

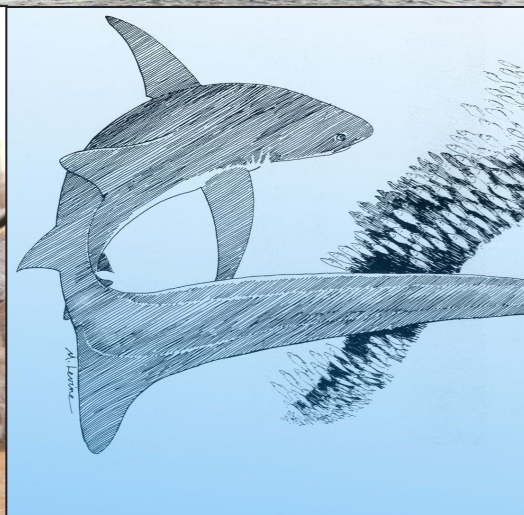
D V E A

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WILDLIFE AND THE ENVIRONMENT

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The Delaware Valley Eagle Alliance

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EMPOWERING YOUTH AROUND THE WORLD

EarthEcho International is a nonprofit 501c3 organization founded by siblings Philippe and Alexandra Cousteau in honor of their father Philippe Cousteau Sr., son of the legendary explorer Jacques Yves Cousteau. Philippe Sr.'s belief in "a world where every single child can breathe fresh air, drink clean water, and walk on green grass under a blue sky" reflects EarthEcho's mission to inspire young people worldwide to act now for a sustainable future.

EarthEcho International empowers youth around the world through dynamic platforms that inspire action and positive change. Using 21st century tools and interactive resources, they are equipped to identify and solve environmental challenges starting in their own communities.

For More Information: <http://earthecho.org/>



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The Delaware Valley Eagle Alliance depends on individuals and organizations who share our concern for wildlife and the environment.

TO MAKE A TAX DEDUCTIBLE DONATION, please send your check, payable to "Delaware Valley Eagle Alliance" to:

Delaware Valley Eagle Alliance / att: Yoke DiGiorgio
 630 West Main St / Rockaway, NJ 07866

Email us at yokedvea@gmail.com for more information.

We thank you so much for your generosity!

Delaware Valley Eagle Alliance



Photographs provided by Carolina Rios

SPREADING THE MESSAGE

ENVIRONMENTALISM AND SUSTAINABLE PRACTICES

by Carolina Rios

Student and Environmentalist

For about nine months out of the year, I live in New York City, where I attend New York University (NYU). As the daughter of a Navy officer, I grew up in many different places, though nothing like urban university I attend. The culture shock of going from my largely rural/suburban existence to an urban one was overwhelming for a lot of reasons, but the biggest one was how removed I felt from the environment. I quickly took a position with the office of sustainability at NYU, eager to continue to pursue my passion of environmentalism in the school I had chosen to spend the next four years. I worked in an outreach position, where I would plan and lead events that related to various environmental topics, trying to engage students in conversations about environmentalism and encourage more sustainable practices. This included various events, like a climate change trivia night, days in the park, and various tabling events to give information regarding things like our recycling program.

I found that many students were open and engaging, and willing to change their habits. However, some conversations seemed to go nowhere. I remember on one occasion, a student I was speaking to about recycling told me that recycling wasn't worth the effort before walking away. I would have friends that were unwilling to forgo a straw when we went out to eat, even though they were aware of the environmental impacts. This disconnect with the environment that comes from urban living seems to be at odds with the reality of how green urban living can be. Urban living supplies public transit, reducing the need for cars and therefore reducing greenhouse gas emissions. Living in the city also allows for more efficient density, meaning that more people can occupy less land. However, this didn't change the fact that many people seemed to be disconnected from the environmental consequences of their actions. I believe that this distance is not limited to urban audiences alone.

My work with EarthEcho International, an environmental nonprofit that encourages youth to act now for a more sustainable future, as a Youth Leadership Council member has allowed me to discuss my own work with other youths who share my passion for environmentalism. It has helped me explore effective ways to communicate with the public. In particular, EarthEcho has helped me explore beyond the scope of face to face interactions, with social media. Social media is a great way to spread a message, giving people an opportunity to access your message at any time. More exposure can convince those that are more resistant to your message.

In my time at EarthEcho, I also had the opportunity to discuss messaging and communication with others that share my passion for environmentalism, and found that in order to effectively change to become more environmentally friendly, people need a personal connection to what they are doing and a clear path of action. A personal connection can motivate a person when the time comes to make a decision, even if the issue seems far off, and a clear plan of action allows for a person to take the more environmentally conscious action. Focusing on the why and the how of your message allows for people to understand the reasoning and the mechanics of their actions, inspiring those who listen to choose a more environmentally conscious action. For instance, during a tabling event regarding energy usage, I would use a website to show the energy usage by building, so that people could see how much energy they and their community were using. I also provided suggestions for reducing energy usage, such as cutting shower time or unplugging electronics when not in use.

Having a community to discuss these matters has made me a better environmentalist, and encouraged me to stay connected to the environmental movement. For more information and/or if you are interested in any of the programs offered by EarthEcho, go to: <http://earthecho.org/>



Bobcat mom is ferociously protective of her babies during their time at SWCC's rehabilitation area.

© Provided by Southwest Wildlife Conservation Center

HOPES AND CHOICES

A BOBCAT FAMILY STORY

by Nikki Julien

Director of Education, Southwest Wildlife Conservation Center

It was a warm, Arizona Christmas when a small, female bobcat gave birth to her first litter. A little out of season, but doing the best she could, she chose what she thought was a nice quiet culvert and settled in. A week or so later there were bells and whistles, horns and parades, not from any celebration but the return of school. Little did she know that her quiet culvert home was home to a high school, and come early January the students and staff returned to school.

With nowhere to turn to, our bobcat family laid low but was discovered nonetheless and to prevent any tragedy to the little family or the students, the school was put on lock-down. Procedure for lock down includes notifying the families and authorities, and naturally the press found out too. With all the horrible human caused conflicts at high schools around the country lately, this one at least was to have a much happier ending.

Arizona Game and Fish Department was on the scene of the rescue and mom bobcat was bound and determined not to go without a fight. This wasn't the city after all and bobcats have their natural rights too. Anthem is a northern suburb of Phoenix which has seen a tremendous boom in

growth in only the last few years.

Well nobody got hurt except the teaching schedule for that day. All eyes inside the school were looking on. Others in Phoenix were glued to the news watching the drama unfold via helicopters overhead. The commotion was not easy on our young bobcat mother. Mother and one kitten were captured and whisked to us here at Southwest Wildlife Conservation Center (SWCC) somehow dodging the



© Provided by Southwest Wildlife Conservation Center

AZ Game and Fish rescues the bobcat family from the high school.

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HOPES AND CHOICES A BOBCAT FAMILY STORY



© Provided by Southwest Wildlife Conservation Center

LEFT: Bobcat family reunited at SWCC after the rescue. **RIGHT:** Bobcat kittens growing well in SWCC's rehabilitation center.

The game wardens knew that one kitten remained and would be in desperate need of its mother. School was released from lock down as the hunt continued for the little kitten into the evening but to no avail. The little fellow just would not be coaxed from its hiding spot. In the early hours of morning, the first to arrive was the trusty janitor who spotted the kitten in a tree and immediately called the game warden who was able to retrieve the little bob before school began.

Reunited at SWCC, the mom and kittens spent the day in quiet recovery of our quarantine room while our phone lines were abuzz with requests for interviews with the little family or at least with our veterinary technicians.

When we get a news-crazed story like this, SWCC faces a hard dilemma. This little bobcat family's healthy fear of humans meant that they were perfect candidates for return back to the wild. We would give the babies the time needed to grow up in safety with their mother, give them their vaccinations, and release them. This is a success story that we like to share. In sharing this story, we can inform a greater number of the public that wildlife needs a place too and that incidents involving rescue and rehabilitation need to be safely left to the experts. All good except for one issue: how do you tell that story without continuing to involve the animals themselves? All the stations wanted one thing really—a good video of that bobcat family in a place of safety. But to do so requires human interaction. Human interaction leads to habituation of wildlife to humans. And that often leads to the reason why most of our sanctuary



© Provided by Southwest Wildlife Conservation Center

SAVING OUR WILDLIFE, ONE LIFE AT A TIME

Located in Scottsdale, Arizona, the **Southwest Wildlife Conservation Center** rescues and rehabilitates wildlife that has been injured, displaced, and orphaned. Once rehabilitated, they are returned to the wild. Wildlife education includes advice on living with wildlife and the importance of native wildlife to healthy ecosystems. Educational and humane scientific research opportunities are offered in the field of conservation medicine. ASA accredited sanctuary is provided to animals that cannot be released back to the wild.

