metal pool gates. Many of his teeth were so worn and broken that SeaWorld vets decided to drill some of them so they could be regularly irrigated with antiseptic solution. And once again, he had to deal with the stress of hostile females, particularly a dominant orca called Katina. "Tili was a good guy that got beat down by the women," says Ventre, now a doctor in New Orleans. "So there are a lot of reasons he might be unhappy."

John Jett, who was a team leader for Tilikum, says he sometimes would suffer a beatdown bad enough to rake up his skin and bloody him and would have to be held out of shows until he healed. Jett had a term for the blood left streaming in the water: "sky writing." After a good thrashing from the other orcas, Jett says, Tilikum might be "off" for days, "splitting" from his trainer to swim at high speed around the pool, acting agitated around the females, or opening his eyes wide and emitting distress vocals if asked to get into a vulnerable position (like rolling over on his back). "It's extremely sad if you think about being in Tili's situation," says Jett. "The poor guy just has no place to run."

SeaWorld's Fred Jacobs denies that Tilikum was ever held out of shows due to injuries from other orcas. "Injuries as part of the expression of social dominance are rare and almost never serious," he says. "We manage Tilikum's social interaction on a daily basis."

In 1999, Tilikum reminded the world that, at least when it came to humans, he could be a very dangerous animal. Early on the morning of July 6, Michael Dougherty, a physical trainer at SeaWorld, arrived at his office near the underwater viewing area of G pool. He glanced through the viewing glass and saw Tilikum staring back, with what appeared to be two human feet hanging down his side. There was a nude body draped across Tilikum's back. It wasn't moving. As in the Brancheau incident, Tilikum was herded onto the medical lift in order for SeaWorld staff to retrieve the body. Rigor mortis had already set in. It was a young male, and again the coroner's and sheriff's reports are telling. He had puncture wounds and multiple abrasions on his face.

The victim was Daniel Dukes, a 27-year-old with a reddish-blond ponytail, a scraggly beard and mustache, and a big red "D" tattooed above his left nipple. Four days earlier,

he'd been released from the Indian River County Jail after being booked for retail theft. On July 5, he apparently hid at SeaWorld past closing or sneaked in after hours. At some point during the night, he stripped down to his swim trunks, placed his clothes in a neat pile, and jumped into the pool. Perhaps he was simply crazy or suicidal. Perhaps he believed in the myth of a friendly Shamu.

The coroner determined the cause of death to be drowning. There were no cameras or witnesses, so it's not known if Tilikum held him under or hypothermia did him in. But it's clear Tilikum worked Dukes over. The coroner found abrasions and contusions—both premortem and postmortem—all over his head and body, and puncture wounds on his left leg. His testicles had been ripped open. Divers had to go to the bottom of the pool to retrieve little pieces of his body. SeaWorld ramped up its security, posting a 24-hour watch at Shamu Stadium. Keltie Byrne had not been an aberration.

IF ANYONE WAS GOING to take care around Tilikum, it was Dawn Brancheau. She was one of SeaWorld's best and completely dedicated to the animals and her job. (She even met her husband, Scott, in the SeaWorld cafeteria.) She had worked at SeaWorld Orlando since 1994, spending two years working with otters and sea lions before graduating to work with the killer whales. She was fun and selfless, volunteering at a local animal shelter and often keeping everything from stray ducks and chickens to rabbits and small birds at her home.

Over time, Brancheau had become one of SeaWorld's most trusted trainers, one of the dozen or so authorized to work with Tilikum. "Dawn showed prowess from the minute she set foot here. There's not one of us who wouldn't say that she was one of the best," says Flaherty Clark. Brancheau knew the risks and accepted them: "You can't put yourself in the water unless you trust them and they trust you," she once told a reporter.

Perhaps she trusted Tilikum too much. Thad Lacinak, the former VP of animal training at SeaWorld, thinks so. He says Brancheau was an exemplary trainer, one of the best he'd ever seen in the water. Still, Lacinak thinks Brancheau made a mistake lying down so close to Tilikum's mouth and letting her hair drift in the water alongside him. "She never should have put herself in that vulnerable a position," he says. "One of the things we always talked about at SeaWorld was you never want to get totally comfortable with any animal."

