

2015 ANNUAL REPORT

THE SAFINA CENTER

formerly BLUE OCEAN INSTITUTE



“Isabella is a true genius at getting a point across in totally unexpected ways; her *Green Porno* series is a brilliant example.”

—Carl Safina

ISABELLA ROSSELLINI

Film and Fashion Icon, Science Communicator, Nature Lover

Most of us know Isabella Rossellini from the big screen, small screen, covers of top fashion magazines and as the face of Lancôme. Lesser known, perhaps, is her lifelong love of animals and her endless fascination with science. Most recently, her award-winning series of shorts, *Green Porno*, combines creative storytelling with insightful lessons about animals’ sexual behaviors. Created with the goal of translating the dense science-speak of academic texts into understandable language for non-scientists, the result is fascinating, entertaining and altogether educational. *Green Porno* was followed by two other animal-themed television productions: *Seduce Me: The Spawn of Green Porno* and *Mammas*—a celebration of the maternal aspects of the animal world.

To prepare for *Green Porno*, Rossellini spent time with Alan Alda, acclaimed actor and namesake of the Alan Alda Center for Communicating Science at Stony Brook University. Alda is an ambassador for communicating science to broad audiences of all ages.

Rossellini explains, “In the attempt to be absolutely precise, scientists create a language that is so enigmatic, you can’t understand it. The language, itself, becomes a barrier. Then scientists complain that people don’t understand things like global warming. But of course they don’t. It is communicated so poorly!”

To increase her knowledge, Rossellini enrolled in the Animal Behavior and Conservation Program at Hunter College. The program develops and enhances students’ research skills and understanding of the behavior of animals, and she is close to completing all credits for a Master’s degree.

Rossellini’s love of animals began as a child. As the daughter of film icons, actress Ingrid Bergman and director Roberto Rossellini, she grew up with beloved pets and farm animals in the countryside outside Paris and Rome. “Just like people are born with brown eyes, I was born loving animals—it wasn’t a choice,” she explains.

At age 15, her father gave her a copy of Konrad Lorenz’ book, *King Solomon’s Ring*. Lorenz, an Austrian zoologist, ethologist, ornithologist and Nobel Laureate, is one of the founders of ethology—the scientific and objective study of animal behavior. The book inspired young Isabella who decided that animal behavior would be her field of study. Soon, however, life took some dramatic turns—she started working as a model, became an actor, and dedicated her time to both career and family life. But her love of animals and keen interest in animal behavior remained.

Rossellini connected with Carl Safina through his long-time friend, publisher and Safina Center board member Jack Macrae, who has a home near Rossellini’s small farm on Long Island. Macrae had given her a copy of Safina’s *The View from Lazy Point* in 2011, and she loved it.



Rossellini says, “I envied Carl’s ability to hear bird song, to identify the species, know where those birds were traveling from, and know which fish were followed by specific birds. He understands wild nature and beautifully ‘decodes’ it for readers. Since he and I live near each other on Long Island, I read *Lazy Point* with great attention.”

While working in Boston on her new film, *JOY*, Isabella received the galley for Safina’s new book, *Beyond Words: What Animals Think and Feel*. “I had already read about the species Carl focuses on in his new book and was familiar with many of the studies behind it. But his writing about these animals has a fable-like quality to it,” explained Rossellini. “I told Carl he could be the new Aesop! There are lessons for us in the book: Be as gentle as the father wolf or as dedicated as the mother elephant.”

After reading *Beyond Words*, Rossellini invited Safina and his wife, Patricia Paladines, for lunch and a bit of beekeeping at her home in Bellport, NY. So began their friendship and her support for The Safina Center. In July 2015, she graciously helped launch *Beyond Words* at Jack Macrae and wife Paula Cooper’s 192 Books in New York City. And Rossellini agreed to be The Safina Center’s honoree at its 2015 Benefit at The Explorers Club.

Isabella Rossellini’s philanthropic interests include preserving her family’s extraordinary cinematic heritage encompassing the films directed by her father and those featuring her mother. She has traveled extensively during 2015 for her latest film, *JOY*, for the centennial of her mother’s birth and the debut of the Swedish documentary, *Ingrid Bergman - In Her Own Words*.



TABLE OF CONTENTS

FOUNDER'S MESSAGE

by Carl Safina 4

2015 YEAR IN REVIEW

5

PROFILES

Isabella Rossellini 2

Marshall Gilchrist 26

Jane Ross 39

PROGRAMS

Carl Safina's Work 10

Fellows Program 12

Sustainable Seafood Program 22

ESSAYS

Tapping Your Inner Wolf 11

The Guardians of Raja Ampat Film and Concert Tour 14

Global Shark Conservation: Good News and Bad 16

The Myth of Coral Reef Relocation 18

Three Simple Rules for Eating Seafood 20

Greenest of the Green: Sustainable, Low Mercury,
Rich in Omega-3 Seafood 23

Mercury in Seafood - Which Fish and How Much? 25

ABOUT THE SAFINA CENTER

Milestones and Firsts 27

Making Waves 30

Safina Center Financials 35

Supporters List 36

Safina Center Crew 38

FRONT COVER
L86 and L120, members of the "L" Pod of the Southern Resident Killer Whale population, studied by Ken Balcomb and the Center for Whale Research.
Photo by Ken Balcomb.

THIS PAGE
Left: Baby elephant and egret.
Photo by Carl Safina.
Right: Lesser crested terns on a tiny island off the coast of Madagascar.
Photo by Carl Safina.

BACK COVER
Top: Elephant greeting.
Photo by Carl Safina.
Below: Grey wolf, close up.
Photo by Carl Safina.

MISSION

We at The Safina Center
field science, art and literature
to craft solutions and inspire
a deeper sense of connection
with the natural world.

FOUNDER'S MESSAGE



Carl Safina with his beloved dogs, Jude and Chula.
Photo by Patricia Paladines.

I'm so proud of our little group. In the reach and the influence of our ideas, I could say we are the little group heard 'round the world.

"We" includes: seafood program director Elizabeth Brown-Hornstein, whose work helps guide the buying decisions of Whole Foods Market® in all their stores, throughout the country. And while consumers can consult our seafood ratings list for sustainable choices, our mercury project advises consumers and medical professionals on how to know which seafood is healthiest. Meanwhile, our Fellows are creating a broad array of ideas and solutions for ocean-oriented conservation. Our Fellows consist of *New York Times* best-selling author Paul Greenberg, whose books and articles help connect us to the scale and—in many cases—irrationality of the global seafood business; Dr. Ellen Prager, who frequently consults for television news and has written a string of ocean-related novels for teens; Dr. Demian Chapman and Debra Abercrombie, the shark-specialists whose work has led directly to world-wide protections for the five most depleted and at-risk species; and John Weller, who has been working with great success to empower local villagers' protection of astounding coral systems in Indonesia, plus highlighting the great need for better protection of the Ross Sea, Antarctica with his stunning book, *The Last Ocean*. I am humbly proud that our fellowships can advance such great worldwide work by this brilliant, valiant crew and our supporting cast.

As for my own personal efforts, this summer we celebrated the release of my seventh book, *Beyond Words: What Animals Think and Feel*. This book, which ranges far from the sea at times, with stories of elephants and wolves, shows how other animals perceive and value their own lives. Most conservation is reported in numbers (we hear reports such as, '80 percent of the habitat lost... a 75 percent decline in population...'). But in this book I wanted to show *who*

is at stake. Like humans, many other animals lead lives as individuals defined by their relationships in their families. *Beyond Words* leaped onto *The New York Times*' Animals Best-Seller list in its first month and reviews have been glowing. Excerpts and interviews also appeared in *The New York Times*, *The Atlantic*, *Audubon*, *Orion*, *Time*, *Forbes*, *Elle*, and elsewhere (it was even a book-of-the-week pick in *People* magazine).

What we all have in common is that as thought-leaders helping to shape the human relationship with nature, we create durable and sharable creative work (mainly writing and film) that inspires people toward action. Because our award-winning work is distributed by major book publishers and featured in such far-reaching outlets as *The New York Times*, PBS television, CNN.com, NatGeo.org, and others, we achieve influence highly disproportionate to our small staff size—and budget.

Our work brings crucial issues and an array of possible solutions to people ranging from students to policy-makers. In this way, we continually help build the constituency needed for positive change.

It's such a privilege to be involved in such great work with such exceptional people. Thanks so much for joining us in the effort!

Carl Safina

ACHIEVEMENTS OF 2015

It certainly was a very good year! We rode the wave of attention to Carl's new book, *Beyond Words: What Animals Think and Feel* and made the most of this increase in reach and exposure. Our Fellows crisscrossed the US, gave workshops from Hong Kong to Mozambique, inspired young students to care about marine science, and empowered villages in Raja Ampat Indonesia to be guardians of the seas around them. Our Sustainable Seafood Program continues to work closely with Whole Foods Market. This translates to our seafood ratings being featured at the seafood counters in all Whole Foods stores in the U.S. Our social media following has skyrocketed. In the **Making Waves** section on page 30 you'll see The Safina Center's progress in reaching new audiences, through mainstream outlets such as National Public Radio, *The New York Times*, National Geographic, CNN and others. Our unique body of work—books, essays, workshops and films—combined with a solutions-oriented approach has the power to inspire real-world change. Our mission is to inspire a deeper sense of connection with the natural world. Check out **Milestones and Firsts** on page 27 to read more about our achievements this year.

FELLOWS PROGRAM

Safina Center Fellows have once again boosted our small non-profit's ability to have an oversized influence. The Fellows work independently but interdependently as well. This remarkable group of award-winning authors, filmmakers, photographers and conservation scientists amplifies the global conservation discussion, approaching pressing environmental issues in innovative ways.

Current Fellows include *New York Times* best-selling author Paul Greenberg, shark geneticists/conservationists Dr. Demian Chapman and Debra Abercrombie, critically acclaimed photographer, writer and filmmaker John Weller and Dr. Ellen Prager, ocean scientist and author. Greenberg, Chapman, and Weller are also all globally recognized Pew Fellows (as is Safina).

In 2015 our Fellows' projects ranged from coral reef preservation and stemming the shark fin trade, to inspiring young people to care about marine creatures and convincing American consumers to support U.S. sustainable fisheries. Our Fellows consistently attracted attention from influential media outlets, reaching a wide and diverse international audience. The Fellows' work routinely brings invitations for speaking engagements and workshops in the U.S. and overseas, further expanding our reach. **For more about our Fellows**, see page 12 and their essays throughout this report.

CARL SAFINA'S WORK

The past year has been a whirlwind of travel and media attention for Carl. The success of *Beyond Words* translated into dozens of interviews, many reviews, key excerpts published, lots of invitations for speaking engagements, and yes—more travel. His new book draws from decades of field observations and new science in cognition and neurology, making a new kind of case for conservation, one built on how other animals experience and value their lives.

From Jackson Hole to Papua New Guinea, Carl has brought his evolving understanding of our place in nature to many new audiences, seeking to elevate our relationship with animals. **For more about Carl's work** this past year, see page 10 and his essay on page 11. >



SUSTAINABLE SEAFOOD PROGRAM

We created the first consumer guide to seafood sustainability in 1998. Now efforts from many groups have built awareness and created market-based solutions. We are proud to have inspired a movement!

During 2015, we helped a wide range of people discover the connection between human health, a healthy ocean, fishing, and sustainable seafood.

Our Sustainable Seafood Program translates seafood science for consumers, chefs, retailers and health care professionals, and consists of many interconnected components:

- Online seafood guide based on scientific ratings of 160+ species of wild-caught fish and shellfish: Green, yellow, and red ratings plus advisories for contaminants including mercury and PCBs
- Chef-recommended alternatives for popular, yet unsustainable seafood
- Web-based tutorials, videos, links and blogs on issues such as bycatch, mercury in seafood, overfishing etc.
- Information on seafood nutrition and related health issues
- Information for consumers, chefs, and retailers who want to switch to eating/selling more sustainable seafood
- Partnership with Whole Foods Market® to promote sustainable seafood from boat to counter top
- Blogs on seafood/fisheries issues and new seafood ratings
- Social media promotion of key ocean issues

SEAFOOD RATINGS AND PARTNERSHIPS

Our peer-reviewed seafood species reports are transparent, authoritative, easy to understand and use. All ratings and full species reports are available on our website under *Seafood Choices*. In 2015, we completed 18 new seafood ratings and reports.

During 2015, we continued to work closely with our partner, Monterey Bay Aquarium's Seafood Watch®, to provide consumers with an expanding number of seafood recommendations. We have also been updating our older ratings. The Safina Center and MBA's Seafood Watch are collaborating to revise some of the criteria we both use to rate seafood species. These changes will take effect in 2016.

MERCURY IN SEAFOOD

In 2015 we continued our partnership with Stony Brook University's Gelfond Fund for Mercury Research and Outreach making the most up-to-date and easy-to-understand information about mercury in seafood just a click away. During the past year we posted a mercury in seafood brochure for health care professionals on our website and are nearing completion of a similar brochure for consumers. Our *Mercury in Seafood* website section includes many blogs, articles, videos, reports and tutorials to help untangle this issue. Check out our colorful, convenient, easy-to-use chart called **Which Fish and How Much?** At a glance you'll see which seafood is low to very high in mercury and what portion size and frequency is right for you. See page 25 and post this handy chart on your fridge!