Southwest Wildlife has rehabilitated thousands of sick, injured, orphaned or displaced wild animals, including: Black bear; Bobcat; Coati; Coyote; Deer; Jaguar; Javelina; Mexican grey wolf; Mountain lion; Porcupine; and Raccoon. More than 70 percent have been successfully released back into the wild.

For more information: www.southwestwildlife.org

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HOPES AND CHOICES A BOBCAT FAMILY STORY

residents are permanent residents—they no longer have that fear of humans which is not safe for them and not safe for us.

The thing about the press is they're always looking for the next big story, and by the time the interviews could be coordinated, only one station wanted access, therefore, we felt the limited exposure was worth the risk. The news got their story and our bobcat family got to share the message of how humans can live and let live when it comes to local wildlife.

But then came another choice: when to release this healthy family back to the wild? Though we strive above all to reduce the stress of captivity on wild animals, being captive is not what wildlife is all about. However, the release is stressful too. This bobcat could not go back to the area she was familiar with. Being in a new location requires a lot of scouting on the part of the bobcat to find resources using covert movements to determine if it is within another bobcat's territory or the territory of a larger predator. When faced with such stress, mother bobcats will seek out their own safety before the safety of their kittens. Until the kittens have a chance to survive on their own, releasing them so young was not an option. We chose to keep the family at our rehab facility to let the little ones grow up a while longer.

Almost 6 months have passed. The babies are still darn cute but not so little anymore and mom is more than ready to go back into the wild. Now the kittens are old enough to keep up with mom, should she yell, "Freedom!" when the crate door is open. If we keep them much longer they will become habituated to people and our work will have been for naught. The time had come to let this little family go.

Now the next question, where? As the "Wild West" continues to become tamed with freeways and houses and strip malls and schools, wildlife habitat becomes fragmented and marginalized. As we humans dam the rivers and channel the water in canals for irrigation and power, wildlife must travel further to find water. This search might have been what led our young mother bobcat into Anthem. Swimming pools look pretty good when the Agua Fria River is dry due to low rainfall.

Luckily there are still a few wild spots, and we have to drive a long way to release wildlife there. We keep those spots quiet and release our hopes and dreams with another bobcat family, raccoon litter, or coyote pups, knowing we have faced some hard decisions and knowing we have done our best.

Learn more about our residents and donate in support of our mission at: <https://www.southwestwildlife.org/>



© Provided by Southwest Wildlife Conservation Center

Bobcats being released at an un-disclosed location. A little trepidation at first and then they go off together.



Atlantic sturgeon research monitoring and photos were taken under National Marine Fisheries Service Permit No. 20340.



Photographs provided by NY DEC

ATLANTIC STURGEON RESEARCH AND MONITORING ON THE HUDSON

The Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) is a North American member of the Acipenseridae family and one of two subspecies of *A. oxyrinchus*. A prehistoric looking creature and possessing a lineage extending back to the age of dinosaurs, it is among the oldest fish species in the world.

The Atlantic sturgeon has five rows of bony plates known as scutes that run along its body and a snout with four slender, soft tissue projections, called barbels, in front of its mouth. In addition, the tail is like a shark's where one side, or lobe, is larger than the other. All of these features give the fish its unique look.

They are bottom feeders, dragging their barbels along the river floor to locate food and then extending their tubular mouths to suck it up. Atlantic sturgeon in the Hudson River occasionally reach over 200 pounds in weight and six to eight feet in length.

Atlantic sturgeon live in rivers and coastal waters from Canada to Florida. Hatched in the freshwater of rivers, Atlantic sturgeon head out to sea as juveniles until they mature. Then when they reach adulthood, they return to their birthplace (the freshwater portions of tidal rivers) to spawn, or lay eggs. They can grow up to 15 feet long, weigh hundreds of pounds, and live a century. Fish tagged in the mid-Hudson have been found as far away as Canada to the North and in the Gulf of Mexico to the south.

The National Oceanic and Atmospheric Association's 2012 decision to designate the Hudson River Atlantic Sturgeon population as endangered under the Endangered Species Act was a critical step to protect one of the Hudson River's iconic species. Government records dating around 1890 reveal an estimated 6-thousand female sturgeon spawned in the Hudson River, compared to around 600 today (Female Sturgeon spawn in the fresh-water portion of the Hudson Estuary.).

The life history of Atlantic sturgeon makes monitoring of population trends through time difficult. In 2003-2005, the

NYSDEC and USFWS collaborated to develop a method to track changes in abundance of juvenile Atlantic sturgeon over time. Marine biologists from DEC's Hudson River Fisheries Unit now sample the Atlantic sturgeon spawning area near Hyde Park every June to collect information on the adult fish that have returned to the river to spawn. Data are collected on length, weight and sex, and an electronic tag is inserted into the dorsal fin to track sturgeon movements. Scientists want to know whether the sturgeon prefer sandy or muddy bottom areas, where they travel in the river, when, and for how long, what they eat, and the population trend of this fish.

The Hudson River currently supports the largest population of Atlantic sturgeon along the Atlantic Coast, and there are encouraging signs of an increase in abundance.

INFORMATION AND RESOURCES:

<https://www.dec.ny.gov/animals/109120.html>

<https://www.fisheries.noaa.gov/species/atlantic-sturgeon>

https://en.wikipedia.org/wiki/Atlantic_sturgeon

If you have questions or would like additional information:

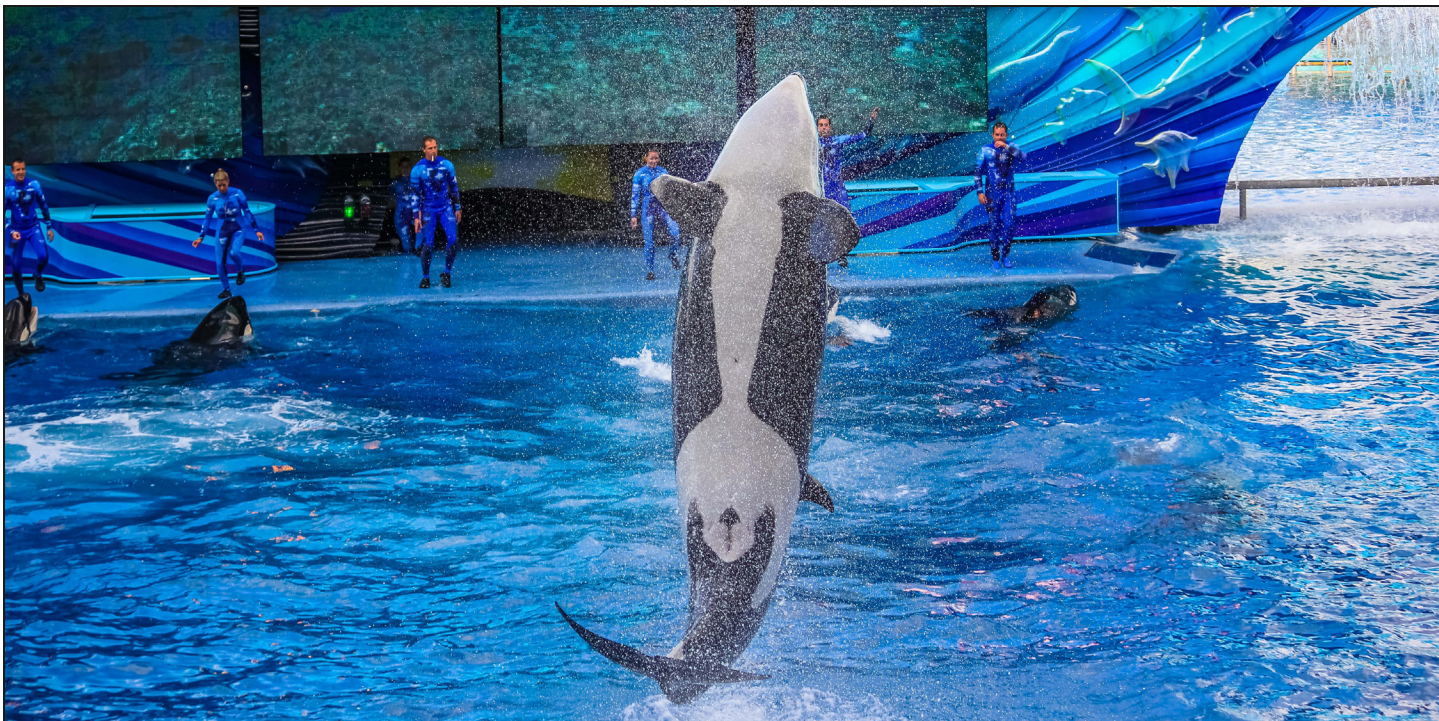
Hudson River Fisheries Unit at 845-256-3073

Video about Atlantic Sturgeon monitoring at:

<https://www.youtube.com/watch?v=NLWB-5obBYE&feature=youtu.be>



Photograph provided by NY DEC



Tilikum performing during a show at SeaWorld Orlando.