Former trainer Mark Simmons has been involved in deconstructing previous SeaWorld incidents between trainers and killer whales and was a friend of Brancheau's. He also thinks Brancheau's vulnerable position and hair (which he says she was growing long so she could give it to cancer patients for wigs) were the key factors that led to her being pulled into the pool. "Tilikum has never had an aggressive disposition," he says. "This was not the first time Dawn had laid down next to Tili in that position, but it was the first time her hair was that long and contacted Tili." Simmons believes Tilikum reacted to this "novel stimuli" by taking it in his mouth. When Brancheau tried to tug it free, as spotter Jan Topoleski described, Tilikum suddenly had a tempting game of tug of war,

which he was bound to win. (After Brancheau's death, SeaWorld's longstanding policy that long hair be kept in a ponytail was revised to mandate that it be kept in a bun.)

At least two witnesses, however, told investigators they saw Tilikum grab Brancheau by the arm or shoulder, which would suggest a more intentional act. Asked how certain he was that Tilikum pulled Brancheau in by her hair, SeaWorld's Fred Jacobs responds, "Witness accounts support that conclusion, and we have no reason to doubt it."

The second critical question is: Why did Tilikum get so violent once Brancheau was in the water? The coroner cataloged a fractured neck, a broken jaw, and a dislocated elbow and knee. A chunk of skin and hair was ripped from her scalp and recovered from a pool. "When a 12,000-pound animal gets its hands on 'the cookie jar' and responds with the excited burst of energy common in such situations, it can have tragic consequences," Simmons says. "Once the alarm was sounded and emergency net procedures were initiated, Tilikum's behavior became agitated. This is what appears to the untrained observer to [constitute] an 'attack.'"



Tilikum at SeaWorld Orlando Photo: Courtesy of SeaWorld

Whether the emergency response increased Tilikum's agitation or not, once Brancheau was in the water, her fate was up to a killer whale that hadn't become accustomed to humans in the pool. "He got her down and that was it—she wasn't getting out," says former trainer Jonathan Smith. "I truly believe that they are smart enough to detect and know what they are doing. He's going to know she is trying to get to the surface." Former trainer Ventre agrees. "If they let you out, it's because they decide to," he says. "We don't know for sure what motivated Tilikum. But there's no doubt that he knew exactly what he was doing. He killed her."

SeaWorld says it is conducting the most exhaustive review in its history. At press time, the review was not complete, and OSHA's report is not expected until late summer. For the moment, SeaWorld is not taking any chances. No trainers are performing in the water with orcas, and all direct human contact with Tilikum has ceased. "We used to interact very closely with Tilikum but now maintain a safe distance," Flaherty Clark wrote on the SeaWorld blog in March. Where Tilikum once got regular rubdowns and close contact during cleanings and other husbandry, now he's hosed down instead of hand-massaged, and his teeth are cleaned with an extension pole. His isolation has only increased, opening a wider debate about the future of killer whale entertainment.

After Brancheau's death, Jean-Michel Cousteau, president of the Ocean Futures Society, made a videotaped statement in which he said, "Maybe we as a species have outgrown the need to keep such wild, enormous, complex, intelligent, and free-ranging animals in captivity, where their behavior is not only unnatural; it can become pathological," he said. "Maybe we have learned all we can from keeping them captive."

Cousteau raises a profound point. But regardless of how this incident affects orca captivity, Tilikum's fate is likely sealed, despite calls for his release back into the wild. *Free Willy's* Keiko underwent extensive retraining before being released into the seas off Iceland, and appears to have foraged for food on his own. But he never reintegrated with a pod. A little over a year later, after swimming to Norway, he died, likely from pneumonia. Ken Balcomb still believes that most marine-park orcas can be taught what they need to know to be returned to the wild. (No real effort was made to find Keiko's family, Balcomb says, which is a key to success.) But even he rules Tilikum out. "Tilikum is basically psychotic," he told me as we looked out over Haro Strait in May. "He has been maintained in a situation where I think he is psychologically unrecoverable in terms of being a wild whale."