POLICY CAMPAIGNS

We are often asked to support wider coalitions on a range of ocean issues. Here's a sample of some of the policy efforts we were involved in during 2015:

- Creating the first Marine National Monument in the U.S. Atlantic to protect some of its most biologically rich and fragile habitats, including New England's Canyons and Seamounts and Cashes Ledge.
- Protecting important forage fish species through our work with the Herring Alliance.
- Taking into account the needs of Atlantic herring's predators when setting catch limits for the herring fishery. (New England Fishery Management Council)
- Adopting ecological reference points (to account for predator needs) for the Atlantic Menhaden fishery. (Atlantic States Marine Fisheries Commission)
- Strengthening the Magnuson-Stevens Fishery Conservation and Management Act (MSA). (National Marine Fisheries Service, NOAA and House of Representatives)
- Combating climate change, including support for ocean acidification research, setting an atmospheric CO2 concentration target to recover corals in Florida and the Caribbean, and protecting the future of the Arctic.
- Support for New York's Ocean Action Plan.



OUTREACH

In 2015 we updated our audiences on a range of important ocean and fisheries topics. We created a new *Fishing Gear 101* blog series to introduce seafood consumers, businesses and chefs to different types of fishing gears – including how they work, what they catch, and how they affect ocean wildlife and habitats. Response to this series has been very positive! We hope it helps people understand the collateral damage that fishing can cause to the ocean and the importance of choosing seafood caught in a responsible way.

In one of our latest blogs, we presented our *Greenest of the Green* seafood list to help consumers choose seafood that is safe, healthy and sustainable. The *Greenest of the Green* seafood species are sustainably caught or farmed, low in mercury and a good source of healthy omega-3 fatty acids.

Get our illustrated advice on page 23 and 24!

SCIENTIFIC COLLABORATIONS

We continue to work with our colleague of many years, Dr. Eric Gilman, based at Hawaii Pacific University. Gilman studies the problem of derelict and abandoned fishing gear that kills many fish and marine mammals. His valuable work informs fisheries management in an effort to minimize this wasteful bycatch.

2015 HIGHLIGHTS



◀ In March, Stony Brook University held a special ceremony for Carl's investiture as the inaugural holder of the Carl Safina Endowed Research Chair for Nature and Humanity. Friends, family, staff, students and donors attended. Left to right: Dr. Dennis Assanis, Provost and Senior Vice President for Academic Affairs; Dr. Carl Safina; Dr. Minghua Zhang, Dean of the School of Marine and Atmospheric Sciences; and SBU President, Samuel L. Stanley Jr., MD. Photo by Stony Brook Advancement.

▶ Carl was invited to lecture during Lindblad's Wildlife and Cultures of South Africa, Mozambique and Madagascar cruise aboard the *National Geographic Orion*. This was Carl's first trip to Madagascar.

One of his fellow travelers included the world's authority on lemurs, Dr. Patricia Wright. This fellow is one of the two dozen "Sportive" lemur species.

Photo by Carl Safina.



▶ Two days after *Beyond Words*' release, Carl gave a lunch-time talk about his new book to employees of Google's NYC headquarters.

Invitations for book signings and talks filled Carl's calendar during July and August!

Photo by Carl Safina.



▶ A very special reading, Q & A and book signing took place on July 15th at 192 Books in NYC. Isabella Rossellini and Carl spoke to a standing room only crowd about animal behavior, society and emotions. Rossellini's *Green Porno* series plus *Beyond Words* made for an entertaining evening!

Photo by Carl Safina.



◀ Pop star Miley Cyrus enjoying her copy of *Beyond Words*, during a trip with Pacific Wild to protect wolves in British Columbia. Photo by Ian McAllister.

Both Carl Safina and Robbyne Kamil were named Ocean Heroes in the September issue of *Origin* magazine. In February, Robbyne and Carl spoke at The Explorers Club 'Ocean Night' in NYC about the plight of the wild-caught orca Lolita, who's been in captivity in a sub-standard tank at the Miami Seaquarium for the past 45 years. #FreeLolita



▶ The Green Schools Alliance and the National Conservation Training Center of the U.S. Fish and Wildlife Service presented the Carl Safina Award this year to a student who exemplifies leadership, determination and a firm commitment to practical solutions for conserving natural places and free-living species, no matter the obstacles.



▶ The CRESLI whale watching trip to the Great South Channel, 40 miles off Nantucket, was astounding this past August. Scores of humpbacks, in groups of up to ten, began to cooperatively “bubble net feed” and kept feeding near the ship for an hour and a half. Photo by Carl Safina.





FROM TOP LEFT:

Isabella Rossellini and Carl at 192 Books in NYC. Photo by Leslie Wayne.

Filmmaker Bob Nixon (*Gorillas in the Mist*, *Mission Blue*) and Carl during a discussion at Martha's Vineyard Book Festival. Photo by Patricia Paladines.

Left to right: Ian McAllister, Carl Safina, Miley Cyrus and April Bencze. Photo by Mary Theberge.

Carl signing *Beyond Words* at the Bates House in Setauket, NY. Photo by Maria Hoffman.

CARL SAFINA'S WORK

In 2015 much of Carl's focus centered on the launch of his new book, *Beyond Words: What Animals Think and Feel*. Leading up to the official launch on July 14th, both author and publisher were dealing with a swirl of media attention. When reviews started rolling in, The Safina Center made the most of the coverage by promoting Carl's work far and wide through traditional and social media. We reached over six million people through our online ad campaigns. With 30,000 copies in print, as this report goes to press, *Beyond Words* has been the subject of 29 reviews, 47 print and radio interviews, 24 invited talks and 15 featured excerpts. In between all the book signings, interviews and talks, Carl managed to find time to help save a beleaguered population of wolves in British Columbia—with Miley Cyrus as fellow advocate. He also joined fellow science communicators at the Jackson Hole Wildlife Film Festival where he interviewed two of the world's foremost elephant experts and ardent advocates, Joyce Poole and Cynthia Moss. And in October, Carl joined Safina Center fellow Paul Greenberg on Mission Blue II, a TED cruise from Papua New Guinea to the Solomon Islands. This incredible voyage featured leading scientists, artists, innovators and activists working together to better understand and help protect this remarkable region from environmental degradation.

HIGHLIGHTS FROM *BEYOND WORDS* REVIEWS

"Once in a long while, a book is published that felicitously combines lambent writing with dazzling facts. 'Beyond Words' by Carl Safina is one of these exemplary books." —*Washington Post*

"Fascinating and expansive... Safina is a terrific writer, majestic and puckish in equal measure." —*New York Times*

"A powerful case for our thinking far more conscientiously about animals." —*USA Today*

"Mind-bending" —*Publishers' Weekly*

"Brilliant... unprecedented." —*Elle Magazine*

"Awe-Inspiring... Prepare to be amazed." —*People* (Book of the Week)

"Beautifully written, provocative." —*Discover Magazine*

"One of the best-written, most entertaining and informative books for understanding culture and life on Earth." —*New Scientist*

"Excellent, lyrical" —*Newsday*

"A treasury... By turns mesmerizing, thrilling, and tragic, Safina's enlightening inquiry calls for a new, compassionate perspective." —*Booklist*, Starred Review

"It will have a deep impact on many readers, for it elevates our relationships with animals to a higher plane....Along with Darwin's *Origin* and Richard Dawkins's *Selfish Gene*, BEYOND WORDS marks a major milestone in our evolving understanding of our place in nature. Indeed it has the potential to change our relationship with the natural world." —*The New York Review of Books*

TAPPING YOUR INNER WOLF

by Carl Safina

Men often face pressure to measure up as alpha-males, to “wolf up” as it were. Alpha male connotes the man who at every moment demonstrates that he’s in total control in the home, and who away from his den site can become snarling and aggressive.

This alpha male stereotype is spawned from a misunderstanding of the real thing. In fact, the male wolf is an exemplary male role model. By observing wolves in free-living packs in Yellowstone National Park, I’ve seen that the leadership of ranking males is not forced, not domineering and not aggressive to those on his team.

“The main characteristic of an alpha male wolf,” the ranger and veteran wolf-watcher Rick McIntyre told me as we were watching wolves, “is a quiet confidence, quiet self-assurance. You know what you want to do; you know what’s best for your pack. You lead by example. You’re very comfortable with that. You have a calming effect.”

The point is, alpha males are surprisingly non-aggressive. They don’t need to be. “Think of an emotionally secure man, or a great champion. Whatever he needed to prove is already proven,” he said.

There is an evolutionary logic to it.

“Imagine two wolf packs, or two human tribes,” Mr. McIntyre said. “Which is more likely to survive and reproduce? The one whose members are more cooperative, more sharing, less violent with one another; or the group whose members are beating each other up and competing with one another?”

Thus, an alpha male may be a major player in a successful hunt but then, after the takedown of the prey, step away to urinate and sleep until his pack has eaten and is full.

Mr. McIntyre has spent 20 years watching and studying wolves in Yellowstone for the National Park Service. He rises early, uses radio telemetry to pinpoint the location of a pack with a radio-collared member, then heads out with his spotting scope to observe them, keeping careful notes of their activities.

In all that time, he has rarely seen an alpha male act aggressively toward the pack’s other members. They are his family — his mate, offspring (both biological and adopted) and maybe a sibling.

This does not mean that alpha males are not tough when they need to be. One famous wolf in Yellowstone whose radio collar number, 21, became his name, was considered a “super wolf” by the people who closely observed the arc of his life. He was fierce in defense of family and apparently never lost a fight with a rival pack. Yet within his own pack, one of his favorite things was to wrestle with little pups.

“And what he really loved to do was to pretend to lose. He just got a *huge* kick out of it,” Mr. McIntyre said.

“He’d just fall on his back with his paws in the air,” he said, “and the triumphant-looking little one would be standing over him with his tail wagging.”

One year, a pup was a bit sickly. The other pups seemed to be afraid of him and wouldn’t play with him. Once, after delivering food for the small pups, 21 stood looking around for something. Soon he started wagging his tail. He’d been looking for the sickly little pup, and he just went over to hang out with him for a while.

Of all Mr. McIntyre’s stories about the super wolf, that’s his favorite. Strength impresses us. But kindness is what we remember best.

If you watch wolves, it’s hard to escape the conclusion that perhaps no two species are more alike behaviorally than wolves and humans. Living as we do in families, we can easily recognize the social structures and status quests in wolf packs. No wonder Native Americans recognized in wolves a sibling spirit.

The similarities between male wolves and male humans can be quite striking. Males of very few other species help procure food year-round for the entire family, assist in raising their young to full maturity and defend their packs year-round against others of their species who threaten their safety. Male wolves appear to stick more with that program than their human counterparts do.

Biologists used to consider the alpha male the undisputed boss. But now biologists recognize two hierarchies at work in wolf packs — one for the males, the other for the females.

Doug Smith, the biologist who is the project leader for the Yellowstone Gray Wolf Restoration Project, said the females “do most of the decision making” for the pack, including where to travel, when to rest and when to hunt. The matriarch’s personality can set the tone for the whole pack, Dr. Smith said.

Or, as Mr. McIntyre put it: “It’s the alpha female who really runs the show.”

Clearly, our alpha male stereotype could use a corrective makeover. Men can learn a thing or two from real wolves: less snarl, more quiet confidence, leading by example, faithful devotion in the care and defense of families, respect for females and a sharing of responsibilities. That’s really what wolfing up should mean.

This op-ed originally appeared in *The New York Times* Opinion section on June 5, 2015.

OUR FELLOWS PROGRAM



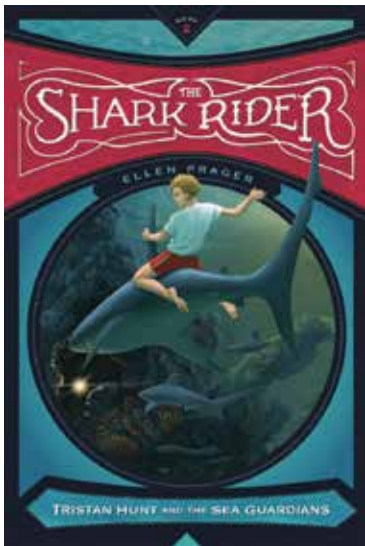
▲ Paul Greenberg on a collaborative research trip reporting for *California Sunday Magazine* evaluating rockfish populations after Marine Protected Areas were established. Photo by M. Gleason, The Nature Conservancy.

PAUL GREENBERG

During 2015, Paul Greenberg continued to develop his new book “The Omega Principle.” Part travelogue, part examination of the ills of middle age, part investigation of the exploitation of the very bottom of the marine food chain, Greenberg’s travels stretch from South America to Antarctica and from Norway to Italy and beyond. The book-in-progress is also being adapted to be a PBS Frontline documentary. Both film and book should appear in 2017. Along the way Paul has continued to write op-eds and investigative stories including an assessment of California’s bold marine protected movement, ways to control the Asian carp invasion of the Mississippi River and a look at how Jews can be sustainable and Kosher when they eat from the sea. In 2015 Paul also ran workshops in fishing communities around the country as part of his American Catch project—an extension of his book that looks at why the U.S. imports more than 85% of its seafood from other countries while exporting nearly a third of what it catches. (See his essay on page 20.) *American Catch*, the book, was a finalist for Investigative Reporters and Editors Book Award and featured in a full-length interview on NPR’s *Fresh Air* with Terry Gross. For a full list of Greenberg’s impressive media attention during 2015, see **Making Waves**, starting on page 30.