© Photo from Shutterstock via Whale Sanctuary Project

THE WHALE SANCTUARY PROJECT

TURNING THE TIDE FOR CAPTIVE WHALES

by Lori Marino, Ph.D.
President, The Whale Sanctuary Project

In 2010, a horrified world heard the news that a 12,500-pound male orca named Tilikum had killed trainer Dawn Brancheau during a show at SeaWorld Orlando. Like everyone else, I was heartbroken for the loss of Dawn's life but also because I knew that for Tilikum to commit such an extreme violent act he must have been driven to the limits of his ability to cope with years of captivity. He snapped.

Those of us who study the wellbeing of captive orcas and other cetaceans (dolphins, whales and porpoises) know two important truths: First, orca attacks on humans in captivity are frequent and Tilikum's actions were not unforeseen (he was involved in two other human deaths at other facilities before coming to SeaWorld Orlando). Second, there is not a single confirmed case of a free-ranging orca deliberately harming, let alone killing, a human being. Given this fact, Tilikum's actions were desperate – a consequence of the psychological pressures of being on display in a concrete tank.

Tilikum (who died in 2017 at the age of 35) was sending a strong message about life "in the tanks," one we've been ignoring for decades since we started capturing and forcing orcas into concrete tanks at entertainment parks in 1961. For a while, the frequent deaths in the tanks were seen as a failure of animal husbandry and veterinary care. In the early days it was hoped that with increasing knowledge

about these whales, captive facilities would eventually "get it right." And while there was some improvement in survivorship of orcas taken into captivity over the first couple of decades, that same metric has been at a standstill for the past few recent decades. The scientific evidence of poor welfare, short lifespans, and psychological and physical ailments continues to pile up, all pointing to the same conclusion: that the nature of orcas and other cetaceans is entirely incompatible with life in the tanks.

Captivity by the Numbers

There are more than 3,000 whales, dolphins and porpoises, representing about ten species and hybrids, held in captivity around the world. In North America, there are 480 bottlenose dolphins, 80 beluga whales, 24 orcas and other species in marine parks and sea pens. And there are currently 60 orcas held in captivity (27 wild-captured plus 33 captive-born) in at least 14 marine parks in 8 countries. SeaWorld holds 22 of them.

In Marineland of Canada in Ontario, close to 50 beluga whales are confined to a few cramped tanks while a lone orca, Kiska, endlessly circles her tank next to them in complete isolation. She was captured from her family in Iceland at the age of three and has spent 38 years in captivity. Kiska has lost all five of her children to the tanks.

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THE WHALE SANCTUARY PROJECT TURNING THE TIDE FOR CAPTIVE WHALES



© Photos from Shutterstock via Whale Sanctuary Project

LEFT: Lolita (aka Tokitae), performs for the public every day at Miami Seaquarium in Florida in one of the smallest cetacean tanks in the world. **RIGHT:** Two orcas perform with Tilikum during a show at SeaWorld Orlando.

At Miami Seaquarium in Florida, another aging female orca, Lolita (aka Tokitae), performs for the public every day in one of the smallest cetacean tanks in the world with only two Pacific white-sided dolphins as “companions.” Now in her early 50’s, Lolita was captured in 1970 in the infamous Penn Cove, Washington roundup in Puget Sound which removed 80 whales from the Southern Resident population with as many as five orcas drowning in the nets during the process.

This same population was left dramatically weakened by the captures and is now facing possible extinction with only 75 members left due to low breeding numbers, scarcity of prey from over-fishing and dams, boat traffic and pollution. Today, Lolita’s 86-year-old mother is believed to still swim off the coast of Washington state with the remaining members of her L pod. (Orcas form pods comprised of family groups who hunt and travel together). Kiska’s and Lolita’s histories are not unique; rather, they are representative of the heavy toll life in the tanks takes.

Thriving is Impossible in the Tanks

Despite round-the-clock veterinary care, fulltime food provisioning, and lack of natural hazards, orcas and other cetaceans continue to lead short and unhealthy lives in the tanks. Long-term field studies confirm that free-ranging female orcas can live 90-100 years and on average to age 46; males can live 60-70 years and on average to age 31. Yet the “maximum” lifespan for captive orcas is about equivalent to the “average” life expectancy of free-ranging orcas. In the past six decades, no captive-born orca has surpassed 30 years of age. Indeed, only four SeaWorld orcas (all wild-caught) have achieved or surpassed 40 years of age. Over 90 percent of all female orcas at SeaWorld have died before the age of 25.

These grim statistics are due to a fundamental mismatch

between what orcas need to thrive and the life they are forced to endure in marine parks. Orcas have large and complex brains, and their social behavior includes cooperative hunting, long-term care of juveniles, traveling over 75 miles a day, often diving to depths of 100-150 meters or more, learned cultural traditions and dialects unique to each group, and community-living based on strong emotional bonds. Most notable about orcas is the intense and long mother-child bond. In some communities, males stay with their mother their entire life.

But these social and emotional needs are destroyed by life in marine parks where mothers, calves, family members and friends are regularly separated and transferred in and out of different facilities. Their sophisticated cognitive abilities and main sensory capacity – echolocation (using sonar to investigate their environment) – are stifled in the barren tanks where they are fed dead fish by trainers. Moreover, there is no space to disperse (as they would in the ocean) if they have conflicts, and so the small space leads to the kind of violent aggression that’s unknown in free-ranging populations.

The chronic stress of trying to adapt to such a barren and artificial environment leads to psychological and behavioral abnormalities that eventually wear down the whales’ immune system, resulting in increased infection rates and early death. Common behavioral problems include stereotypies – repetitive actions without purpose, e.g. endless circling of the tank, grating the teeth on tank walls and gates. The result of the latter is that 61 percent of captive orcas have dental pathology so that their teeth must be drilled out and then rinsed daily to try to prevent infection.

Nevertheless, immune system dysfunction and dental

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THE WHALE SANCTUARY PROJECT TURNING THE TIDE FOR CAPTIVE WHALES

problems cause all kinds of infectious diseases that take the lives of captive orcas. These include pneumonia and other lung diseases, candidiasis (systemic yeast infections), skin infections, gastric ulcers, and encephalitis. Some of these diseases are found in free-ranging populations but others are unique to life in the tanks. Moreover, marine parks regularly and as a matter of course dose the whales with valium to “keep them calm” and antibiotics, which lead to antibiotic resistance and an inability to fight disease.

No Education and No Conservation

Some proponents of orca captivity suggest that the short lives of the whales at marine entertainment parks are a small price to pay for the educational and conservation value of displaying these animals as “ambassadors for their species.” Marine parks send the message to visitors that by viewing whales in tanks performing one is somehow engaging in conservation of wild whales. Moreover, they claim that visitors to these displays come away with more knowledge about the whales and more concern about conservation in general. But there is no evidence to support these claims. In fact, some recent studies show that the opposite is true. When people view wild animals in places like marine theme parks and zoos they tend to care less, not more, about protection of their wild counterparts because the parks send the implicit message that the animals are all “doing okay.”

So, with no evidence for educational or conservation benefits, coupled with the suffering these animals endure, it is difficult to justify keeping them on display in concrete tanks simply for entertainment. And the public is increasingly uncomfortable with this practice. The 2013 film *Blackfish*, which focused on Tilikum and on Dawn Brancheau’s death and exposed the brutality of SeaWorld’s practices of confining orcas, resulted in a public outcry to end the keeping of orcas at marine theme parks. That public voice is getting stronger every day as more and more people call for an end to keeping whales in concrete tanks and for a more respectful and compassionate way to treat them. That alternative is sanctuary.

Turning the Tide

To achieve the future goal of ending the keeping of whales and dolphins on display there needs to be an intermediate step. Captive breeding must end. But even though SeaWorld has stopped breeding orcas, the remaining whales are still expected to be living in the tanks for the remainder of their lives. Instead, they need to be retired to places where they can be given back some of what was taken from them by the captive display industry. They will need to go to sanctuaries. And while there are such places for wild land animals such as elephants, lions and tigers, and great apes, there are none yet for whales and dolphins. While some would suggest that we should just release all the captive whales into the ocean, this is not realistic.