There is one other option. "We have proposed to Blackstone Group a sea-pen retirement," says Naomi Rose, a marine-mammal scientist at the Humane Society International. "Tilikum needs more space, more stimulation to distract him. Living as he is, with minimum human contact in a small concrete tank, is untenable."

SeaWorld's Fred Jacobs dismisses the idea. In addition to citing worries about the impact of taking him out of the social environment he is now accustomed to, and potential threats to his health from pollution and disease, Jacobs says, "All the animals at SeaWorld allow people a really rare privilege to come into contact with these extraordinary animals and learn something about them and maybe when they leave SeaWorld carry that respect forward into their lives. Tilikum is a really important part of that."

Whether or not Tilikum ever performs again, he's still SeaWorld's most prolific breeder. He's sired 13 viable calves, with two more on the way this summer. Most likely, he will finish his life as he's mostly lived it, in a marine park. He's nearly 30, and only one male in captivity, who is still alive, is known to have lived past that age.

Three thousand miles away, Balcomb often sees a pod of killer whales easing their way through the wilderness of water that is his Haro Strait backyard. They swim with purpose and coordination, huffing spumes of mist into the salty, spruce-scented air. The group is known as L Pod, and one, a big male designated L78, was born just a few years after Tilikum. Balcomb has been tracking L78 for more than two decades. He knows that his mother—born around 1960—and his brother are always close by. He knows that L78 ranges as far south as California with his pod, in search of salmon.

L78's dorsal fin stands proud and straight as a knife, with none of Tilikum's marine-park flop. He hunts when he's hungry, mates with the females who offer themselves, and whistles to the extended family that is always nearby. He cares nothing for humans and is all but oblivious to their presence when they paddle out in kayaks to marvel as he swims. He knows nothing of the life of Tilikum or the artificial world humans have manufactured for him. But Tilikum, before 26 years in marine parks, once knew L78's life, once knew what it was like to swim the ocean alongside his mother and family. And perhaps, just perhaps, that also helps explain why Dawn Brancheau died.

# ORCA CAPTIVITY

ENTERTAINMENT AT WHAT COST?

**20** { Only 20 of the 145 wild orcas taken into captivity worldwide remain alive today.

**92%** did not survive past the age of 25. The average life span of a wild orca is 30 for males and 50 for females, who can live up to 80-90 years old.

**2.5x** The annual mortality rate of orcas is more than 2.5 times higher in captivity than in the wild.

## COMMITMENT TO CONSERVATION?

for every **\$1,000,000** of SeaWorld's revenue

only **\$600** goes to conservation  
 (That's about 5¢ per ticket)

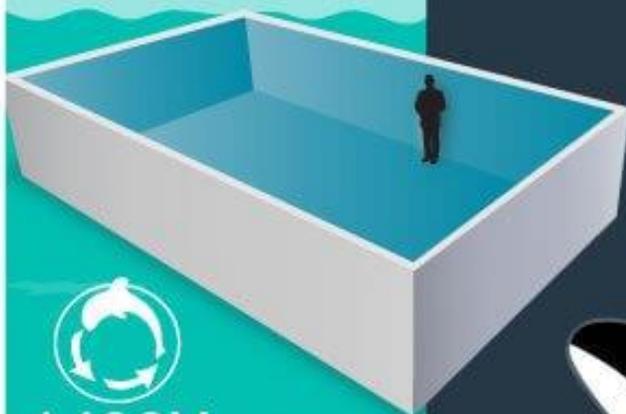
## 25 BROKEN BONDS

In the wild, orca mothers maintain lifelong bonds with their offspring. Orcas are highly social and family oriented like humans. SeaWorld's financial decisions break apart these family bonds.



## 4 HUMAN DEATHS

|                 | Captive | Wild |
|-----------------|---------|------|
| Aggressive Acts | 100+    | 1    |
| Death           | 4       | 0    |



The human equivalent to Tilikum's pool.  
 • 9.5m length  
 • 5.7m width  
 • 2.1m height

**1400X**

An orca at SeaWorld would have to swim the circumference of the main pool more than 1,400 times to match the equivalent daily distance travelled in the wild.