ELLEN PRAGER

Ellen focuses her efforts on ocean education and outreach, and science-based conservation. During 2015, Ellen continued to write and promote her new fiction series targeting middle graders, *Tristan Hunt and the Sea Guardians*. The series combines action, adventure and humor with learning about the sea, marine life and real-world ocean-issues. In May 2015, the second book in this series, *The Shark Rider* was released to excellent reviews. Ellen is now in the final editing stages of book three, *Stingray City*, which will be released in May 2016. Her books are being used by educators in their classrooms, developing related educational activities, and are also a key part of summer reading programs. The response to the series has been fantastic. (Check out reader reviews on Amazon.com!) While Ellen loves writing these books, the best reward has been her interaction with readers and their parents! She also spent time in Grand Cayman this fall for television, radio, and newspaper interviews to explain how a proposed pier development plan would do irreversible harm to the local marine environment—acres of coral reef—and economy. (See her essay, **The Myth of Coral Reef Relocation** on page 18.) Ellen also met with cruise industry executives to further explain her strong opposition to this risky development plan.



▶ Dr. Ellen Prager during her underwater reading and Q & A at The Florida Aquarium. Even the shark liked the story! Photo by The Florida Aquarium.



JOHN WELLER

During the past year John Weller has focused on opposite ends of the Earth—the Raja Ampat area of Indonesia and the Ross Sea of Antarctica. John and his partner, Shawn Heinrichs brought *The Guardians of Raja Ampat* film project to fruition in dramatic style with a 12-stop film and concert tour in very remote communities. By all accounts, the tour succeeded in celebrating the visionary conservation work that has been done in Raja Ampat, spreading environmental education even further into key villages, connecting communities across Raja Ampat, and strengthening resolve and collaboration between communities, NGOs and governments to fend off new threats to the regions' spectacular marine ecosystems. For more about **John's successful Guardians film and tour**, see page 14.

John's new film project began taking shape during 2015. It is focused on the importance of protecting the Ross Sea, Antarctica, but that is actually only a small part of the overall narrative. The new film is largely about John's own awakening to the dire state of the oceans and the challenges we face in changing our path. It incorporates stories from the last 15 years and will attempt to drive home the necessity of swift and decisive marine conservation measures, while providing an optimistic (and therefore more useful) vision of the future. As ocean expert Daniel Pauly says in the film, "We all know what has to be done. It's just finding the political will to do it." Please stay tuned...

DEBRA ABERCROMBIE AND DEMIAN CHAPMAN

These remarkable shark experts led many shark fin identification workshops this past year from Hong Kong and Mozambique to Mainland China and South Africa. These workshops train resource managers, fisheries observers, wildlife inspectors and customs agents to identify shark fins visually. This enables officials to enforce recent regulations by the Convention on International Trade in Endangered Species (CITES) that aim to protect specific shark species from being overexploited to supply the international fin trade.

Demian and Debra also continued their shark tagging study in the Bahamas this past summer with a special emphasis on oceanic whitetip sharks. They have been conducting this groundbreaking research for the past five years on multiple shark species throughout the Bahamas, mapping migratory routes and uncovering the mysteries of where these sharks give birth and mate. One of the goals is to translate their research into better protections for sharks, such as listing oceanic whitetip sharks on CITES.

Chapman's new focus has been on rolling out Global FinPrint, a large scale, three-year survey of sharks and rays on the world's coral reefs using action cameras as sampling tools (www.global-finprint.org). He has also been involved in a variety of studies related to the global dried shark fin trade, trying to characterize the species composition of the trade and where fins from certain species originate.

Recently in Mozambique, Debra participated in a workshop to develop a national conservation strategy for sawfish hosted by the U.S. government (NOAA Fisheries Service) and Protect Africa's Sawfish. Mozambique's National Plan for sawfish is now in the works and Debra has been invited back to train fisheries personnel from all providences across the country.

Abercrombie also attended the 28th meeting of the CITES Animals Committee in September, and participated in the shark working group. This group's recommendations for additional shark fin ID materials (for additional species and fin types) plus available DNA protocols have been a key focus for both Demian and Debbie during the past year. These products are on track to be completed by early 2016, well in advance of the next CITES meeting. To learn more about the good news and alarming trends in global shark conservation, see **Chapman and Abercrombie's Q & A** on page 16 of this report.



▲ Map of *Guardians of Raja Ampat* film and concert tour.



▲ John Weller filming *Guardians of Raja Ampat*. Photo by Shawn Heinrichs.



▲ Abercrombie and Chapman's shark fin ID workshops train wildlife and customs officials to identify shark fins sold in the global fin trade. Photo by Stan Shea.



▲ Debra Abercrombie (maneuvering the shark) and crew quickly collecting data on a pregnant oceanic whitetip in the Bahamas. They even managed to do an ultrasound! Photo by Andy Mann.



The village of Yellu, on the big screen and behind the crowd.
Photo by Shawn Heinrichs.

THE GUARDIANS OF RAJA AMPAT FILM AND CONCERT TOUR

DRIVING CONSERVATION WITH GRAND-SCALE MEDIA IN REMOTE COMMUNITIES

by John Weller — Author, Filmmaker, Photographer and Safina Center Fellow

In 2014, my partner Shawn Heinrichs and I shot and produced a full-length film narrated entirely by interviews with community members from the Indonesian villages of Raja Ampat. We then delivered that film back to those remote communities in an incredible film and concert tour that the audiences, and ourselves, could never have imagined...

A thousand faces glowed in the light of the two-story-tall outdoor theater screen, and the mood of the crowd changed minute to minute in reaction to the film: excited whispers and inside jokes as people saw themselves and their villages on screen; pursed lips and angry sideways glances as a fish bomb exploded; nods of agreement, sweet smiles and even tears at the end. But the end of the film was only the midpoint. Moments later hundreds of fists flew into the air as Edo Kondologit – Papua’s most famous singer, who donated his time to headline the tour – leaned forward into the climax of his song *Aku Papua*, “I AM Papua.” The crowd screamed the lyrics into the night, proclaiming their heritage, declaring their solidarity in the name of conservation.

Over the course of three weeks, we worked with the tireless crew and education team of The Kalabia, a 100-foot floating classroom, to haul the 3,000 pounds of gear and setup the outdoor theater in 12 remote villages, one in each district of Raja Ampat. In all, more than 10,000 people – a quarter of the region’s population – participated in this unprecedented film and concert tour. And in the community commentary after each show, Christians and Muslims, men and women, elders and children all spoke as one, calling for even greater protection of Raja Ampat’s waters – the richest marine ecosystem on earth.

Raja Ampat is one of the world’s greatest ocean success stories. Building on centuries of traditional conservation practiced by the communities of Raja Ampat, Conservation International, The Nature Conservancy, and other NGOs have worked for more than a decade to catalyze the creation and wise management of seven large Marine Protected Areas in the region. But the work is far from done, and it seems that the sheer success of conservation in Raja Ampat is creating more challenges.

Conservation has increased fish populations in the protected areas, an irresistible draw for outsiders who sneak past the patrol boats, bringing destructive practices back to the region: fish bombs, shark finning and long-lining. As Hengy Dimalow, leader of the patrol team in the Kawe MPA told us: “They come at night. They always come at night.” Even in a place as well guarded as Raja Ampat, there is always a need for a new wave of awareness and vigilance.

In partnership with Conservation International, The Kalabia Foundation, and Vulcan Philanthropy — and with valuable support from Wolcott Henry and the Henry Foundation, the Walton Family Foundation, the David and Lucile Packard Foundation, The Safina Center, the Blue Sphere Foundation, Misool Baseftin Foundation and others — *The Guardians of Raja Ampat Film and Concert Tour* harnessed the voices of the community. It helped galvanize community leaders across the entire regency to take an even more decisive stand against bomb fishing and other destructive practices, and catalyzed strategic discussions about how to stamp them out.

The tour also engaged the current and incoming regional government: in Raja Ampat's capital city of Waisai, 3,000 people gathered for the show, cheering the current Bupati (regional governor) for his work to protect Raja Ampat, and calling on the next Bupati to take even bolder steps. Further, the project engaged the national government and concluded with a showing at the U.S. Embassy's "@America" venue in Jakarta. The show was jam-packed, including USAID representatives, high-ranking government officials, Indonesian university students and the U.S. Ambassador, who publicly committed to use his office to directly promote conservation agendas in Raja Ampat and across Indonesia. Finally, the film has become a communications centerpiece for our partner organizations as they engage key donors to support a significant long-term endowment for Raja Ampat conservation programs.



Edo Kondologit, Papua's most famous singer, leads village kids singing his hit *Aku Papua*, "I AM Papua." Photo by Shawn Heinrichs.

"Overall the film and tour have been declared a smashing success in highlighting the wisdom and courage of the people and leaders of Raja Ampat in setting aside nearly half of their reefs in MPAs and vigorously defending these reserves."
— Mark Erdmann, Conservation International

The Guardians of Raja Ampat Film and Concert Tour exceeded our imagination. We witnessed the greatest outpouring of community spirit, determination and wisdom that any of us had ever seen. We are proud to have helped amplify these important voices, connect the people of Raja Ampat to their own story, and ignite a new fire of commitment to conservation that crosses the boundaries of religion, culture, gender and generation. But more than anything we were all honored to contribute to a decade of visionary conservation work.

The great success in Raja Ampat is the result of tireless work and collaboration between NGOs, governments and communities. When we speak of "The Guardians of Raja Ampat," we refer to all of the organizations and incredible individuals that devote their lives and resources to the protection of this global treasure. We also mean you, dear reader, because it will be in part by your support that these organizations and communities continue into the next chapter of their collaboration, ready to overcome new threats. Please join us and become a Guardian of Raja Ampat. Read more, connect to our partner organizations, and take action at www.oceantheater.org.

REFLECTIONS ON MY COLLABORATION WITH THE SAFINA CENTER

In the fall of 2013 as I was drafting the project's proposal, Carl Safina hit me with one more challenge: "I hate the title. Refocus it on the core of the project—the people." Two days later I woke up in the middle of the night and "Heart of the Ocean" became "The Guardians of Raja Ampat." Carl was exactly right. This was not a story about the biodiversity of Raja Ampat, but about the people who protect it. The importance of this change was demonstrated over and over as we made the film and then again when we delivered the tour. People understood immediately that this project was celebrating them. In the post-show commentary during the tour, we heard the word "penjaga" — Indonesian for "guardian" — again and again. People had taken on the title as their own, and, I believe, understood the responsibilities of holding such a sacred title in a new way.

I wanted to pass along Carl's wise words because in pursuing conservation, we all need to be reminded to refocus our efforts on the core of success — the people. Thank you to all who support The Safina Center's Fellows Program and for the honor of working with this community. Stay tuned for the next film — the current focus of my fellowship and the culmination of over 15 years of work...

GLOBAL SHARK CONSERVATION

GOOD NEWS FOR SOME SPECIES, ALARMING TRENDS FOR OTHERS

An interview with shark experts and Safina Center Fellows, Debra Abercrombie and Demian Chapman

You two have been leading Shark Fin Identification Workshops all over the world in the past three years. How does your work help protect sharks?

DEBRA: Sharks and their relatives, the rays, are threatened in a number of ways, but the demand for fin soup in Asia drives the chief threat to many species—overexploitation. At the 2010 meeting of CITES (The Convention on International Trade in Endangered Species), proposals to regulate international trade of oceanic whitetip, porbeagle and three large hammerhead shark species were rejected based on an assumption. At that time, most people thought it was impossible to determine which shark species a fin belonged to without offsite genetic testing. Another assumption was that this genetic testing was simply not feasible due to time and cost constraints.

Well, in 2010 Demian and I had both been working in shark conservation for over 15 years. We had been developing genetic techniques to identify shark species and their products in the global fin trade. Our work had given us the rare opportunity to inspect thousands of fins firsthand. We knew that the fins for these five shark species were highly distinctive—in other words, easy to identify visually. This prompted us to develop our shark fin ID project.

We knew a CITES Appendix II listing for these five species would be a game changer for shark conservation because all these species were traded in alarming numbers internationally. We quickly developed shark fin ID materials and started leading workshops hosted by governments and environmental groups, both before and during the next CITES meeting in March 2013. We trained people working on the front lines—wildlife inspectors, customs agents and fisheries personnel—on how to identify these shark fins. With our training at these workshops, we were able to prove that the fins could definitely be identified visually, at least for these specific species, and that a more targeted approach to genetic testing was possible.

When the proposals to include these shark species in Appendix II were put forth at the 2013 CITES meeting, they were finally accepted. This meant that for the first time ever, countries wishing to import or export/re-export listed shark species have to strictly regulate their international trade through monitoring and compliance. They also have to provide permits or certificates proving that the trade is not detrimental to the species' survival.

Of course, for these listings to be implemented effectively, we're continuing shark fin ID demonstrations at workshops worldwide, and we're developing additional tools that can be used throughout the shark fin supply chain. Our goal is to make identifying fins from any CITES-listed shark species as clear and easy as possible—both now and for future listings.

In the past year, what changes have you seen in shark protections that you find especially encouraging?



Typical retail shop in the Sheung Wan district of Hong Kong selling dried seafood products (shark fins, abalone, sea cucumber, seahorses, etc.) Huge curios on display are fins from basking and whale sharks, a sawfish rostrum and shark jaws.

Photo by Stan Shea.

DEMIAN: The clearest signal of change is that shark conservation is now much higher on government priority lists of items that need action. This is evident all over the world, from nations that fish sharks to the major trade hubs in Asia. In particular, we are both still amazed that the authorities in Hong Kong are actively prosecuting traders that illegally import shark fins of protected species, considering how long the fin trade has gone completely unregulated there.

DEBRA: It's extremely encouraging that governments from countries all over the world are committing to effective implementation of the shark and ray CITES listings. There is unprecedented support now from CITES, the Food and Agriculture Organization of the United Nations (FAO), governments and non-governmental groups.