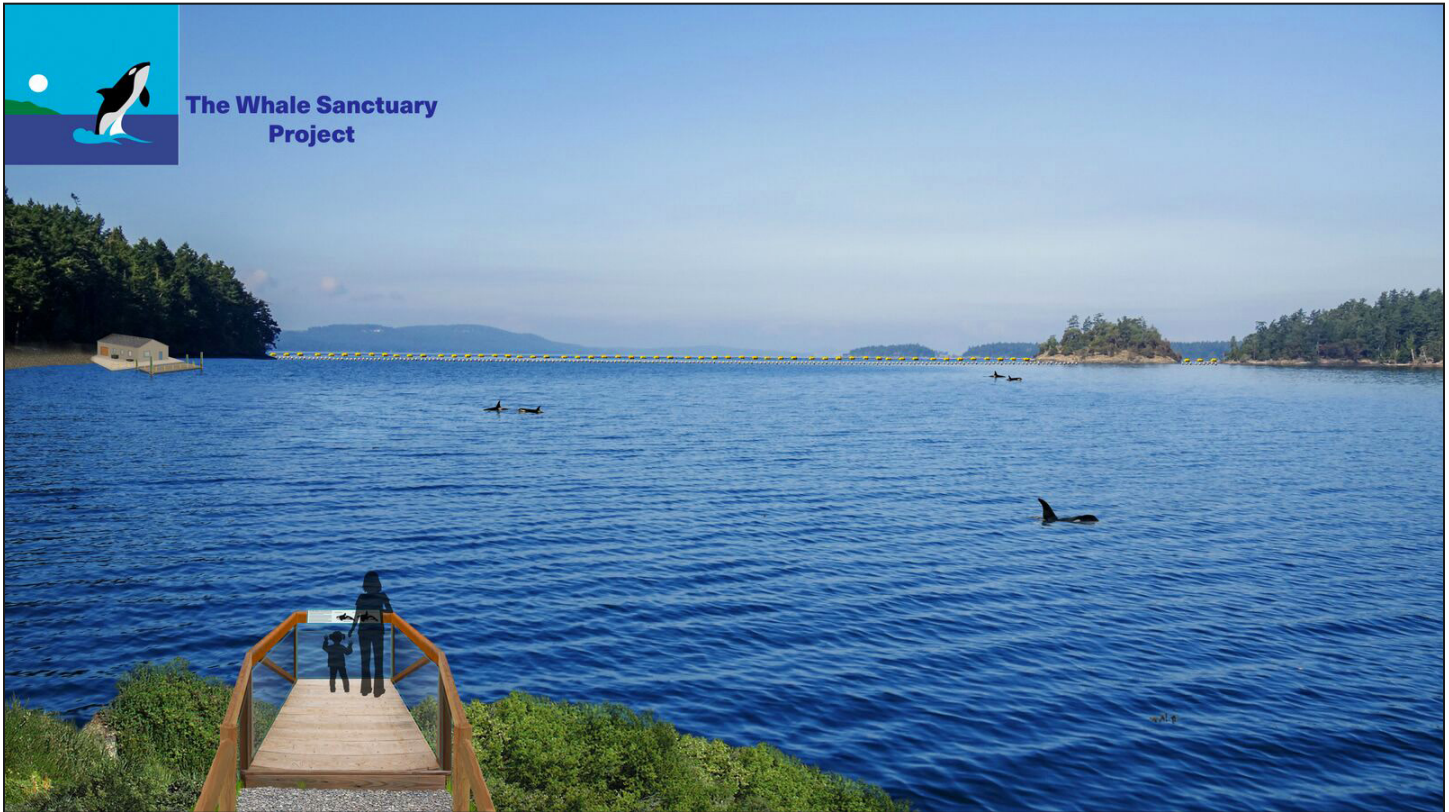
ORCA WHALES IN THE WILD



© Photos from Shutterstock via Whale Sanctuary Project

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THE WHALE SANCTUARY PROJECT TURNING THE TIDE FOR CAPTIVE WHALES



Whale Sanctuary Project Concept Drawing.

© Picture provided by The Whale Sanctuary Project

Most of the orcas in marine parks were born in captivity and do not have any survival skills; they do not recognize live fish as food and do not have a free-ranging social group to go back to. Even those who were taken from the wild as youngsters have been in captivity for so long that it isn't clear they would be able to feed and protect themselves or be accepted by their natal group, even if it were found. Permanent seaside sanctuaries can provide an environment that is as close as possible to a natural habitat while also protecting, provisioning and caring for the residents as they recover from being exploited.

Whale Sanctuary Project

An authentic sanctuary is not just a place to live; it is a place to thrive. The wellbeing of the resident whales is the priority. The non-profit organization Whale Sanctuary Project (www.whalesanctuary.org) is working to create a permanent seaside sanctuary for retired orcas and beluga whales in an environment that is as close as possible to the natural one, and with the goal of optimizing the whales' opportunities to explore, make their own choices, play, socialize and rest, all while being fed and cared for by top veterinary professionals.

Once we procure a site on either the east or west coasts of North America, we will create a facility that will offer over 300 times the space of the largest SeaWorld tank, a natural environment to interact with, a state-of-the-art veterinary

facility for 24/7 care, and the opportunity for the whales, some for the first time in their lives, to enjoy autonomy. There will be no performances and no reproduction. Visitors will be able to see them from a distant viewing point and to learn about whales and the oceans through educational programs, interactive displays at an interpretive center, and audio-visual feeds that will open a window into the world of the resident whales for anyone with internet access.

Successful authentic sanctuaries like these are places where traumatized animals can blossom and enjoy their life for the first time. And while whales should never be placed into captivity in the first place, seaside sanctuaries are the way for those currently in the tanks to enjoy a better future.

MORE ABOUT THE WHALE SANCTUARY PROJECT

The first organization focused solely on creating seaside sanctuaries in North America for orcas and beluga whales who are being retired from entertainment facilities or have been rescued from the ocean and need rehabilitation or permanent care. While there has been a change in public attitudes toward keeping these intelligent and socially complex animals in concrete tanks for the purposes of entertainment, there is still no possibility of retiring them as they cannot simply be released into the ocean. Seaside sanctuaries will change that by providing a place for them to live out their lives.

For more information: www.whalesanctuary.org



© Nick Ciaravella, Photographer / Moosejaw Bravo Photography

TOP: East of Cody, WY, with Heart Mountain as the backdrop, a golden eagle alights on a branch. **INSERT:** Dr. Charles R. Preston examining a golden eagle in the wild.

“MONARCH OF THE SKIES” EXHIBIT OPENS DRAPER NATURAL HISTORY MUSEUM

by Charles R. Preston, Ph.D. / Bonnie Lawrence-Smith
Founding Curator and Curator-in-Charge / Curatorial Assistant
Draper Natural History Museum

It was truly a dark and stormy night. The storm brought torrential rain, sleet, snow, golf-ball-sized hail, and wind - Wyoming-level wind! It had driven us from the field the afternoon before, and now we were back to discover the storm's effects on the newly-hatched golden eagles we had documented in several nests the previous week. The morning was cool and damp, and the sky was still drenched with gray clouds. The first nest we checked left us worried for the rest of the nesting population. We scrambled, slipped, and scrambled again up a nearby hill overlooking the nest site. After focusing our powerful spotting scope on the distant nest, it became clear that the two downy eagle nestlings we had seen the day before were now missing.

Neither was there any sign of the parents, and a portion of the nest had broken away from the cliff face. This nest site was particularly vulnerable to weather because there was only a small rock outcrop to protect it from above. After observing the nest for a few hours without detecting any activity, we searched the muddy area below the nest. Nothing. We presumed the nestlings dead and the nest abandoned for this breeding season.

We moved on with a growing sense of gloom that matched the sky. As we approached the next site, we observed one

adult eagle flying just below the clouds nearly a mile away from the nest that had been home to two eagle nestlings a few days earlier. We placed our scope several hundred yards away for a good view into it without disturbing any eagles that might be nearby. At first, the nest appeared empty. But, as we watched in dread, we detected a distinct movement at the very back of the nest. Soon, two white, downy eaglets came into view! They were alive, but looked weak and a little ragged. We could not see any prey remains in the nest and worried that the parents may have



© Charles R. Preston, Photographer
Sagebrush-steppe environment near Cody, WY home to numerous golden eagles.