## 100% Dorsal Fin Collapse

Due to the shallow pools in which captive orcas live, all male and some female orcas have a collapsed dorsal fin. Captive orcas spend most of their time on the surface where the force of gravity acts on their fin. This occurs in less than 1% of the wild population.



**WDC** { WHALE AND DOLPHIN CONSERVATION

## [POLITICS](#)

# The U.S. Has More Tigers In Captivity Than There Are In The Wild, But Regulation Has Been Shockingly Poor

Wildlife groups say two federal agencies' promises of increased oversight don't go far enough.

04/07/2016 06:41 am ET

Dominique Mosbergen Reporter, [The Huffington Post](#)



MIKE HILL/GETTY IMAGES

Two federal agencies promised this week to increase federal oversight of America's captive tiger population, estimated to number between 5,000 and 10,000.

There are more captive tigers in the United States, living in private homes and on display in traveling zoos and roadside menageries, than there are in the wild *worldwide*.

Yet, thanks to legal loopholes, lax regulation and limited oversight, very little is officially known about these animals. Conservation groups estimate that the captive tiger population in the U.S. numbers between 5,000 and 10,000, but the exact figure remains unknown. There are about [3,200 wild tigers globally](#).

It's also unclear who owns these tigers, and what happens to the animals when they die, according to Leigh Henry, senior policy advisor for wildlife conservation at the World Wildlife Fund.

"Nobody really knows ... because there is just a [hodgepodge of state rules on tiger breeding](#)," Henry told TakePart.com.

Conservationists have long expressed concern that a lack of transparency could potentially lead to endangering practices or illegal behavior. Specifically, there's a fear that domestic tigers may be fueling illegal trafficking of the animals and their parts.

This week, the U.S. government is finally addressing these anxieties, as two federal agencies vowed on Tuesday to provide more government oversight of tigers stateside.

The U.S. Fish and Wildlife Service announced that it would close a legal loophole that exempted so-called "generic" tigers from regulation; while the Department of Agriculture said zoos would no longer be able to allow members of the public to feed or pet baby tigers.



[View image on Twitter](#)

Tiger breeding & petting facilities fuel wildlife trafficking. Now the govt is cracking down <http://bit.ly/1qpf5gs>  
5:46 PM - 5 Apr 2016

All tigers are protected under the Endangered Species Act. But previously, only the trade of purebred tigers, like Bengals and Siberians, was monitored and regulated, The Washington Post reports. "Generic tigers" with mixed bloodlines had escaped federal oversight — even though these animals are believed to account for almost all the captive tigers kept by private owners in the U.S.

State laws vary greatly when it comes to tiger breeding and ownership.

Keeping a tiger as a pet is legal in 23 states. "Nearly all states have exemptions that include allowing captive tigers for breeding facilities, roadside zoos, circuses, sanctuaries, educational purposes and scientific research," according to TakePart.com.

Five states, including Nevada and Alabama, reportedly have “no rules whatsoever about keeping tiger pets.”



HUMANE SOCIETY OF THE UNITED STATES

(Click [here](#) to see a larger version of this map.)

“When you don’t know who owns them, where they are selling them, and what happens to these tigers when they die, there is no way to ensure that these tigers aren’t ending up in the illegal wildlife trade,” Henry told TakePart.com.

To address this concern, the U.S. Fish and Wildlife Service says that owners of captive “generic” tigers will now be required to register all varieties of tiger sold across state lines. The owners, explains conservation non-profit TRAFFIC, must prove that the [transaction will benefit tiger conservation](#) before a permit will be issued.

“Removing the loophole that enabled some tigers to be sold for purposes that do not benefit tigers in the wild will strengthen protections for these magnificent creatures and help reduce the trade in tigers that is so detrimental to wild populations,” Fish and Wildlife Service director Dan Ashe said in a statement.



THE HUMANE SOCIETY OF THE UNITED STATES VIA AP IMAGES

Anastasia was one 11 exotic animals — including three tigers — The Humane Society of the United States rescued from a roadside zoo in Mississippi after an investigation in 2012.