The global effort to provide training for fisheries authorities on how to enforce international, regional and national regulations, plus the training in how to identify shark fins (visually and using genetic techniques) is unlike anything we've seen during the 40 plus years CITES has been in existence. Also, 21 species of sharks and rays were listed on appendices under the Convention on the Conservation of Migratory Species of Wild Animals (CMS) in November 2014.

Demian and I have been working to continue this momentum by accepting as many invitations from governments as possible, providing our shark fin ID trainings worldwide. In fact, we have been working with the Agriculture, Fisheries and Conservation Department (AFCD) in Hong Kong since the spring of 2014. Hong Kong, in spite of their original opposition to including these species on CITES' Appendix II, has really taken the listings seriously. They have confiscated several shipments containing shark fins from listed species, and have been doing a really great job with monitoring and enforcement.

If someone had told us five years ago that we would be training wildlife inspectors and customs agents in Hong Kong how to identify shark fins, we wouldn't have believed them!

You both are on the front lines of shark conservation. Can you give us an update?

DEBRA: I think it's still too early in the process to understand what effects the CITES listings are having on a global scale. It will take several years and some dedicated investigation to gauge how well CITES works for sharks and mantas in terms of stemming unsustainable trade. Even if it does reduce trade, it then takes decades to measure the recovery of shark and ray populations because their reproductive capacity is so low.

We are encouraged, again, by the capacity building efforts underway to better understand and assess shark populations. And we will continue our research efforts to help inform management decisions, such as studying the movement and migration of oceanic whitetip, bull and mako sharks.

DEMIAN: One of the biggest failings overall is that we are usually only responding when shark and ray population declines are extremely severe—putting out the fires, so to speak. We need to be far more proactive and manage these species long before they become endangered. For example, the sharks listed on CITES are all Appendix II, which means that trade is supposed to be restricted so that they won't become endangered to the point that trade needs to be prohibited. For at least one of the sharks, the oceanic whitetip, they are already prohibited from the landings of virtually every fishery they occur in. So CITES, in this case, was needed but is a bit late.

Do you see your work expanding or taking a different direction?

DEMIAN: At the end of the day, trade restrictions must translate into fewer sharks killed if they are to have the desired effect of promoting sustainability. While we are encouraged when the authorities successfully prosecute a case of illegal shark fin trade, it doesn't bring those sharks back to life. So our work is always evolving towards the end point of having more sharks alive in the water.

For example, we are involved in studies of the movements of certain shark species that will help fisheries management agencies within countries and regions reduce fishing mortality on these species. Paul G. Allen (co-founder of Microsoft) has also supported a new effort to survey reef sharks and rays all over the world to determine where the most robust populations are, and then to ensure that they are protected (www.globalfinprint.org).

It is our hope, of course, that the fin identification work that we do builds up enforcement capacity to the point that fin traders avoid buying fins from CITES-listed species without the proper permits. This, in turn, would reduce demand for these species.

It sounds like there are some reasons for hope for a few shark species. But which ones are in dire need of protection now, before it is too late?

DEBRA: While there is a global consensus that we need to do a better job managing sharks and rays, very few management measures are in place for the majority of species. Pelagic (open ocean) sharks are of particular concern, and are priorities for fishery managers and conservationists alike. Thresher sharks, for example, are extremely vulnerable to overfishing due to their low productivity and late age of maturity. Currently, they are also exposed to high fishing pressure throughout their range and are considered one of the most threatened shark families.

There is very little basic, biological data being collected for guitarfish and wedgefish (known collectively as shark-like *batoids*). At present, there are little to no management measures in place for them. This is despite the fact that these batoids have a high value in the international shark fin trade. I'm afraid that if we don't start paying attention to these species, they will suffer a fate similar to the extensive population declines we've already seen for the five species of sawfish.

DEMIAN: The ray species Debra mentioned—sawfish, wedgefish and guitarfish—simply don't have the high public profile of sharks, but are in the fin trade nonetheless. They actually have some of the most valuable fins. There is nowhere near the awareness of the plight of these species, even though experts assess them as either endangered or extremely vulnerable to becoming endangered.

Sharks that have restricted ranges in coastal areas of Southeast Asia and The Coral Triangle also concern us. The countries in this region have some of the largest shark catches (Indonesia has the world's largest shark fishery, for example) yet very little oversight and management. It is very possible that some species that live primarily in this region are being fished very close to extinction. So there's good news for some sharks and rays, but alarming trends for others.



Guitarfish for sale in an Indonesian market. Photo by Stan Shea.

Originally posted on NationalGeographic.com News Watch on October 26, 2015. For more info on shark fin identification, go to: www.SharkFinID.com.



A diver transplants colonies of the branching stag horn coral to reefs in the Florida Keys. Photo by Coral Restoration Foundation.

THE MYTH OF CORAL REEF RELOCATION

by Drs. Ellen Prager, Steven Miller and Carl Safina

Once upon a time on a small island in the Caribbean there was a picturesque harbor and lovely town overlooking clear emerald-blue waters and spectacular coral reefs. Visitors enjoyed dining at waterside restaurants and diving, snorkeling, glass bottom boat rides, and even a submarine tour of the nearby reefs. Local businesses thrived and made millions of dollars each year through related tourist activities.

One day, the government decided to build a massive dock and pier to make cruise ship visits more efficient and to lure in larger vessels. They destroyed a historic shipwreck, acres of living coral reef, and left the harbor water milky white from dredging. After the giant concrete facility was put in place, visitors still came to the island, but its unique harbor, clear water, and nearshore coral reefs were no more. Local dive shops, hotels, and restaurants went out of business, and there were few water-based activities to enjoy in the harbor.

A scary fairy tale or potential reality?

Today, the government of Grand Cayman is considering such a huge pier development plan. If it goes through, George Town harbor and the island will be forever altered. One reason the plan is so controversial is that it has been implied, if not directly stated by proponents, that the coral reefs, which would be destroyed, can be relocated. But there's a problem: Relocating coral reefs is impossible. It's never been done and the proponents of the project who suggest otherwise are wrong. Here's why.

Coral reefs are large, complex three-dimensional structures, that form over thousands of years; but only when biology, geology, chemistry, and physical factors align under special circumstances. Warm ocean temperatures, sufficient flow and salinity, a stable substrate, and pollution-free water, especially as related to nitrogen and phosphorus, are prerequisites for coral reefs to grow and thrive. And relatively shallow water is important so light can sustain the symbiotic relationship between corals and the microalgae that live in their tissues.

Corals are the lead engineers on a reef, building its framework. They get help from coralline algae, which supply the cement. A diverse assemblage of organisms produces the sediment that fills in structural gaps. Fish, crustaceans, mollusks, and additional invertebrates utilize the coral-built reef framework and in return graze seaweeds that can overgrow corals. These organisms also help to recycle nutrients. Residents that filter water, such as sponges, and sea cucumbers that ingest sand, help keep the reef clean.

What we see as a coral reef is thus the cumulative result of a special location, specific ocean conditions, and the incalculable interactions of a diverse living community of organisms. It is simply impossible to relocate a reef as proponents of the pier development plan suggest or imply. The functional unit of a reef is not just what lives on the surface, but the three dimensional structure comprised of coral rock that in the case of George Town Harbor is comprised of building-sized units that stretch across dozens of acres. The three dimensional structure of these reefs is renowned throughout the Caribbean and world as a premier diving and snorkeling destination. There is no terrestrial analogue to such relocation activity, but moving mountains comes to mind. And even if you could relocate the coral reefs in question, the process itself would be akin to killing the patients in an attempt to save their lives. Huh?

What can be attempted, in other circumstances, is to transplant or relocate individual coral fragments or even entire colonies. This is sometimes done to repair reefs damaged by ship groundings or to restore reefs that have lost corals due to disease or coral bleaching. This is different from relocating an entire coral reef.

Fragments or colonies of some coral species, especially the branching staghorn coral, have successfully been grown in nearshore nurseries and transplanted to offshore reefs. However, these individual colony fragments or whole corals are measured in terms of centimeters, and are not comparable to the overall structure of a reef that is kilometers in size. While coral reef restoration holds great promise, its focus is on adding living corals to existing coral reef framework, not starting from scratch to build entirely new coral reefs. Transplanting corals also requires at the least, ocean conditions that are conducive to growth and survival.

And corals grow slowly. Boulder corals grow less than one centimeter a year and even the fastest growers, branching staghorn corals, may annually extend just six centimeters or more — but only if conditions are ideal. Conditions have not been ideal throughout most of the Caribbean for decades. And reefs themselves grow even more slowly than individual corals. A large reef structure is typically thousands of years old.

An example of coral reef relocation that is cited by proponents of the George Town Harbor pier development project is work that was conducted in 2009, in Falmouth Jamaica. As proposed for George Town, an area was dredged to make way for a new pier. As part of the mitigation plan, some 140,000 individual corals were relocated. This has been repeatedly touted as an example of successful coral reef relocation, even though it was not the relocation of a reef, but individual coral colonies. Furthermore, high mortality of the corals was an issue from the start. That is, after transplanting so many corals, few actually survived to grow and thrive in good condition at their new location. This is not even a good example of successful coral transplantation, by any standards, despite its ambitious goals and good intentions.

Simply put, there is no reef relocation, transplantation, or mitigation that will bring back or restore the natural environmental and economic treasure that will be lost if the unique coral reef resources of George Town Harbor are destroyed.

We support sustainable tourism and are not against the cruise industry. But in this case, we hope that the government of Grand Cayman will make the right decision for its people and island. A port pier as planned will permanently destroy the nearshore coral reefs of George Town Harbor and create just another concrete-dominated Caribbean destination.

This essay was originally posted on CNN.com Opinion on September 29, 2015. Dr. Ellen Prager is a marine scientist, author and Safina Center Fellow. Dr. Steven Miller is a senior research scientist at Nova Southeastern University Oceanographic Center.



Grand Cayman nearshore reef slated for destruction if pier development plan is implemented. Photo by C. Platt.

THREE SIMPLE RULES FOR EATING SEAFOOD

By Paul Greenberg — Author and Safina Center Fellow

Nearly a decade ago, the writer Michael Pollan advised: “Eat food. Not too much. Mostly plants.” Ever since, a certain kind of progressive supermarket aisle has emerged: “Real” foods, calorie-limited portions and vegetarianism (or at least Meatless Mondays) have become culinary aspirations for millennials and boomers alike.

Mr. Pollan’s advice is sound. But what about the 71 percent of the Earth’s surface that provides humans with 350 billion pounds of food every year? How do you make rules for our oceans and freshwater ecosystems, whose vast production is, even in this increasingly mechanized world, still more than half wild?

Since I first read Mr. Pollan’s haiku-like dictum, I have been trying to be like Mike — i.e., to work out a seafood three-liner that would be as concise, elegant and free from exceptions as his. I can’t say that I have been entirely successful. No sooner do I present a draft idea at a local seafood forum than I get shouted down by a New England dragger captain whose cod doesn’t fill the bill.

But rules are useful no matter the exceptions. And since World Oceans Day was this month, I thought I would offer up my own, admittedly clunky, variation:

- ▶ **EAT AMERICAN SEAFOOD**
- ▶ **A MUCH GREATER VARIETY THAN WE CURRENTLY DO**
- ▶ **MOSTLY FARMED FILTER FEEDERS**

Some explanations are in order.

To begin with, why American? Is there something intrinsically better about fish and shellfish caught in our waters? No. But there is something better about the way the United States and just a handful of nations manage wild fish.

In a 2009 analysis in the journal *Nature*, which ranked nations by the level of compliance with the United Nations code of conduct for fisheries, only the United States, Norway, Iceland, Australia, Canada and Namibia had “overall compliance scores whose confidence limits overlap with 60 percent.” De-wonkified, that means that the United States and this handful of nations have done the best to apply science-based fish management, but even they have room for improvement.

In the case of the United States, that has meant the imposition of quota systems and legal statutes that mandate overfishing’s end within a defined time frame. Another recent analysis of fishery governance commissioned by *The Economist* showed a similar cluster of nations with the United States at the top.

Yet in spite of these better ways of doing business with the ocean, **up to 90 percent of the seafood Americans eat is imported, much of it from Asia, where regulation is markedly poorer than in the United States.** According to a recent study published in the journal *Marine Policy*, as much as 32 percent of the wild fish we import may come to us via illegal or unreported fishing.

But it’s not as if we don’t have a lot of American fish. The United States exports about three billion pounds of what we catch. Which brings me to seafood rule No. 2: If we are going to default to eating American fish and shellfish, we will need to eat a much greater variety of it.

The top three seafoods on American plates are shrimp, tuna and salmon, together more than half of what we eat from the sea. Each is largely imported, and each comes with significant complications.

Shrimp aquaculture in Southeast Asia has caused significant damage to coastal mangrove forests, which are only now starting to receive much-needed attention after the explosion in shrimp farming in the 1980s and ‘90s. Moreover, recent investigations by *The Associated Press* and *The Guardian* reported human rights abuses, including forced labor, in the Thai seafood industry, one of the largest providers of shrimp to the United States.

Canned tuna, meanwhile, has been cited by Consumer Reports as “the most common source of mercury in our diet.”

And salmon, often well managed in the wild, mostly comes to us in its farmed form, which is reliant on huge amounts of wild fish as part of its feed.

But there are alternatives to shrimp, tuna and salmon. More than 30 wild fish stocks in the United States have been rebuilt from previous depletion in the last quarter-century. The problem is that many of these stocks — like Atlantic porgy, Acadian redfish and Pacific sablefish — are unknown to many American consumers, which is one reason so much American fish is exported.