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"MONARCH OF THE SKIES" EXHIBIT OPENS DRAPER NATURAL HISTORY MUSEUM



LEFT: © Nick Ciaravella, Photographer / Moosejaw Bravo Photography. **RIGHT:** © Nancy McClure, Photographer
LEFT: A golden eagle feeds her hungry nestlings. RIGHT: For some, the sagebrush landscape pales in comparison to the tall mountain peaks.

abandoned the nest in the aftermath of the storm.

Suddenly the big, adult female appeared from the low-hanging clouds and perched on a nearby limber pine snag. She had brought a freshly-killed cottontail for breakfast! We watched as she delivered the rabbit to the nest and began tearing bits of flesh from the carcass to feed her little offspring. It turned out that most of the nests and eagle nestlings we surveyed that day had survived the freak June storm—a testimony to well-placed nests; dedicated, attentive parents; and eons of natural selection.

This is only one of countless dramas that members of our Draper Natural History Museum research team have experienced since 2009 when we began the long-term *Golden Eagle/Sagebrush-Steppe Ecology Study* we've reported on in past issues of *Points West*. The golden eagle is an apex predator in the Bighorn Basin and other sagebrush-dominated landscapes that have been disappearing, shrinking, and changing during the last several decades. Unfortunately, this iconic

western landscape that once dominated much of the American West is often overlooked and undervalued in the shadow of the dramatic heights and gaudy majesty of the Rocky Mountains. But when you work daily in the sagebrush landscape—if you're paying attention—you can't help becoming enchanted by its dynamic nature, unexpected beauty, and the complex stories and mysteries it reveals.

And the golden eagle is the fascinating and charismatic celebrity of this place. It is also ecologically significant, providing a barometer for detecting environmental integrity and change. Recent studies have indicated that while golden eagle populations in some areas of western North America are declining, others are stable. Wildlife managers and scientists are concerned, however, that even this stability will be short-lived with the rapid loss of habitat and increasing sources of mortality. To help prevent significant population declines and crisis management in the future, it is important to document and better evaluate the status, population dynamics, and ecological

role of the golden eagle in local study areas across the species' range.

The saga we began unraveling in the Bighorn Basin went far beyond the golden eagle; it encompassed the complex interactions among predator, prey, and environment, and the influence of human land use changes on these interactions. Early in our *Study*, it became clear that we had a compelling story to tell. We now had an exceptional opportunity to share our field-based experiences and discoveries to the public through field tours, programs, publications, and possibly an exhibition.



© Charles R. Preston, Photographer
Thunderbird rock art at Legend Rock State Petroglyph Site, 55 miles southeast of Cody, WY.

Continued on page 14

"MONARCH OF THE SKIES" EXHIBIT OPENS DRAPER NATURAL HISTORY MUSEUM

Monarch of the Skies: The Golden Eagle in Greater Yellowstone and the American West

While many museums traditionally build exhibitions focused on artwork, artifacts, and other materials, natural history museums typically create exhibitions around stories or ideas using specimens and other materials to help illustrate the stories. When research assistant and photographer, Nick Ciaravella (aka Moosejaw Bravo Photography) joined the Draper Museum field crew in 2015, we asked him to use much of his time and his exceptional photographic skills to help document the subjects of our research and our work in the field. (See "The eagles of Rattlesnake Gulch" in the Fall/Winter 2017 issue of Points West.) Initially, we thought we could tell our story exclusively through photographs. But, as national interest grew, and we strengthened existing partnerships and established new collaborative relationships with all levels of government agencies and other researchers, we realized this story warranted a more robust and lasting vehicle.

By the end of the 2013 season, we had decided to create a major, interdisciplinary, and multidimensional exhibition to extend the Alpine-to-Plains Trail exhibits in the Draper. The gallery adjacent to the Draper's popular tile map of Greater Yellowstone, just outside our Draper Museum Discovery Laboratory, is the perfect setting for this new exhibition. Its location, down the ramp from the Plains/Basin exhibit environment and outside our laboratory, makes it ideal to showcase the Draper's own golden eagle research conducted in the shrub-steppe country of the Bighorn Basin.

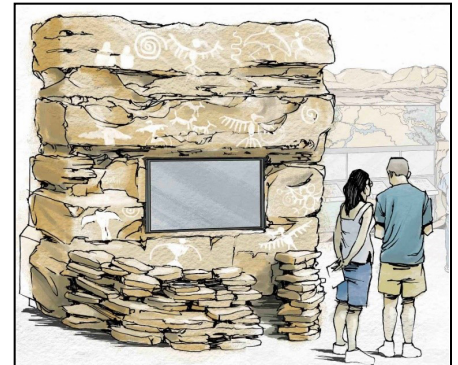
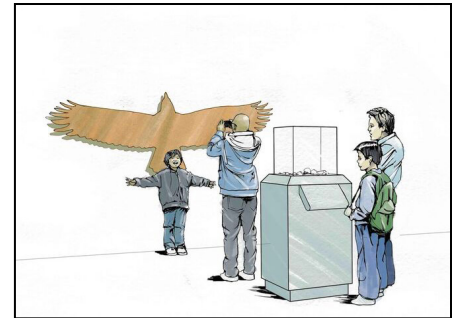
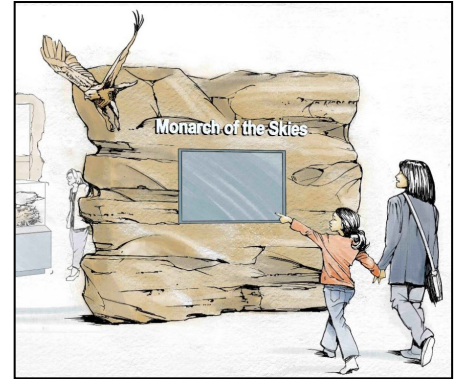
The initial concept took on a new, exciting dimension, when we recognized that we had a unique opportunity to partner with the Center's Plains Indian Museum. The plan would enrich our story with the

addition of eagle-related ethnographic materials and insights of Plains Indian cultural associations with the golden eagle and its environment (see sidebar by Bonnie Smith). Plains Indian Museum Curator, Rebecca West, became a key member of our exhibit development team. By early 2016, we were ready to contact an external exhibit design and fabrication studio.

We had been working very closely with Chase Studio, Inc. for several years to enhance and update our natural history exhibits annually. The firm's principal, Dr. Terry Chase, is world-renowned for his exhibit design and fabrication skills, and he knows the Center and Draper audiences, physical layout, and facilities intimately. Chase Studio, working closely with our team, completed the exhibit design drawings and plan in early 2017 and began fabricating key exhibit elements in their extensive facilities in Cedar Creek, Missouri. With the completed design renderings in hand, we began writing grant proposals for the exhibition. And, we decided on a title—*Monarch of the Skies: The Golden Eagle in Greater Yellowstone and the American West*.

As you descend the ramp from the Draper's Plains/Basin exhibit environment, you encounter Monarch. The gateway section of the exhibition immerses you in the Bighorn Basin as two large sandstone cliffs and a breathtaking video presentation introduce you to our study area, the wildlife that inhabits it, and our research team in action. One of the cliffs features a large golden eagle nest, and two golden eagles greet you from above, one perched and one flying toward the nest.

Beyond the introductory area, the exhibition features sections highlighting golden eagle ecology and natural history, sagebrush-steppe distribution, and changes in Greater Yellowstone. It also includes Plains Indian associations with eagles; the



Artist drawings of some of the features of the Monarch of the Skies exhibit (T - B) Monarch Intro, Monarch Eagle Silhouette, Monarch Petroglyph Cliff, and Monarch Skeleton.

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"MONARCH OF THE SKIES" EXHIBIT OPENS DRAPER NATURAL HISTORY MUSEUM



LEFT: The Draper crew in the field (L – R), Nate Horton, Dr. Charles Preston, Melissa Hill, and Bonnie Lawrence-Smith. **RIGHT:** Center's resident golden eagle, Kateri with staff. © Nick Ciaravella, Photographer / Moosejaw Bravo Photography

adventure, excitement, and trials of field exploration and discovery; and conservation challenges and innovative, new opportunities emerging to help protect golden eagles and associated wildlife.

One theme weaving through the exhibition is the importance of scientific research to wildlife conservation and management. To that end, we present some of the key adventures and results from our own study on reproduction and diet of golden eagles in the Bighorn Basin compared with a network of similar studies across Greater Yellowstone and the American West.