Conservation groups also celebrated the U.S. Department of Agriculture’s pledge that zoos would now be barred from allowing members of the public to handle “neonatal” tigers and other big cats.

There are about 75 operations nationwide that allow people to handle big cats and their cubs (as well as primates, bears and other animals), according to The Humane Society of the United States.

[Earlier investigations into some of these facilities](#) reveal “inhumane treatment of tiger cubs exploited for photographic opportunities, indiscriminate breeding of tigers, rampant trade in cubs for public handling and dumping of the cubs once they were no longer profitable,” the organization said.

But though animal welfare groups have celebrated Tuesday’s two announcements, they warn that these new rules are merely the first step to protecting America’s captive tigers.

The U.S. Fish and Wildlife decision will still not require tiger owners and breeders to register their animals if they’re not trading across state lines.

Organizations like Born Free and the Humane Society have also stressed the need for a full ban on the petting of wild animals, rather than one limited to just babies.

The WWF called on the United States to take further action and intervene more.

“The U.S. must continue to improve its regulation of the estimated 5,000 tigers within its borders and work with other countries with large captive tiger populations, most notably China, to map a way forward so that these animals aren’t a threat to the conservation of tigers in the wild,” [it said in a statement](#).

“The U.S. and China recently [stepped up with joint commitments to end the trade of elephant ivory](#). This collaboration should serve as a model for protecting other threatened wildlife, and with only a few thousand left in the

**Please visit the following website and view some of the videos and articles concerning the quality of life of animals in the circus.**

<http://www.ringlingbeatsanimals.com/>

## **Critics Question Zoos' Commitment to Conservation**

Laura Fravel

for National Geographic News

November 13, 2003

Since approximately 1250 B.C., when ancient Egyptian records describe birds, lions, and giraffes in captivity, zoos have entertained millions with exotic animals behind bars. Today, with species threatened and habitats disappearing worldwide, zoos are playing a

new role in conservation. But are they really achieving what they claim? A growing number of critics argue no.

According to the American Zoo and Aquarium Association (AZA), there are over 10,000 zoos worldwide. In the U.S. alone, the Department of Agriculture licenses 2,400 "animal exhibitors," of which 212 are members of the AZA, an organization that requires high standards of animal care, science, and conservation.

- [Zoo Life Shortens Elephant Lives in Europe, Study Says](#)
- [How Pandas Reach U.S. Zoos, Why They're Needed](#)
- [In China, Panda Mating Season Breeds Hope](#)

Accredited zoos are expanding their efforts far beyond keeping animals alive in captivity. No longer simply modern-day arks, many zoos have become strongly proactive in conserving wild animals, reintroducing endangered species, and restoring habitats. Last year, AZA zoos carried out 2,230 research and conservation projects, half of which were field projects in over 80 countries. Many of these projects were partnerships with over 575 nonprofit, governmental, and private organizations.

The Toledo Zoo has been working with the Nature Conservancy for a decade to link its Karner blue butterfly breeding program with the restoration of the butterflies' habitat in the oak savannas of Ohio. The Minnesota Zoo's "adopt-a-park" program donates resources to help save some of the last Sumatran and Javan rhinos on Earth.

As important as conservation is, so is education. People look to zoos as learning centers. According to a 1992 Roper poll study, zoos and aquariums were the third most trusted messenger of wildlife conservation and environmental issues, trailing only National Geographic and Jacques Cousteau.

"I see the conservation education efforts of zoos and aquariums becoming more essential in the future as the trends toward urbanization increase [and interactions with wildlife decrease]," says Michael Hutchins, Director of Conservation and Science for AZA. New studies and innovative measures are being undertaken to move education beyond often-ignored signposts by animal enclosures.

At the Bronx Zoo's Congo Gorilla Forest exhibit, visitors use touch-screen computers to choose which animal in the real African Congo their admission fee will go towards saving. Since the exhibit opened in 1999, more than U.S. \$3 million of those admission fees have been used for the zoo's conservation projects in central Africa. Heralded as a model exhibit, it allows visitors to learn practical information and to put this knowledge to use.