Still, no matter how much we change our eating habits, there is probably not enough wild American seafood to meet our country's yearly demands, which are currently about 4.5 billion pounds (the third largest seafood consumption in the world, after China and Japan). In our country, a nation that ranks 15th in farmed seafood production, behind Egypt and Myanmar, a more significant investment in aquaculture is clearly necessary.

Which brings me to my last rule: We should eat more farmed filter feeders — animals like oysters and mussels that don't need feed because they strain their sustenance from the water.

As I noted earlier, farmed carnivorous fish like salmon require wild fish as part of their diets on the farm. And though the salmon industry has made epic improvements in efficiency on a per-fish basis in the last decade, aquaculture is growing so fast that the overall removal of wild fish for farming remains high.

For the time being, we would be much better off eating filter-feeding organisms like oysters. Farmed oysters live off microscopic phytoplankton that naturally occur in marine environments, and in the process clean the water; a single oyster filters about 30 to 50 gallons of water a day.

And it's not just oysters that work this kind of magic. Mussels filter many gallons of water as well, and provide habitat for fish. **Mussels also have levels of omega-3s similar to most canned tuna, without the mercury burden those predators can carry.**

And other efficient biological filters also exist. Ocean farmers are finding that edible kelp grows miraculously fast, can be high in omega-3s and extracts huge amounts of excess nutrients from the water column. Grown together with mussels and other bivalves, kelp represents a real bright spot for making a better American seafood supply.

It's exactly this kind of farming that we should be doing along our coasts: a kind of ocean farming that supports clean water, gives us nutritious food and creates habitat for other fish.

Of course within these food rules, contradictions abound. Not all American fish is equal; New England cod is still overfished, and threatened by climate change. Some foreign fisheries are improving — Russia and Namibia, for example, have made assiduous efforts toward sustainable harvesting. Not all filter feeders are sustainable. Baleen whales, for example, are not a good choice.

But food rules are meant to be aspirational, even if they're not always realistic. We are what we eat, in both our hearts and our minds. And if we're going to take the time to follow rules on land, it seems only fitting that we do the same when out at sea.

Originally published in *The New York Times Sunday Review* on June 13, 2015.

SUSTAINABLE SEAFOOD PROGRAM

In 1998 The Safina Center's founders developed the first authoritative guide to sustainable seafood showing the environmental cost of eating fished and farmed seafood. The scientific analysis of different species examined key aspects of the fishing or farming process, condensing vast amounts of scientific information into an easy-to-understand seafood report and a corresponding color-coded rating system.

Over the past 15+ years, The Safina Center's seafood rating system has evolved and has become even more scientifically rigorous. Our green, yellow and red ratings plus full species reports are easy to access via our website: www.safinacenter.org/seafoods

HOW IS A SEAFOOD RATING PRODUCED?

The first step is tons of research. Our seafood analysts search the scientific literature, government reports, and even contact scientific experts, to gather all available information on the species/fishery to produce our recommendation. The analysts collect information on the species' biology, its abundance and the types of fishing gears that are used to capture the species. We also look at how those fishing gears affect bottom ocean habitats, other target and non-target species that are caught in the fishery, how that fishery is managed, and how the removal of the species we are rating could affect ocean food webs or the function of the ocean ecosystem. The next step is for the seafood analysts to synthesize all of this information into a seafood assessment report and rate the species according to the established, science-based criteria to produce a numerical score. The reports are generated using a web-based assessment tool, which allows for easy compilation of data and expert input, all in one place. The research/writing phase typically takes several months.

Next, Elizabeth Brown-Hornstein, our lead Seafood Research Scientist, reviews the draft assessment reports to check for incomplete or missing information and to make sure the ratings are justified and consistent with the criteria guidelines. Once we have a solid draft of a seafood assessment report, it is sent out for external peer-review to ensure the information within the report is accurate and up-to-date. Each report is typically reviewed by three scientific experts on the species/fishery. The last step is to present the new seafood rating to a coalition of non-governmental organizations that are working on seafood sustainability. Once all concerns have been addressed, the final seafood assessment report is published on our website, and the numerical score is translated into a color-coded rating: green, yellow, or red. The entire process can take anywhere from six months to a year.

MERCURY IN SEAFOOD AND HEALTHY, SUSTAINABLE CHOICES

During 2015 we reached out to both consumers and health care professionals, creating guides and blogs to help both groups make wise decisions about the seafood they eat or recommend. In the next three pages you'll find some of the highlights of this work: An illustrated "Greenest of the Green" guide to healthy and sustainable seafood choices plus our "Which Fish and How Much?" chart that takes the mystery out of mercury in fish.

As always, we are very grateful to our partners at Stony Brook University, [The Gelfond Fund for Mercury Research and Outreach: www.stonybrook.edu/mercury](http://www.stonybrook.edu/mercury)

GREENEST OF THE GREEN

SUSTAINABLE, LOW MERCURY, RICH-IN-OMEGA-3 SEAFOOD

by Elizabeth Brown-Hornstein, Safina Center Research Scientist and Sustainable Seafood Program Director

What seafood is sustainably caught or farmed? What fish and shellfish are safe to eat? What seafood is the healthiest? We get these questions from consumers all the time! So here's our answer — a list of seafood recommendations called “Greenest of the Green.”

THESE SEAFOOD SPECIES ARE:

- **rated green**, which means sustainably caught or farmed (rated by either The Safina Center or by our partner, Monterey Bay Aquarium Seafood Watch®.)
- **a good source of healthy omega-3 fatty acids** (at least 600 milligrams of omega-3s per 4-ounce serving. That's 1/3 of the recommended weekly consumption level.) and
- **low in mercury** (less than 0.1 part per million of mercury, which means they are safe for everyone to eat 2-3 times per week. YES, even pregnant or breastfeeding women can eat these species. They are safe for children too, but portions should be smaller.)

Seafood rated “Green” means that the fishing or farming practices are well-managed. And it means that the species was caught or farmed in a way that causes little harm to the environment or other wildlife. By choosing seafood from the “Green” list you are helping to ensure healthy oceans and fish populations for many generations to come. And sustainable practices help prevent needless killing of ocean wildlife (such as sea turtles, sharks, marine mammals and seabirds).

By choosing seafood that has high omega-3s but low mercury, you help guarantee that you get the greatest nutritional benefits, while minimizing health risks.

You have probably heard that seafood is a healthy choice because it contains beneficial omega-3 fatty acids (as well as many other nutrients). Some of the benefits of omega-3s include reducing blood pressure, improving heart health and aiding in fetal brain development. But it is important to realize that not all seafood contains an abundance of omega-3s. **In fact, several of the common seafood species that U.S. seafood consumers eat are actually low in omega-3s, including shrimp, tilapia, cod, catfish and scallops.**

It is also important to understand that eating seafood can come with health **risks**. When we eat seafood, we get a dose of mercury. And too much mercury is bad for us. Scientists have found that high levels of mercury in humans can cause brain and nervous system defects. This is of particular concern in young growing children and for women who are pregnant, plan to become pregnant, or who are breastfeeding, since the mercury the mother consumes can affect the fetus or infant. **Some seafood contains very high levels of mercury (typically large, predatory fish like tuna and swordfish), while other seafood contains very little mercury (smaller fish, lower on the food chain).**

The purpose of our “Greenest of the Green” list is to make it easy to choose seafood that you can **feel good about eating** and that is **good for you**. So let's take a look—from mussels to mackerel.

FARMED MUSSELS AND OYSTERS

Farmed mussels and oysters are about as sustainable as it gets. They are grown in coastal waters in a similar manner to the way their wild counterparts grow. Raising them requires no food input or chemical use (antibiotics, pesticides, herbicides, fertilizers). Mussels and oysters feed by filtering phytoplankton (or free-swimming algae) right out of the water. And in doing so, they actually improve the water quality in coastal systems! Mussel and oyster beds can also provide structural habitat for other species and help prevent erosion of the shoreline.

Mussels and oysters may provide anywhere from 800-1,500 mg of omega-3s per 4-ounce serving. That's on par with canned albacore tuna. But unlike albacore tuna, mussels and oysters have only minute levels of mercury.

SHOPPING TIP: Look for mussels and oysters grown in your local or regional area.

WILD ALASKA SALMON

Wild Alaska salmon is the best source of salmon available to us. There are five species of Alaska salmon: Chinook (king), coho, pink, chum and sockeye. Chinook and coho salmon have the highest omega-3s (1,000-2,000 mg per 4-ounce serving) but other salmon species are excellent sources of omega-3s, too. Alaska salmon populations are relatively abundant and the fisheries are well-managed. This is not the case with many other wild salmon populations. >

The “Greenest of the Green” Species that are sustainably caught or farmed, high in omega-3s and low in mercury

► Rated “Green” by The Safina Center and/or Seafood Watch® sustainable seafood programs

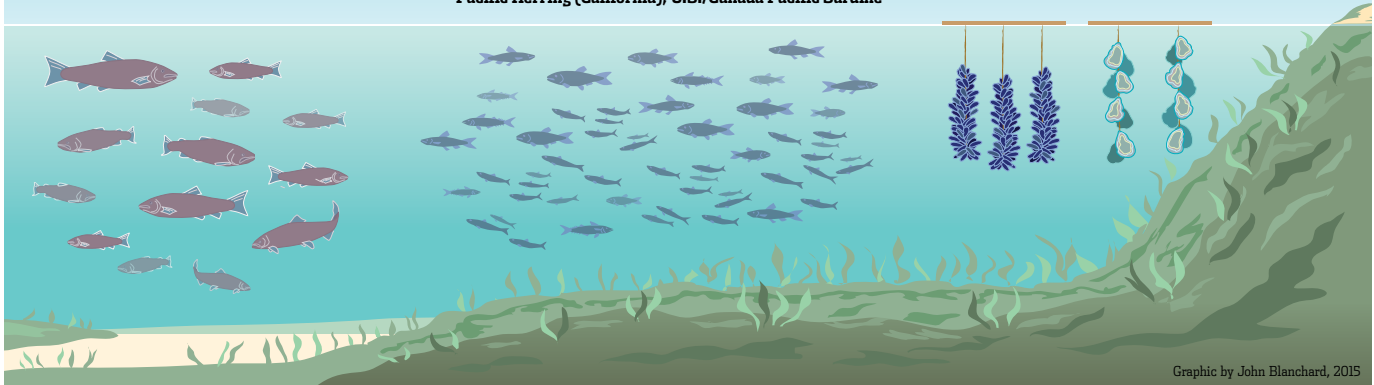
► Provide at least 600 mg of omega 3s – 1/3 of the recommended weekly level (1,750 mg) per 4 oz. serving

► Contain less than 0.1 ppm mercury, meaning they are safe for everyone to eat 2-3 times per week

Wild Alaska Salmon

U.S. Atlantic Herring & Mackerel (purse seine), Pacific Herring (California), U.S./Canada Pacific Sardine

Farmed Mussels & Oysters



Graphic by John Blanchard, 2015

What about farmed salmon? Consider this: We export much of our healthy, delicious, sustainable salmon overseas and import questionable sources of farmed salmon from other countries. While some farmed salmon practices are improving, much of it remains unsustainable. Raising farmed salmon typically requires feeding the salmon wild fish. In fact, 2-3 tons of wild fish are used as feed for every 1 ton of salmon produced, which is not very efficient. Plus salmon feed often contains chemicals and antibiotics that are a threat to human health.

SHOPPING TIP: Next time you are looking for salmon, make sure to choose wild Alaska salmon (it's well worth the few extra bucks!).

SARDINES, HERRING & MACKEREL

LOOK FOR THESE!

- U.S./Canada Pacific Sardine
- U.S. Atlantic Herring (Purse Seine) or U.S. Pacific Herring (California) U.S. Atlantic Mackerel (Purse Seine)

These small, low-on-the-food-chain fish are not very popular among U.S. seafood consumers. We typically export them to other countries that enjoy them more or we use them as bait to catch higher-on-the-food-chain fish that have more mercury. Or we grind them up to use as fishmeal and fish oil to feed to farmed fish. This is unfortunate because consuming sardines, herring and mackerel directly could provide U.S. seafood consumers with a very high dose of omega-3s (1,000-2,000 mg per 4-ounce serving).

It is also important to note that these little fish play a very important role in ocean ecosystems, providing food for many large fish and other ocean animals. Because of this, we need to ensure we leave enough of these fish in the ocean to feed their predators. We are not advocating for catching more of these fish. Instead we are recommending that we use these fish in a much better, more direct way!

SHOPPING TIP: Try to find Atlantic Mackerel and Atlantic Herring caught by purse seines rather than mid-waters trawls. Purse seines are a more environmentally friendly catch method.

Next time you are planning to eat seafood, remember not all seafood is equal in terms of sustainability or health. **Take a pass on the tuna and shrimp, which generally come from unsustainable sources and are not as healthy for you.** Instead, try one of the “Greenest of the Green” species. You will be doing the oceans and yourself a favor!

To find more sustainable seafood options check out our online seafood ratings at www.safinacenter.org. And to learn more about mercury in seafood, visit our [Mercury in Seafood](#) web section.

This essay was originally posted on The Safina Center's Blog on October 20, 2015.

WHICH FISH AND HOW MUCH?