Additionally, families can “visit” distant sites and learn about studies and research teams in Alaska, Washington, Idaho, Yellowstone National Park, and other key locations. We enhance the exhibition's rich stories with natural history specimens (including actual prey remains recovered from golden eagle nests and an articulated golden eagle skeleton cast); Plains Indian materials including a feather bonnet, talon necklace, and wing fan; interactive touch screens and audiovisual presentations; large, colorful graphic panels, and a large selection of stunning, color photographs of wildlife, including golden eagles, pronghorn, burrowing owls, badgers, and other species in the dramatic landscapes where we encountered them.

The exhibition is designed to engage, satisfy, and excite curious minds of all ages. One of the simplest and most popular elements of the exhibition is sure to be a life-sized silhouette of a soaring golden eagle positioned so that you can compare your “wing-span” to that of this magnificent aerial predator. This and other elements in the exhibition provide splendid photo opportunities. We're also adding a new station with a soaring eagle to emboss the Draper Museum passports as a lasting memento.

To extend and expand the experience of the exhibition, we are creating a Monarch website with “Dig Deeper” pages containing more photographs, video clips, interviews, and

information related to each of the content areas of the exhibition. Draper and Plains Indian Museum staff, together with the Center's Interpretive Education Department, are also developing online classroom modules and a suite of educational programming launched from the Monarch of the Skies platform.

The exhibition is a wonderful connection to our highly popular Draper Museum Raptor Experience, too. We now feature twelve live raptors—including Kateri, our own golden eagle—in both in-house and outreach programs managed by Melissa Hill and Brandon Lewis, and supported by nearly twenty volunteers. And because the exhibition remains in the Draper for an extended period, we can update and enhance the experience for years to come. For example, we're exploring technologies that provide visitors with opportunities to experience simulated eagle flight across a North American migration route and to detect an eagle approaching a wind farm with a challenge to shut down one or more turbines to prevent a deadly collision.

Monarch of the Skies is a natural addition to the Draper Museum, highlighting our own original research in the broader context of exploring and celebrating the profound relationships binding people with nature in Greater Yellowstone and the American West. Following Members and Partners opening events in early June, 2018, the exhibition is now open to the public.

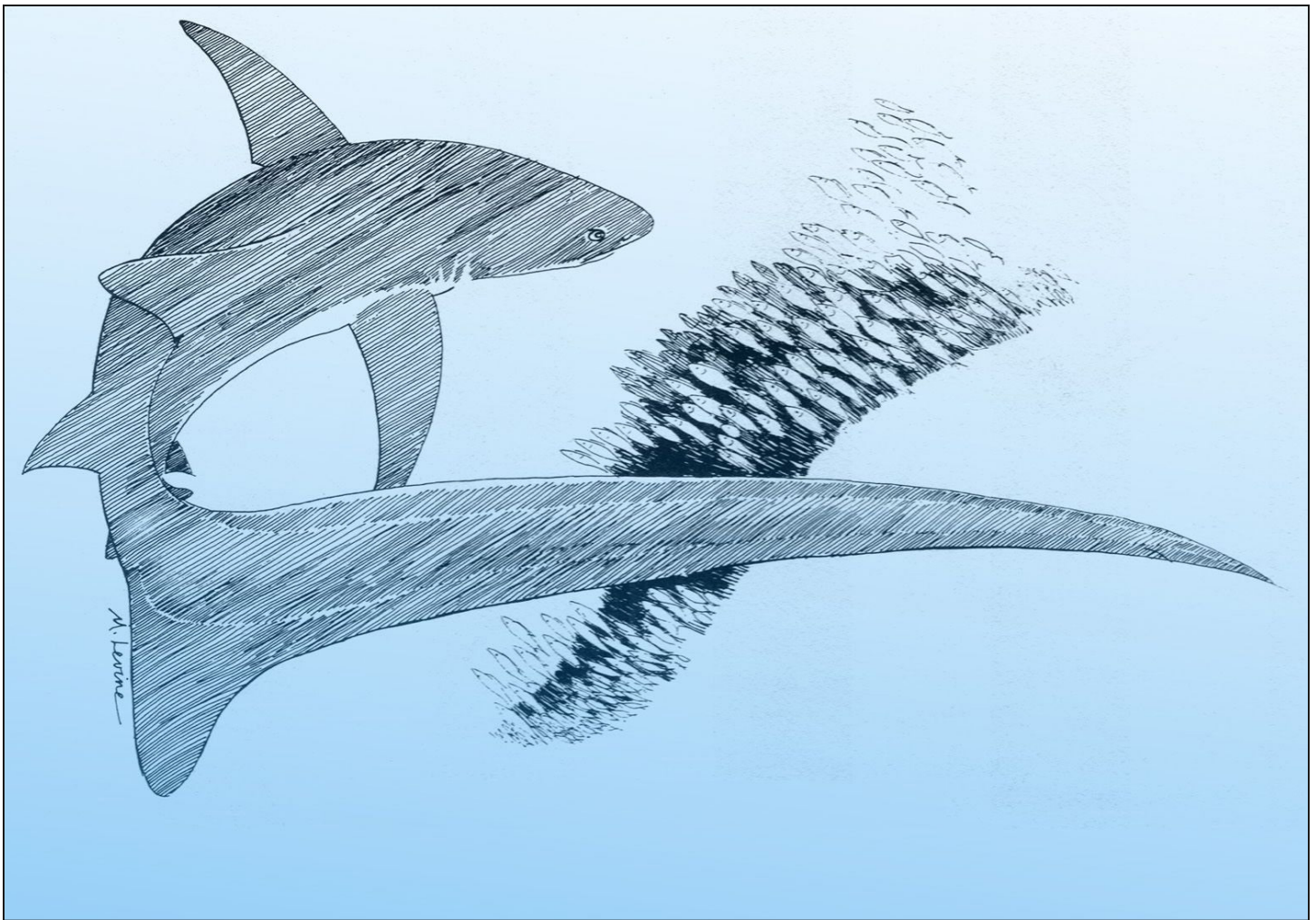
www.centerofthewest.org/explore/greater-yellowstone-natural-history/exhibits/monarch-of-the-skies

MORE ABOUT DRAPER NATURAL HISTORY MUSEUM

Opened in June, 2002 in Cody Wyoming, the Draper has garnered international acclaim for its immersive, informative, and inspiring exhibit experiences. This year the Draper celebrates its 15th year of educating the public about the natural world of the Greater Yellowstone ecosystem.

For more information:

<https://centerofthewest.org/explore/greater-yellowstone-natural-history/>



Thresher Shark Sketch

© Sketch by Marie Levine

BEACHCOMBING FOR SHARKS

by Dave Grant
Deputy Director, Shark Research Institute

"They will tell you tough stories of sharks all over the Cape, which I do not presume to doubt utterly - how they will upset a boat, or tear it in pieces, to get at the man in it. I can easily believe in the undertow, but I have no doubt that one shark in a dozen years is enough to keep up the reputation of a beach for a hundred miles long." Cape Cod by Henry David Thoreau

My first encounter with a thresher shark was, unfortunately, one hanging at a Highlands (NJ) pier during an annual fishing tournament. It was so long that I first mistook it for two sharks. The organizers had to sling a rope around its middle to lift and weigh it, with the head and tail touching the deck. Puzzled, my first thought was: *What message has Triton delivered to us today?*

It was a common thresher shark, *Alopias vulpinus*, found along the continental shelves of North America and Asia of the North Pacific that I saw that day. This shark can reach

a length of 6m (20 ft). There are two other species of thresher sharks: the bigeye thresher, *Alopias superciliosus*, which grows to a length of 4.9m (16 ft). At just 3m 10 ft), the pelagic thresher, *Alopias pelagicus*, is the smallest of the threshers. Bigeye and pelagic thresher sharks are more common in the warmer waters of the Central and Western Pacific.

Like hammerheads, thresher sharks are real attention-getters, and particularly fascinating to me because of their extreme physical adaptations – which are puzzling in many species until you can observe their behavior. When we would speculate about unusual features in animals, Dave Bulloch (*Handbook for the Marine Naturalist*) liked to say – *Well, it ain't there for nothin'* – challenging us to visualize the creature's lifestyle and behavior for an answer.

Contrary to what Thoreau heard, threshers feed mainly on

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BEACHCOMBING FOR SHARKS



© Mike Gerken, Photographer

Thresher Sharks (Alopias superciliosus) are readily identifiable by their extremely long whip-like tails — tails as long as their bodies. It uses its tail to stun pelagic fishes on which it feeds. There are 3-species of thresher sharks: the thresher shark, Alopias vulpinus; the pelagic thresher shark, Alopias pelagicus; and the bigeye thresher.

schooling fish and squid. Most observations of them are while they are rounding up herring, menhaden, and sometimes even bluefish and mackerel. A pair of threshers often work in concert ‘herding’ a school of fish, and it is to frighten its prey together that the enormously long, flail-like tail is employed. They are sometimes bycatch in purse seines for those species, but years ago, I met a weir-net fisherman from Grand Manan who discovered an opportunistic shark in a pound net in the cold waters of Passamaquoddy Bay. Threshers are also taken occasionally in the Northeast Atlantic, and while sailing there, I learned the Faeroes name for them – revaháur – so it’s the availability of food, not cooler waters, that determines the summer range of this species.