The Bronx Zoo, along with four other New York City zoos and aquariums, is part of the Wildlife Conservation Society (WCS). The WCS is considered a world leader in designing innovative exhibits and effective environmental programs that reach an international audience, with conservation projects in 53 countries.

## **The Critics**

While conceding that zoos have become more proactive and benevolent in their efforts, critics still feel that "good zoos" are in the minority. Among the 2,400 animal enclosures licensed by the U.S. Department of Agriculture, only 212 are under the strict regulatory umbrella of the American Zoo and Aquarium Association. The other 2,188 are not.

David Hancocks, a former zoo director with 30 years' experience, estimates that less than 3 percent of the budgets of these 212 accredited zoos go toward conservation efforts. At the same time, they point to the billions of dollars spent every year on hi-tech exhibits and marketing efforts to lure visitors. Many zoos not affiliated with the AZA spend nothing on conservation.

Conservation efforts aren't always successful. Benjamin Beck, former associate director of biological programs at the National Zoo in Washington, D.C., found that in the last century, only 16 of 145 reintroduction programs worldwide ever actually restored any animal populations to the wild. Of those, most were carried out by government agencies, not zoos.

**"Zoos, overall, are still menageries," said Rob Laidlaw, a captive wildlife specialist and executive director of ZooCheck, an organization he founded to help ensure captive animals receive proper care. Overall, he believes, there are too many animals in too little space. "Zoos keep animals alive, but they can't maintain all of the behavioral or social aspects of these species in their current enclosures."**

When it comes to education, Hancocks points to studies saying visitors leave zoos feeling uninspired and uneducated. Rather than walking out determined to help save wildlife, they go away disenchanted. He wonders if this indifference is due in part to outdated animal enclosures, inadequate space, and the poor quality of "natural" habitat exhibits, such as a reliance on artificial-looking synthetic rocks.

"Zoos have painted themselves as saviors of the wild," says Hancocks. "I fear this has instilled a false sense of security in the public mind. Many people now believe they don't have to worry about saving animals, because zoos are doing the job."

## **"Uninventing" Zoos**

Both sides agree that zoos can be peerless tools for conservation and education. Both Hancocks and Hutchins would like to see zoos enact greater conservation measures in the wild and become more "ecosystem-based," with larger enclosures and more natural vegetation and surroundings. Highlighting local ecosystems is also highly stressed.

However, they diverge when it comes to making this happen. Hancocks says zoos need to "uninvent" themselves into new institutions. Most important, he says, they need to rid themselves of outmoded, display-only attitudes and establish new priorities.

"Sadly, too many zoos are playing the fiddle while forests are cut and burned," says Hancocks. "They are putting their creativity into self-congratulatory messages rather than into tackling the big, bad, really ugly problems that exist in the wild."

Hutchins, on the other hand, believes that institutions are "right on track," adding that "most if not all [AZA institutions] would like to move towards this ideal conservation movement, if they had the resources." As always, changes of this magnitude require significant funding, a difficult mission in times when public funding is dwindling.

Hutchins believes that as zoos' priorities continue to evolve, so will their funding. He cites a study done at the Cleveland Metroparks Zoo which found that conservation, research and educational programs offered the best opportunities for attracting new funders. As the public increasingly views zoos as protectors of wildlife, they want to see their money going towards the preservation of a habitat or species in the wild, not just the construction of a new building.

"Today, more than ever, zoos need to think harder [about] why they are there and what role they will fill in conservation, education, and research," Hutchins adds. "Millions of dollars go to house artwork in museums, but there are more Rembrandts in the world than there are Siberian tigers."

**Please visit the following website and view some of the videos and articles concerning the conservation efforts by our very own Lincoln Park Zoo.**

**<http://www.lpzoo.org/conservation-science>**

Please visit the following website to learn about illegal poaching. This site also features videos and articles on African wildlife.

<https://www.awf.org/campaigns/poaching-infographic/>

Please visit the following website to learn about endangered species. Clicking on the animal's 'common name' will redirect you to a new page with specific information on that animal.

[https://www.worldwildlife.org/species/directory?direction=desc&sort=extinction\\_status](https://www.worldwildlife.org/species/directory?direction=desc&sort=extinction_status)