(Estimates of servings for a 130 lb. woman)

VERY HIGH MERCURY

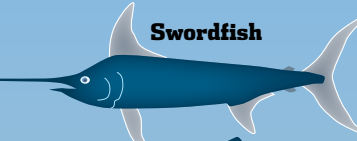
More than 0.5 Parts per million
Eat Rarely



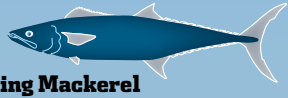
Tilefish (Gulf of Mexico)



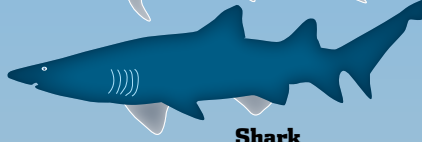
Bluefin tuna



Swordfish



King Mackerel



Shark

HIGH MERCURY

Between 0.25 and 0.5 ppm
About 2 times per month



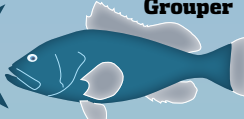
Yellowfin Tuna



Chilean Sea Bass



Bigeye Tuna



Grouper



Albacore Tuna (solid white)



Bluefish



Wild Striped Bass

MEDIUM MERCURY

Between 0.1 and 0.25 ppm
Up to once per week



Skipjack Tuna
(chunk light)



Mahi-Mahi



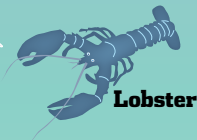
Ocean Perch



Pacific Cod



Halibut



Lobster



Snappers



Flounder

LOW MERCURY

Less than 0.1 ppm
2-3 times per week

*Good source of Omega-3 fatty acids



Anchovies*



Sardines*



Arctic Char



Squid



Trout* (farmed)



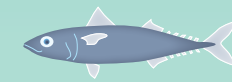
Salmon*



Catfish (farmed)



Herring*



Atlantic Mackerel*



Clams



Shrimp



Mussels*



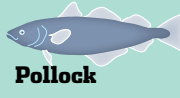
Tilapia



Scallops



Sole



Pollock



Oysters*

Portion guide



1 serving = 4 to 6 oz.

This is roughly the size and thickness of the palm of your hand.

About 2 servings per week (8-12 oz.) of a fish that is low in mercury meets the U.S. Dietary Guidelines, American Heart Association and Environmental Protection Agency/Food and Drug Administration advice for fish consumption.

The "at risk" groups:



Pregnant or breastfeeding women and young children should eat **ONLY** low mercury fish.

For children under 12: Estimate about 1 oz. per 20 lbs. of body weight for a child who is not overweight. For example: a 40 pound child could eat a 2 ounce serving.

Graphic by John Blanchard, 2015

Karimi et al., 2012, Environmental Health Perspectives, A quantitative synthesis of mercury in commercial seafood and implications for exposure in the U.S.

“I am so grateful for the faith and steadfastness shown to us by Marshall and his family; they have powered so much of our work.”

—Carl Safina

MARSHALL GILCHRIST

Marshall Gilchrist is a man who pursues expertise as a writer and illustrator, a designer, draftsman and builder, a currency trader, and a restaurant owner. His lifelong love of nature and wildlife, and his deep commitment to their protection, was fostered in his childhood as he pursued woodland adventures in upstate New York and Connecticut.

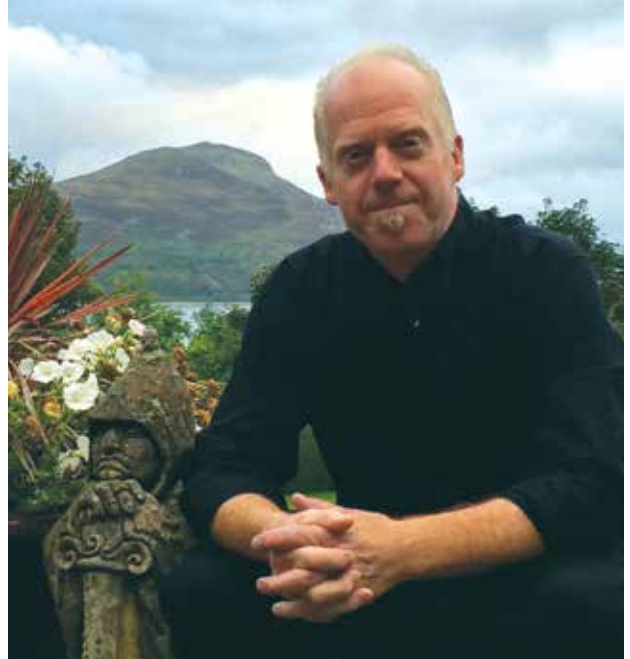
While attending college, Gilchrist decided to take a semester off to rake oyster beds in the Chesapeake Bay. He worked with 14-foot tongs in the company of weathered, local men in the pre-dawn waters, through frozen winter months. This remarkable experience of a traditional livelihood that was dying out made Gilchrist understand the rigors of harvesting food in a new way and was the seed of his interest in sustainable farming.

At that time, Gilchrist’s environmental perspective was broadened by reading *Chesapeake* by James A. Michener and years later by Peter Matthiessen’s Everglades trilogy: *Killing Mister Watson*, *Lost Man’s River* and *Bone by Bone*.

During the 90’s, Carl Safina’s policy work to protect bluefin tuna and his first book, *Song for the Blue Ocean*, captured the attention of Marshall Gilchrist’s mother, Jocelyn Marshall Wallace. Brothers Eric, Angus and Alex also came to know Carl Safina at that time and The Wallace Foundation came on board as an early supporter of Safina’s work. According to Gilchrist, “Carl addressed the peril that our natural habitats were facing—and how to live with industry while protecting the planet’s sustainability. During the 1960s, the ecological movement was ‘cool’ and piqued my youthful interest. But Carl Safina brought a fight and direction to a movement that seemed to be losing direction and momentum.”

Gilchrist and his family, through the Foundation, continued to fund Carl’s work when Blue Ocean Institute was established, and have remained loyal in their support during the 12 years since. The Wallace Research Foundation currently provides funding to The Safina Center’s Fellows Program. “The evolution from Blue Ocean Institute to The Safina Center is very encouraging and the addition of the Fellows Program is a truly efficient and viable way for the Center’s influence to cover more terrain and more people. I am excited to see the energy and scope of the mission grow!” says Gilchrist.

A great lover of travel, Gilchrist’s bucket list includes the Mongolian Plains, Sub-Saharan Africa, The Orkneys and Iceland. One of his favorite trips started at a Blue Ocean Institute fundraiser. “In 2008, my brother Eric and



Marshall Gilchrist next to a stone troll whose job is to fend off bad moods—Isle of Arran, Scotland. Photo by Nadia Mthombeni.

I outbid each other during the Institute’s auction of a Lindblad Expeditions cruise to Galapagos. Sven Lindblad deftly allowed both bids—raising twice the amount of money for the Institute—much to our continued enjoyment. That trip, which I took with my son, Cliff, was extraordinary and has only whetted my desire to see more of South America,” says Gilchrist. As a devout tree hugger from his early days of enforced leaf raking, he plans to explore the Peruvian Rain Forest and the U.S. Pacific Northwest.

At present, Gilchrist’s work encompasses consulting, writing and illustrating. He is dedicated to promoting a new farming culture in the Northeast U.S. through initiatives with The August West Foundation. Gilchrist has just returned from consulting with the Altachorvie Island Retreat on the Isle of Arran, Scotland but the project closest to his heart is his book-in-progress that blends intrigue with social issues, satire with cynicism. It shares his drawing board with an ever evolving group of cartoon characters who caricature human policy-makers with insects and animals, much like Walt Kelly once did with Pogo. Gilchrist describes his book this way, “I believe that our societies reflect a small but strong will to change the course of a terribly slow-turning vessel. The Industrial Revolution which once did such good, is now bloated by market-driven theory resulting in poisoned food and collapsed feeding systems as well as engines, excretions and extractions that are crumbling and scarring the very planet we call home. I am a humble human who likes the idea of attacking these windmills with parable and picture.”

MILESTONES AND FIRSTS

In 2015, Carl and The Safina Center Fellows released new books and took films, lectures and workshops on the road. From Raja Ampat, Indonesia to Martha's Vineyard, their extensive travels covered many nations abroad and criss-crossed the U.S. Our expanded focus encompassed the ocean issues we've always cared about plus a whole new world of animal cognition. Here's a list of recent awards, publications, honors and "firsts," from this year back to our founding in 2003.

2015

Carl Safina's seventh book, *Beyond Words: What Animals Think and Feel*, released to rave reviews July 14, 2015. It is #2 on *The New York Times* Best Sellers List, "Animals" category, and #1 in Amazon's Best, "Animals and Cognition" and "Animal Behavior" categories.

Excerpts and interviews from *Beyond Words* appear on PBS, NPR, *The New York Times* and in dozens of online magazines from TIME to National Geographic.

Beyond Words online and social media ad campaign reaches over six million people in the first three months after its release.

Safina Center Fellow, John Weller and his partner Shawn Heinrichs complete their film *Guardians of Raja Ampat* (Indonesia) and show it on a grand outdoor screen in 12 key villages—a huge success.

Safina Center Fellow Dr. Ellen Prager's new book, *The Shark Rider*, is released on May 1st—the second book in her fiction series for middle grades, *Tristan Hunt and the Sea Guardians*. Great reviews and reader reaction.

Author and Safina Center Fellow Paul Greenberg's best-selling book, *American Catch: The Fight For Our Local Seafood*, released in paperback, June 9, 2015. *American Catch* is named a finalist for the Investigative Reporters and Editors Book Award.

Safina Center Fellows, Dr. Demian Chapman and Debra Abercrombie complete many Shark Fin ID Workshops in countries around the world including Hong Kong, Mainland China, India and South Africa.

Carl Safina teaches new course, "Conservation's Three Rs: Reading, Writing, Raising Money" at Stony Brook University's School of Marine and Atmospheric Sciences.

Carl Safina, Senator Edward Markey, offshore drilling experts and scientists hold press conference in Washington DC to address lingering effects of the 2010 BP oil disaster.

The Safina Center doubles its followers on Facebook and Twitter, expanding our total reach by 90%. Upgrades to both carlsafina.org and safinacenter.org boost web traffic and exposure.

Paul Greenberg's American Catch Project completed many workshops in fishing communities around the U.S. thanks to funding from the Walton Family Foundation.

Carl Safina nominated for the 2016 Indianapolis Prize and Lilly Medal, a biennial prize in global wildlife conservation.

The Safina Center is nominated for Edible Long Island's "Local Hero" Award in the nonprofit/advocate category.

Beyond Words is nominated for Carnegie Medal of Excellence, 2016.

2014

Blue Ocean Institute changes its name to The Safina Center.

Safina Center Fellow, Paul Greenberg publishes his third book *American Catch: The Fight For Our Local Seafood*, to critical acclaim.

The Safina Center and Monterey Bay Aquarium expand their partnership and collaborate on sustainable seafood ratings creating consistency for Whole Foods Market nationwide.

The Safina Center logo is now included in seafood counter signage in 370 Whole Foods Market stores in the U.S.

Safina Center Fellows, Paul Greenberg and Demian Chapman are both named Pew Fellows in Marine Conservation.

The Safina Center welcomes two new Fellows: writer, photographer and filmmaker John Weller, and marine scientist and author Dr. Ellen Prager.

Safina Center Fellow Dr. Ellen Prager publishes *The Shark Whisperer*, her first book in a new fiction series for middle grades, *Tristan Hunt and the Sea Guardians*.

The Safina Center doubles its followers on Twitter.

Safina Center Fellows, Demian Chapman and Debra Abercrombie completed Shark Fin ID Workshops in many countries around the world including Vanuatu, South Africa and Hong Kong.

The Safina Center helps orchestrate Stony Brook University's first ever Earth Day "Tweet-Up" honoring Indianapolis Prize finalists (and SBU professors) Carl Safina, Russ Mittermeier and Patricia Wright.

2013

First full series of *Saving the Ocean with Carl Safina* broadcast on PBS to 90 million households in the U.S. and Canada. Episodes available for free 24/7 on PBS.org.

Carl Safina nominated for the 2014 Indianapolis Prize.

Carl Safina is lead scientist on the GYRE expedition to the southwest coast of Alaska and Aleutian Islands.

Stony Brook University establishes the Carl Safina Endowed Research Chair for Nature and Humanity, Long Island, NY.

Carl Safina receives an Honorary Doctorate from Drexel University.

MILESTONES AND FIRSTS

Carl Safina is named Inaugural Andrew W. Mellon Distinguished Fellow in Environmental Studies by Colby College.

Rutgers University presents Carl Safina with a Distinguished Alumni Award in Biology.

Blue Ocean Fellows, Dr. Demian Chapman & Debra Abercrombie hold Shark Fin Identification Workshops in Honduras, Belize, Costa Rica, Senegal, Sri Lanka, Hong Kong, USA, Thailand, United Arab Emirates, Yemen, Egypt, Oman, Brazil and Fiji.

Blue Ocean Institute is recognized by Intelligent Philanthropy for our commitment to transparency.

2012

Blue Ocean Fellows Program launched in November. First Fellows: author Paul Greenberg and shark experts, Dr. Demian Chapman and Debra Abercrombie.

The View from Lazy Point, A Natural Year in an Unnatural World wins 2012 Orion Magazine Book Award.

Six new episodes of *Saving the Ocean with Carl Safina* filmed to complete first year of the PBS series.

“The Sacred Island” episode of *Saving the Ocean with Carl Safina* PBS series named finalist at the BLUE Ocean Film Festival, “Innovations and Solutions” category.

Carl Safina blogs for *The Huffington Post*; begins blogging for *National Geographic*.

Blue Ocean Institute moves to Stony Brook University’s School of Marine and Atmospheric Sciences.