This winter, while visiting Cape Cod, I overheard a conversation about a frozen thresher shark. About the time I realized this wasn’t the name of some local brewery or cocktail, another report of four shark strandings appeared in the news. This sounds unusual for several reasons. “Facts” school kids are taught include: “Sharks are negatively buoyant and must swim continuously to breathe or they will sink to the bottom and drown; sharks are cold-blooded and therefore are only summer visitors up here; and the ocean is too salty to freeze.” The number of reports seemed to be challenging those descriptions, but cold shock occurs when an organism is suddenly exposed to an extreme dip in temperature; it can cause muscle spasms or cardiac arrest.

Some sharks, like the nurse shark, may rest on the seabed, although pelagic species like the threshers, probably never do. Dead marine life will often bloat with the gases of decomposition from microbes and float; and over the centuries, beached, rotting carcasses of basking sharks have been misidentified as sea monsters. While most sharks are cold-bodied (poikilotherms), some large pelagic fishes, like tuna and some species of sharks are endothermic. They are able to maintain body temperatures higher than their surroundings; allowing them to venture into cooler waters than we might expect – like Cape Cod Bay.

And finally, although salt depresses the freezing temperature of water, it’s the much lower air temperature that will quickly freeze any remains that wash up on a winter beach – and record cold persisted in New England that week. In spite of the weather, who can pass up a good excuse to go beachcombing? So it was time to layer-up and head to the shore.

Thoreau’s “bared and bended arm of Massachusetts” has long been recognized as a physical obstacle to transiting ocean voyagers – be it sharks or ships – hence the justification for construction of the Cape Cod Canal in 1914. Migrating marine life has accidentally stranded and intentionally been corralled in weirs in the shallow intertidal zone at that “arm’s wrist at Truro” and the “sandy fist at

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BEACHCOMBING FOR SHARKS

Provincetown” by Native Americans and modern fishermen, and the shallow sand flats exposed at low tide may present a greater hazard for migrating sharks than the cold.

Whenever a question arises about New England’s fishes, my first instinct is to open up Bigelow and Schroeder’s classic *Fishes of the Gulf of Maine* (1953); and if the question is about the threat a species poses, my next stop is the *Global Shark Attack File*. Only one incident involving a thresher shark is posted, although elsewhere, there are anecdotal accounts about other encounters involving fishermen handling hooked catches – which makes it a bit ironic that these frozen sharks were caught by the “hook” of Cape Cod’s shape.

Bigelow and Schroeder also informs us that: “The thresher is as easily distinguished from all other Gulf of Maine sharks by its long tail as the hammerhead is by its head, the upper caudal lobe being a little longer than the head and body of the fish together.” The wide range of the fish, disproportional shape, magnificent tail and hunting behavior account for the dozens of local names for it, including: sea fox, swiveltail, thrasher, and the widespread Spanish moniker, pez zorro (fox fish). We also know, from the Shark Research Institute’s successful efforts to secure protected status for all three species of thresher sharks at the most recent CITES meeting, thresher sharks are vulnerable to over-exploitation due to a very low reproductive rate (2 to 4 pups) and slow maturity rates (8-14 years for females) placing threshers “at the highest risk of extinction of all pelagic sharks.”

Headlines posted nationally created public concern for the hapless sharks, and validate P.T. Barnum – “There’s no such thing as bad publicity.” (Except, as they say, when it’s your own obituary!) So how do we account for the unfortunate demise of these beautiful animals? The simplest answer is often the best one; these individuals were probably lingering migrants in the wrong place at the wrong time, getting caught in shallow water on outgoing tides. This is partly substantiated in Bigelow and Schroeder’s last line about the species description in General Range: “It is to be expected in Gulf of Maine waters only during the warm half of the year, perhaps May to October; in the cold season it altogether deserts our northern coasts for warmer seas.”

NOTE: The loss of the unfortunate quartet may seem negligible compared to the annual slaughter of millions of thresher sharks by commercial fishermen – primarily for the shark fin trade – but it is important to the region’s shark population. The only benefit of their loss was that one of the sharks became a bonanza for young women scientists at Monomoy Regional High School where researchers from the Atlantic White Shark Conservancy organized its dissection and study by members of the school’s STEMist Club.



ABOUT THE SHARK RESEARCH INSTITUTE

The Shark Research Institute (SRI), a multi-disciplinary nonprofit 501(c)(3) scientific research organization, was created to sponsor and conduct research on sharks and promote their conservation.

Founded in 1991 at Princeton, New Jersey, USA, SRI has field offices in Florida, Pennsylvania and Texas, as well as, Australia, Canada, Ecuador, Honduras, India, Mexico, Mozambique, Seychelles, South Africa and the United Kingdom.

The population served includes the scientific community, individuals and organizations concerned about the health of our marine ecosystem, and marine resource users - subsistence fishermen, sport divers, and the dive tourism industry.

SRI works to correct misperceptions about sharks and stop the slaughter of 100 million sharks annually. A primary goal is creating value for sharks as sustainable natural resources for the dive tourism industry, particularly in developing countries. By so doing, a steady revenue stream is also generated for local fishers that might otherwise slaughter the sharks for immediate gain.

Current projects include visual and satellite tracking, behavioral and DNA studies of sharks, environmental advocacy, publications and public education.

A “Global Shark Attack File” is maintained to provide current and historical data on shark/human interactions. It is the goal of the Global Shark Attack File to demonstrate and emphasize, through forensic analysis, the significance of shark/human interactions in comparison to the myriad dangers that we face in our daily lives. With a better understanding of these interactions we can minimize the risk of being injured by a shark and concentrate on the conservation of all shark species worldwide.

For more information please go to:
<https://www.sharks.org/>



© John A. DiGiorgio, Photographer

Belted Kingfisher (Megaceryle alcyon) is a large, conspicuous water kingfisher, commonly found in the northern United States and Canada. Belted Kingfishers need access to bodies of water for feeding, and vertical earthen banks for nesting. They hunt in unclouded water that allows them to see prey below the surface, on perches nearby with minimal vegetation obstructing the water. Some of their most common habitats are streams, rivers, ponds, lakes, estuaries, and calm marine waters. ABOVE: Female Belted Kingfisher hovered above the water, dove and grabbed her prey with her bill. Returning to her favorite branch, she pounds her prey against the perch before swallowing it head first.

THE BELTED KINGFISHER UP CLOSE AND UNDISTURBED

by Yoke Bauer DiGiorgio

Director, Delaware Valley Eagle Alliance, Naturalist, Filmmaker, Author

My husband John and I have spent many hours in our kayaks, exploring the banks and eddies of the Delaware River in New York, Pennsylvania and New Jersey. We continuously marvel at the abundance and diversity of species we encounter.

For two years our focus has been a small blue-grey and white bird, which we first noticed because of its loud penetrating dry rattle call. We would hear it echoing throughout the deepest and widest section of the Delaware River known as the Big Eddy.

The belted kingfisher (*Megaceryle alcyon*) is one of three of the species of kingfishers found in North America and one of eleven worldwide that may show seasonal movements. They can remain and defend their territory year-round, or seek open water to feed as far south as Panama and the

West Indies.

Belted kingfishers hunt by sight and require clear water to find their prey. The Delaware River is a very pristine river with a rich supply of fish. We would watch him hover above the water and plunge head first to spear a small fish with his dagger-like bill. He had a favorite route along the river, always stopping along the way to perch on favorite branches. Very elusive, we were never able to get close enough to photograph him.

One April morning we noticed two of them flying together over the Big Eddy, a male and a female. They spent a lot of time in aerial pursuit, typical during courtship. Generally solitary, but in mating habits, they are monogamous for life. Our pair frequented a favorite branch near an exposed part

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THE BELTED KINGFISHER UP CLOSE AND UNDISTURBED



© John A. DiGiorgio, Photographer



© John A. DiGiorgio, Photographer

of the riverbank where they jointly dug their nest. The nest is typically a narrow tunnel 3-10 feet deep which ends in a rounded nest chamber. No nesting materials are used within the chamber.

Eggs are laid directly on the dirt floor and are incubated by both parents for 2 to 4 weeks. Hatching is asynchronous, and the young are naked at hatch. Both parents initially feed them regurgitant and then small fish. We found it interesting to learn that nest sanitation is ignored. Soon after the young hatch, the nest chamber is littered with fish remains and excrement.

We set up our camouflage dome blind along the riverbank opposite the nesting tunnel and were finally able to observe, photograph and video the birds up close and undisturbed. From inside the blind we were finally able to observe, photograph and video the birds up close and undisturbed. Initially, the pair spent time together in front of and around the hole in the riverbank.

Occasionally, one or the other would fly into the hole, pushing sand out into the river below as they disappeared inside, re-appearing several minutes later.

By early May, the female must have laid her eggs, as we observed only the male or female outside the hole at

Belted Kingfishers excavate burrows in earthen banks, usually avoiding ones with vegetation (especially trees, whose roots get in the way of digging). They generally choose a bank near water; but may use a ditch, road cut, landfill, sand pit, or gravel pit far from water. A pair may select a nest site during courtship, usually high in the bank where floodwaters are unlikely to reach.

Both male and female take turns digging the burrow, with males spending about twice as much time digging as females. They usually take 3–7 days to finish it, but may sometimes take up to 3 weeks. The completed burrow extends 3–6 feet into the bank, sloping upward so that rainwater won't collect inside, and ends in an unlined chamber 8–12 inches in diameter and 6–7 inches high.

Throughout the breeding season a layer of undigested fish bones, fish scales, and arthropod exoskeletons may accumulate and provide some insulation.

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THE BELTED KINGFISHER UP CLOSE AND UNDISTURBED



© John A. DiGiorgio, Photographer

Small in size, belted kingfishers are thickset, have a short neck and tail, small feet and a large head with a bushy crest. Both male and female have blue-grey breast bands, white bellies and undertail coverts. In addition, the female has a rust bellyband and flanks. A white spot directly in front of their eyes give them an almost mocking-like stare. The young resemble the adults but have rust spotting in the breast band.

one time. Then one morning in late May as the male was perched on his favorite branch with a fish in his beak in front of the hole, the female's head appeared. They were both very busy calling back and forth. Suddenly, the male flew to the hole, gave the fish to the female and flew away. The female then backed up and disappeared. The male returned numerous times that morning, always with fish for the female. The young had hatched.

Belted kingfishers teach their young to fish by dropping dead fish into the water for retrieval. By early June we saw the entire family, the male, female and four fledglings, fishing together in the Big Eddy. For several weeks thereafter, we continued to see the family together and then the young were gone. This is typical, as adult belted kingfishers will force the young from their natal area usually several weeks after fledging.

Kingfishers are highly specialized and are threatened by habitat alteration and nest disturbance due primarily to eroding banks. Having one brood per year, breeding bird surveys data show that the average annual population is declining at a rate of almost 2%. Survival and longevity is poorly known but adult annual survival is estimated at under 50%.

INFORMATION AND RESOURCES

https://www.allaboutbirds.org/guide/Belted_Kingfisher/id
<https://www.audubon.org/field-guide/bird/belted-kingfisher>
https://en.wikipedia.org/wiki/Belted_kingfisher
<http://justfunfacts.com/interesting-facts-about-kingfishers/>



© John A. DiGiorgio, Photographer

KINGFISHER FUN FACTS

There are roughly 90 different species of kingfisher in the world; the majority of species are found in Asia, Africa, Australia, and South America; some species in Europe and North America.

Most species are sedentary, but about a few species are migratory or partially migratory.

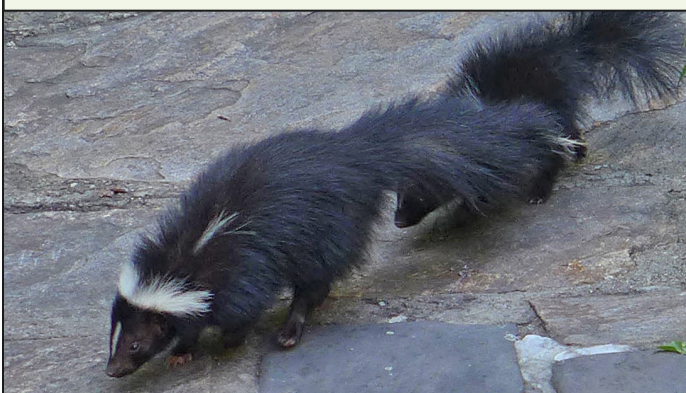
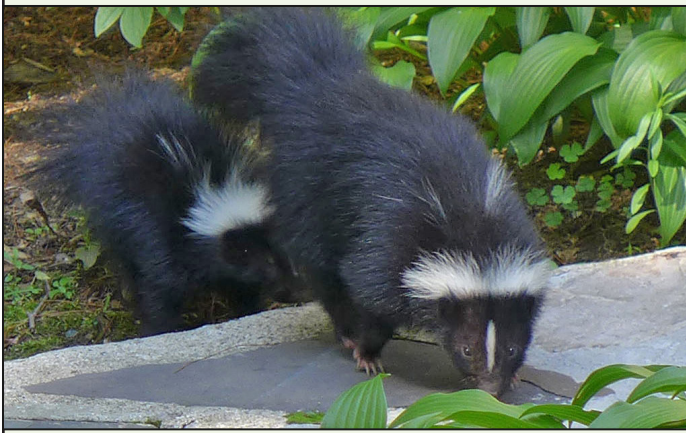
Median life expectancy is 6 to 14 years, depending on species.

All kingfishers have excellent vision and can see into the water – even adjusting for refraction, which can make a fish look closer to the surface than it really is.

The dagger-shaped bill often seems too long or too big for the rest of the bird, but it is well designed for capturing food.

Kingfishers have a variety of calls used to announce their territory, warn off other birds, and communicate with a mate and their chicks, such as shrieks, screams, clicks, whistles, chuckles, rattles, and chirps.

DISCOVERING NATURE



© Yoke Bauer DiGiorgio, Photographer

BACKYARD WILD - SKUNK FAMILY VISIT

I remember it was mid-day in July, warm and humid. My husband, John and I were relaxing in the shade on our porch when we spotted an adult female skunk and her baby (called a kit) on the stone path just below the porch. Imagine our surprise. Even though skunks are mostly active at night, they sometimes look for food by day, particularly in the spring, when they have young and may be extra hungry. But this was summer. The pair, looking healthy and very calm, was leisurely walking all around, exploring and digging for food under shrubs and trees. Mother skunks are very protective of their kits and would spray at any sign of danger. So we gave them lots of room and observed from afar. They stayed for about an hour and then moved on to our neighbor's property.

Fun Facts

- A skunk's sulfuric spray has a range of up to 10 feet, and its odor can be detected up to 1.5 miles.
- Skunks eat wasps and honeybees, and will often attack beehives.
- Immune to snake venom, skunks are known to eat poisonous snakes like rattlesnakes.
- Although skunks have very poor eyesight, they have excellent senses of smell and hearing.
- A group of skunks is called a surfeit.

There's more to know about skunks than their unique appearance and smelly spray.

MORE INFORMATION AND RESOURCES:

<http://www.havahart.com/skunk-facts>
http://www.humanesociety.org/animals/skunks/tips/solving_problems_skunks.html

THE DELAWARE VALLEY EAGLE ALLIANCE

*working towards the conservation of
our wildlife and natural resources*

ABOUT US

The Delaware Valley Eagle Alliance is a 501 (C)(3) not-for-profit organization with a mission to increase awareness, understanding and promote conservation of our wildlife and the natural environment. We accomplish this through our publications, projects and programs.

We believe that raising awareness and understanding will change attitudes toward conservation and our natural resources. We are committed to this because we believe that it is essential to enabling all life to exist and prosper on Earth.

*John A. DiGiorgio, Chairman and President
Richard Crandall, Director and Vice President
Yoke B. DiGiorgio, Director and Treasurer
Debra Reimer, Secretary*

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PROJECTS AND PROGRAMS

We are available to work closely with biologists and conservation groups to document ecological and wildlife research on rare, sensitive and endangered wildlife and environmental issues. We collaborate with communities and other organizations to develop and organize wildlife and environmental educational and entertaining programs.

SUPPORT

The Delaware Valley Eagle Alliance depends on individuals and organizations who share our concern for wildlife and the environment. Our publications, projects and programs would not be possible without the generosity of our supporters and sponsors.

For more information and/or to make a tax deductible donation please email us at: yokedvea@gmail.com (or call 201-841-5168).

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