Blue Ocean Institute releases comprehensive overview, “MERCURY: Sources in the Environment, Health Effects and Politics,” written by Sharon Guynup; intro and summary by Carl Safina.

A Sea in Flames: The Deepwater Horizon Oil Blowout named to Top Ten List by the Project on Government Oversight.

Carl Safina receives Ocean Hero Award from *Diver* magazine.

2011

Carl Safina’s fifth book, *The View from Lazy Point, A Natural Year in an Unnatural World*, published in January to rave reviews.

Carl Safina’s sixth book, *A Sea in Flames, The Deepwater Horizon Oil Blowout*, published in April to excellent reviews.

Both books selected as *The New York Times* Book Review, “Editor’s Choice.”

FishPhone text messaging app reaches its 100,000th query.

Carl Safina wins James Beard Award for Journalism – Environment, Food Politics and Policy.

Carl Safina and Alan Duckworth invited to write “Fish Conservation” chapter in the *Encyclopedia of Biodiversity*, 2nd edition.

Carl Safina nominated for the 2012 Indianapolis Prize.

Carl Safina named among “Twenty-Five Visionaries Who Are Changing the World” by *Utne Reader*.

First two episodes of *Saving the Ocean with Carl Safina* air on more than 100 PBS television stations across the U.S.

2010

Carl Safina’s first children’s book *Nina Delmar: The Great Whale Rescue* is published.

Carl Safina testifies before Congress regarding the Gulf oil blowout.

Carl Safina invited to give a talk at the TEDx Oil Spill Conference.

FishPhone launches a new app; receives stellar media coverage.

Blue Ocean establishes partnership with Whole Foods Market to provide seafood rankings in stores.

Mercury in Fish Project launched in collaboration with The Gelfond Fund for Mercury Related Research & Outreach at Stony Brook University.

Carl Safina becomes co-chair of The Alan Alda Center for Communicating Science at Stony Brook University.

Carl Safina wins Sylvia Earle Award presented at the Blue Ocean Film Festival.

Carl Safina wins Guggenheim Fellowship in Natural Sciences Science Writing.

Safina wins Lifetime Achievement Award from the International Wildlife Film Festival.

2009

Carl Safina’s “Darwinism Must Die So That Evolution May Live” published in *The New York Times*.

Next Wave’s Ocean Science Literacy Workshops raise awareness about the ocean and Google Earth technology for English Language Learning students.

FishPhone App receives a “Best in Green” award by Ideal Bite, a green-living website.

Green Chefs/Blue Ocean launched: online sustainable seafood course for chefs and culinary students.

2008

Carl Safina’s first book, *Song for the Blue Ocean, Encounters Along the World’s Coasts and Beneath the Seas* named “One of 12 Most Influential Environmental Books of All Time” by Environmental Defense Fund.

Blue Ocean Institute invited to establish science office at the School of Marine and Atmospheric Sciences at Stony Brook University.

Blue Ocean distributes its 2.5 millionth ocean-friendly seafood guide.

2007

Blue Ocean forms the Friendship Collaborative with Ken Wilson, Senior Pastor of Vineyard Churches of Ann Arbor, MI, to further dialogue between scientists and evangelical Christian leaders.

Blue Ocean launches FishPhone, the nation's first sustainable seafood text-messaging service, plus a downloadable seafood guide for cell phone and PDA users at fishphone.org.

New television series, *Saving the Ocean with Carl Safina*, developed for PBS by Safina and producer John Angjer. Pilot segments filmed in Belize and Zanzibar.

Blue Ocean partners with Stony Brook University's School of Marine and Atmospheric Sciences to collaborate on climate change research and science communication.

2006

Carl Safina's third book, *Voyage of the Turtle, In Pursuit of the Earth's Last Dinosaur*, is published to critical acclaim.

Voyage of the Turtle, In Pursuit of the Earth's Last Dinosaur selected as a *New York Times* Book Review "Editors' Choice."

Carl Safina gives invited talk at the World Economic Forum in Davos, Switzerland on the status and future of fisheries and the oceans.

U.S. poet-laureate Billy Collins helps launch Blue Ocean's Sea Stories literary project with his poem "Coastline."

Carl Safina awarded George B. Rabb Medal from Chicago Zoological Society, Brookfield Zoo.

Carl Safina awarded Banimale Foundation Fellowship.

2005

Blue Ocean's Hawaii-based Marine Ecology and Fishery Specialist, Dr. Eric Gilman, produces "Catch Fish, Not Turtles," a booklet in several languages created to help fishermen avoid catching sea turtles while fishing.

Carl Safina receives an Honorary Doctorate from State University of New York.

Carl Safina co-authors' "U.S. Ocean Fish Recovery; Staying the Course," published in *Science* magazine.

2004

Mercédès Lee gives an invited talk at the World Bank, bringing global attention to ocean conservation and the importance of seafood sustainability as a food security concern.

Carl Safina and Sarah Chasis' "Saving the Oceans" published in *Issues in Science and Technology*.

2003

Blue Ocean Institute launched by MacArthur fellow Dr. Carl Safina and Mercédès Lee.

Carrie Brownstein, Mercédès Lee and Carl Safina's first fully transparent methodology for sustainable seafood ranking, "Harnessing Consumer Power for Ocean Conservation" published in *Conservation Magazine*.

Mercédès Lee wins Renewable Natural Resources Foundation Outstanding Achievement Award for her book *Seafood Lovers Almanac*.

Partnership established between Blue Ocean and Atlantis Marine World Aquarium in Riverhead, NY as the basis for a new education program.

Carl Safina's book *Eye of the Albatross, Visions of Hope and Survival* awarded John Burroughs Writer's Medal.

Carl Safina's *Eye of the Albatross, Visions of Hope and Survival* named "Year's Best Book for Communicating Science" by National Academies of Science, Medicine and Technology.

Carl Safina writes the foreword for a new edition of *The Sea Around Us* by Rachel Carson.

Carrie Brownstein, Mercédès Lee and Safina's "Harnessing Consumer Power for Ocean Conservation" published in *Conservation in Practice*.

Carl Safina receives Rutgers University George H. Cook Distinguished Alumnus Award as Most Distinguished Alumnus in 50-year history of the Ecology and Evolution Graduate Program.

MAKING WAVES

In 2015 we went way beyond ocean issues and way beyond our established audiences. Through television, radio, print, web outlets and social media, The Safina Center reached a diverse, global audience like never before.

CARL SAFINA – Articles, Excerpts, Essays, Media Coverage and Commentary

“Miley Cyrus Goes Wild,” *The Huffington Post*, October 6, 2015.

“What do animals think?” *The Week*, September 18, 2015.

“Making A Case For The Minds Of Animals,” *NPR.org*, September 11, 2015.

“The Ultimate Dolphin Trick,” *The Atlantic*, September 2015.

“A Gorilla Match (or 5) at the Bronx Zoo,” *The New York Times*, August 26, 2015.

“Notes from a Small Planet: Pity for Living Creatures,” *Jewish Currents*, August 25, 2015.

“Murdered: Cecil the Lion, Blaze the Yellowstone Grizzly,” *BigThink.com*, August 24, 2015.

“What’s Learned From the Killing of Blaze, the Grizzly Bear,” *The Huffington Post*, August 19, 2015.

“What Cecil the lion’s death represents to us,” *Boston Globe*, August 17, 2015.

Beyond Words, recommended by New York Public Library, August 12, 2015.

“A Surprise For You On The Beach,” *CNN.com*, August 7, 2015.

Beyond Words, book pick of the week, *The Week Magazine*, August 7, 2015.

“Read All About It: Sixth Annual Book Festival Is Big Draw for Authors and Readers,” *Vineyard Gazette*, August 3, 2015.

Beyond Words in recommended books roundup, *Scientific American*, August 2015.

“Cecil The Lion: A Big-picture Guide to Directed Outrage,” *The Huffington Post*, July 31, 2015.

“Animals as Social Beings Is Not Such a Wild Idea,” *Vineyard Gazette*, July 30, 2015.

“Three Cheers for Words and Writers: Book Festival Is Almost Here,” *Vineyard Gazette*, July 23, 2015.

Beyond Words recommended by Copperfield’s Books, *San Francisco Chronicle*, July 23, 2015.

“How to wolf-up,” *Cesar’s Way* – Cesar Millan’s Website, July 23, 2015.

“Arh-Wooo: Management According to Wolves,” *Forbes*, July 22, 2015.

“Here’s What Would Happen If Animals Could Talk,” *Time Magazine*, July 22, 2015.

“9 Titles Every Book Club Should Read,” *Kirkus e-newsletter*, July 21, 2015.

“Beyond Words: The selves of other animals,” *The Five Sparrows Foundation*, July 18, 2015.

“Animals Can Think And Feel Complex Emotions According To Author Carl Safina,” *Buzzfeed*, July 16, 2015.

“From Apes to Elephants, Wolves to Whales, a Tour of Animals’ Minds and Emotions,” *The New York Times* “Dot Earth” blog, July 15, 2015.

Beyond Words listed as notable new release, *Columbus Dispatch*, July 14, 2015.

Beyond Words, “NovaNext Week in Review” feature selection, *Nova.com*, July 11, 2015.

Yahoo! Health, pickup of New York Magazine “Science of Us” mention, July 11, 2015.

“The Depths of Animal Grief,” *NOVA*, July 8, 2015.

“Oil and Walrus Don’t Mix,” *National Geographic Voices – Ocean Views*, July 8, 2015.

“I Spent Thousands to Keep My Sick Cat Alive. I Don’t Think I’d Do It Again,” *New York Magazine’s* “Science of Us” blog, July 7, 2015.

“Twenty-one was “the perfect wolf”: He was a legend — he never lost a fight, and he never killed a vanquished rival,” *Salon.com*, July 4, 2015.

“Cognition: Recognizing in other species an awareness that goes without saying,” *Natural History Magazine*, July/August 2015.

“Population and Women Under-Recognized in Pope’s Encyclical. Applause Anyway,” *The Huffington Post*, June 18, 2015.

Beyond Words featured in Animal Book Roundup, *Chicago Tribune*, June 18, 2015.

“Breach the Snake River Dams,” *National Geographic Voices – Ocean Views*, June 15, 2015, by guest blogger Ken Balcomb.

Safina *New York Times* op-ed mention in “Primates of Park Ave” review, *Examiner.com*, June 7, 2015.

“Alpha Gets a Make Over,” *The Bark*, June 9, 2015.

“Tapping Your Inner Wolf,” *The New York Times*, June 5, 2015.

“Illicit Ivory: A Film Worth Watching,” *The Huffington Post*, June 1, 2015.

“Big Love: The emotional lives of elephants,” *Orion Magazine*, May/June 2015.

“Champion for Swordfish: Larry Sears,” *Hakai Magazine*, May 22, 2015.

“How to Get Our Fish Stocks Back,” Letter to the Editor, *New York Times*, May 18, 2015.

“The Good and The Bad for Atlantic Menhaden,” *National Geographic Voices – Ocean Views*, May 13, 2015. (Co-authored by Elizabeth Brown-Hornstein).

“The glorious moms of elephants and whales,” *CNN.com* Opinion, May 8, 2015.

“Deepwater Horizon: Why We Should Not Open New Areas to Drilling,” *The Huffington Post*, April, 24, 2015.

“A Sea In Flames,” *National Geographic Voices – Ocean Views*, April 20, 2015.

“Lemurs of Madagascar,” *National Geographic Voices – Ocean Views*, April 13, 2015.

Beyond Words listed in green book preview, *Publishers Weekly*, April 10, 2015.

“Recalling Peter Matthiessen,” *Orion Magazine*, April 2015.

“In the Agulhas,” *National Geographic Voices – Ocean Views*, March 30, 2015.

“Great White Sharks of Gansbaai: No Hooking, No Handling, No Harm,” *National Geographic Voices – Ocean Views*, March 25, 2015.

Beyond Words listed in bird book preview, *The Birder’s Library*, March, 9, 2015.

“Why U.S. East Coast Should Stay Off-Limits to Oil Drilling,” *Yale Environment 360*, February 23, 2015.

Library Journal, pre-publication alert, February 2, 2015.

“Can A Killer Whale Be A Slave?” *CNN.com*, February 4, 2015.

- "A Recipe for Seafood Survival," *The Huffington Post*, January 26, 2015. (Co-authored by Brett Jenks).
- "Wrong Time For Right Whales? Maybe Not," WDC Blog, January 28, 2015.
- "To Fight Disease, Protect the Ocean," *The Huffington Post*, January 9, 2015. (Co-authored by Ellen Prager).
- "Your Chance, Your Voice, On a Liquefied Gas Facility Off New York," *The Huffington Post*, January 7, 2015.
- "Obama Gives Bristol Bay Fishermen A Great Christmas Present!" *National Geographic Voices – Ocean Views*, January 5, 2015.

CARL SAFINA – Book Chapters and Forewords

- Safina, C. Foreword. *Ocean Country: One Woman's Voyage from Peril to Hope in her Quest To Save the Seas*. By Liz Cunningham. Berkeley: North Atlantic Books, 2015. Print.
- Safina, C. Ocean Policy. In: *Routledge Companion to Environmental Ethics*, 2015. Print
- Safina, C. and P. Paladines, in press. Oceans. In: *Routledge Companion to Religion and Ecology*, Jenkins, W. J., Tucker, M. E. and Grim, J, eds, 2015. Print
- Safina, C. in press. Oceans; Limits of Policy. In: *Routledge Companion to Environmental Ethics*, B. Hale and A. Light, eds, 2015. Print.

CARL SAFINA – Interviews

Print

- "Carl Safina On Wild Wolves And Bottle-Fed Squirrels," *NPR.org*, September 17, 2015.
- "Probing the Rich Inner Lives Of the Planet's Wild Animals," *Yale Environment 360*, August 13, 2015.
- "Interview With Ecologist and Author Carl Safina," *World Science Festival*, August 11, 2015.
- "The inner lives of animals: new book tackles a long-neglected mystery," *Mongabay.com*, August 7, 2015.
- "Yes, Animals Think And Feel. Here's How We Know," *NationalGeographic.com*, July 15, 2015.
- Deborah Kalb Books, Q&A, July 14, 2015.
- "Carl Safina Makes A Case for Anthropomorphism," *Audubon Magazine*, July 9, 2015.
- "5 Questions With Shark Stanley: Dr. Carl Safina," *Shark Defenders*, April 29, 2015.

Radio

- Soundcloud "Tommy Schnurmacher Show," September 10, 2015.
- WNPR "Where We Live," September 9, 2015.
- KPCC "Air Talk with Larry Mantle" (LA NPR), August 25, 2015.
- WATR "Talk of the Town with Larry Rifkin" (CT), August 18, 2015.
- WGCH AM 1490 "Lisa Wexler Show" (CT), August 17, 2015.
- WMNF "Talking Animals" (Tampa NPR), August 12, 2015.
- SiriusXM "Michelangelo Signorile Show," August 7, 2015.
- NewsTalk "Moncrieff Show" (Ireland), August 4, 2015.
- KFZR Community Radio "Ecotopia" (Chico, CA), August 4, 2015.
- KEXP "Mind Over Matters" (Seattle Public Radio), 30-minute interview, August 1, 2015.
- WLRN "Topical Currents" (Miami NPR), July 26, 2015.
- Utah Public Radio "Access Utah" (Local NPR), July 22, 2015.

- Texas Public Radio "The Source" (Local NPR), July 20, 2015.
- Syndicated Free America Radio "Steve Maggi Show," July 17, 2015.
- Jefferson Public Radio (Oregon), July 17, 2015.

24-City Nationwide Radio Satellite Tour, July 15, 2015

- WYRQ "Mindless Chatter," LIVE
- WNDB "Morning Drive," LIVE
- WOCM "Morning Show," LIVE
- WDUN "Morning Show," LIVE
- KQRS "Morning Show," Taped
- WDPN "In the Morning," LIVE
- WRNJ "Morning Program," LIVE
- KOGA "Midwest Opinions," LIVE
- KFRU "Morning News," LIVE
- WAMC/NPR "The Roundtable," LIVE
- KZOY "Breakfast Club," Taped
- KARN "First News," Taped
- WCBQ "Morning Show," Taped
- WDNG "Dog House Radio Show," Taped
- WHAS "Kentucky Focus," Taped
- KXYL "Big Show," Taped
- Internet Radio "Nicole Sandler Show," Taped
- Syndicated "Allan Handelman Show," Taped
- Syndicated "Unplugged & Totally Uncut," Taped
- KTEP "Prime Time," Taped
- KVCR "David Fleming Show," Taped
- WTMY "Book Talk" with Doug Miles, Taped
- KTTH "Ben Shapiro Show," Taped
- WKPT (ABC/ESPN affil), on-air review, July 14, 2015.
- WNYC "Lopate" (Local NPR), live 40-minute interview, July 13, 2015.

CARL SAFINA – Lectures, Keynotes, Workshops and Public Talks

- Jackson Hole Wildlife Film Festival, Jackson, WY
- Dalhousie University, Halifax, Nova Scotia, Canada
- Dana Point Ocean Institute, Dana Point, CA
- Seattle Aquarium, Seattle, WA
- Mission Blue II: Protecting the Ocean, The Journey Continues, Raja Ampat to Palau
- TedX, Washington, DC
- Purchase College, Purchase, NY
- Harvard Travellers Club, Cambridge, MA
- Ross School, East Hampton, NY
- Aquarium of the Pacific, Long Beach, CA
- Regina Maris Reunion, Port Townsend, WA
- East Hampton Authors Night, East Hampton, NY
- Frank Melville Park, The Bates House, Setauket, NY
- Martha's Vineyard Book Festival, Chilmark, MA
- Judd Foundation, NYC
- Amagansett Free Library, Amagansett, NY

Canio's Books, Sag Harbor, NY
 Google NYC
 Isabella Rossellini interviews Carl Safina, 192 Books, NYC
 Book Revue, Huntington, NY
 Aspen Center for Environmental Studies, Aspen, CO
 The Student Climate and Conservation Congress (Sc3)
 Emma Clark Library, Setauket, NY
 Stony Brook University, Stony Brook, NY
 Islip Public Library, Islip, NY
 Lindblad Expeditions Ship, National Geographic Orion, South Africa
 Marymount Manhattan College, NYC
 Ocean Night at The Explorers Club, NYC

Beyond Words Reviews

Publishers Weekly, May 11, 2015.
Library Journal, May 15, 2015.
Kirkus Reviews, STARRED review, June 1, 2015.
Booklist, STARRED Review, July 1, 2015.
Kirkus Reviews, Feature, July 1, 2015.
Elle Magazine, July 1, 2015.
Discover Magazine, July 1, 2015.
Psychology Today, July 5, 2015.
New Scientist, July 11, 2015.
Newsday, Review and online excerpt, July 12, 2015.
Popular Science, July 14, 2015.
East Hampton Star, July 14, 2015.
Columbus Dispatch, notable new releases, July 14, 2015.
BookPage, web exclusive review, July 14, 2015.
The Economist, July 17, 2015.
Open Letters Monthly, July 17, 2015.
Washington Post, July 17, 2015.
People, "People picks" Review, July 20, 2015.
USA Today, online exclusive review, July 28, 2015.
 LuanneRice.com, July 29, 2015.
 EcoLitBooks.com, July 29, 2015.
New York Times, Science Times review, August 4, 2015.
Slate, August 5, 2015.
Hub Magazine, August 5, 2015.
Sustainability: Science, Practice & Policy Journal, August 11, 2015.
NardiViews, August 14, 2015.
The Huffington Post, August 27, 2015.
The Brooklyn Rail, September 8, 2015.
The New York Review of Books, October 8, 2015.

Safina Center Blogs

Fishing Gear 101 Series, by Elizabeth Brown-Hornstein
 Trawls: Bulldozers of the Ocean
 Gillnets: The Entanglers
 Dredges: The Bottom Scrapers

Longlines: The Snaggers

"Help Horseshoe Crabs Live Another Million Years," by guest blogger, Mike Misner

"Shark Tagging Chronicles," Parts I, II and III, by guest blogger, Christine O'Connell

More Media Coverage – Carl Safina and The Safina Center

Carl Safina listed in 100+ Ocean Heroes, *ORIGIN Magazine*, September 2015.

"Two Stony Brook University Faculty Members – Carl Safina and Russell Mittermeier – Nominated for 2016 Indianapolis Prize, the Most Prestigious in Animal Conservation," SBU Happenings, August 26, 2015.

"A Little Fish with Big Impact In Trouble on U.S. West Coast," *Yale Environment 360*, June 18, 2015.

"6 Steps to Eating Healthier, More Sustainable Seafood," *Outside Magazine*, May 27, 2015.

"The Piscivore's Dilemma," *Outside Magazine*, May 22, 2015.

"Carl Safina Installed as Inaugural Safina Endowed Research Professor," SBU Happenings, March 2015.

"Vote Now: Simons Center Café and Safina Center for 2015 Local Heroes," SBU Happenings, January 2015.

PAUL GREENBERG – Publications and Interviews

"The Least Deadliest Catch," *Rodale's Organic Life*, September 21, 2015.

"Perfect Cast for a Vineyard State of Mind," *Vineyard Gazette*, September 10, 2015.

"A Tale of Three Seafood Sandwiches," *Hakai Magazine*, September 2, 2015.

"Huge Fish Farm Planned Near San Diego Aims To Fix Seafood Imbalance," NPR's *All Things Considered*, September 1, 2015.

"Where Have All the Fish Gone? Author Traces Local to Global," *Vineyard Gazette*, August 27, 2015.

"Spin the Globe: A Different Sort of Rio," *AFAR Magazine*, August 4, 2015.

"Fishermen Can Hook Polluters in Court," *The New York Times Room For Debate*, July 23, 2015.

"The Great Fish Swap': How America Is Downgrading Its Seafood Supply," NPR's *Fresh Air*, July 17, 2015.

"Being smart about shopping "organic" and buying seafood," *WHYY's Radio Times*, July 14, 2015.

"The Case For Eating Small Fish," *The New Yorker*, July 3, 2015.

"What I Wish My Father Had Taught Me About Fishing," *Hakai Magazine*, June 19, 2015.

"Three Simple Rules For Eating Seafood," *The New York Times Sunday Review*, June 13, 2015.

"Problems With Seafood Go Beyond Overfishing, Says 'American Catch' Author," *WBUR's Here & Now*, June 9, 2015.

"Other Fish to Fry," *Hakai Magazine*, April, 22, 2015.

"Why Is Some Of The Best Salmon Bypassing U.S. Consumers?" *Forbes Magazine*, March 31, 2015.

"Seven questions you should ask to try to make sure your fish wasn't caught by slaves," *PRI's The World*, March 26, 2015.

"The Fisherman's Dilemma," *California Sunday Magazine*, March 1, 2015.

"Q&A: Paul Greenberg, Author of the books *Four Fish* and *American Catch*," *Oceana Magazine*, Winter 2015.
"The Trouble with Asian Carp," *Garden and Gun Magazine*, February/March 2015.
"The Story of Our Seafood," WGBH *Innovation Hub*, January 15, 2015.

PAUL GREENBERG – Lectures, Keynotes, Workshops and Public Talks

UC Berkeley, Berkeley, CA
Aquarium of the Pacific, Long Beach, CA
Eco Trust, Portland, OR
Ocean Night, The Explorers Club, NYC
Martha's Vineyard Camp Meeting Association, Oak Bluffs, MA
Duke University, Durham, NC
University of Miami, Miami, FL
The Watershed Project, San Francisco, CA
Farm to Fork, Durham, NC
Monmouth University, West Long Branch, NJ
Bait to Plate, Grand Banks, NYC
Fishers Island, NY
Sustainable Seafood Week, NYC
Aspen Ideas Festival, Aspen, CO
Seattle's Town Hall, Seattle, WA
College of the Atlantic, Bar Harbor, ME

ELLEN PRAGER – Publications and Interviews

"Strange Neighbors: Galapagos Islands," *Alert Diver Magazine*, November 2015.
"The Myth of Coral Reef Relocation," *CNN.com*, September 2015.
"Science: What The Textbooks Don't Tell You," National Girls Collaborative Project, September 14, 2015.
"Corals Critical Role In Preventing Hurricane Damage," Interview on *The Weather Channel*, August 28, 2015.
"Bringing Earth and Ocean Science to the Public," *Eco Magazine*, July/August 2015.
"Corals Are Good For Your Health, with Dr. Ellen Prager," Interview on *Speak Up For Blue* Blog, July 15, 2015.
"After Sketchy Science, Shark Week Promises To Turn Over A New Fin," NPR's *Morning Edition*, July 6, 2015.
Interview on WFLA's *Daytime*, May 22, 2015.
The Shark Rider, Mighty Media Press, May 1, 2015.
"The Manatee's Hug," Mission Blue Blog, April, 28, 2015.
"Storytelling, Teens, and Science," Mighty Media Press Blog, March, 17, 2015.
"To Fight Disease, Protect the Ocean," *The Huffington Post*, January 9, 2015. (Co-Authored with Carl Safina)
The Shark Rider Kirkus Review, January 20, 2015.
"Rubio New Subcommittee Chair," *The Huffington Post*, January 26, 2015.
Interview on STEM Women on Fire, 2015.

ELLEN PRAGER – Lectures, Keynotes, Workshops and Public Talks

Aquarium of the Americas, New Orleans, LA
Harbor Branch Oceanographic Institution, Ft. Pierce, FL
Lunch and Learn, Rookery Bay, Naples, FL
Evening tide talk, Florida Aquarium, Tampa, FL
Lecture series, Aquarium of the Pacific, Long Beach, CA
Keynote speaker, STEM event for girls, AAUW, Naples, FL
Science series speaker, Tallahassee Science Society, Tallahassee, FL
Speaker, Science Communications, College William and Mary, Virginia
Underwater book reading and Q & A, The Florida Aquarium (3 times)
Evening lecture series, National Aquarium, Baltimore, MD
Tampa Bay Watch, Tampa, FL
Tech Track, STEM event, Eckerd College, St Petersburg, FL
Shark Con, Tampa, FL
Underwater book reading and Q & A, Georgia Aquarium
School visits, Naples and Orlando, FL
ARCS Foundation Event, Guest speaker, St. Petersburg, FL
Panelist, Kids Literature Blogger Conference, Baltimore, MD
Numerous Skype in the Classroom sessions with kids in U.S. and abroad

ELLEN PRAGER – Media

NBC News & The Today Show, MSNBC, Weather Underground (The Weather Channel), Daytime TV show, NPR, Cayman TV, Cayman News Service, Cayman radio, Cayman Compass

JOHN WELLER – Presentations, Publications and Films

National Center For Atmospheric Research, Boulder, CO
Open Studios, Boulder, CO
Yosemite Emergency Medical Conference, Yosemite, CA
Woodside Castle, Woodside, CA
Audubon Society Meeting, Boulder, CO
Colorado Ocean Coalition, Boulder, CO
Ocean First Divers, Boulder, CO
St. Julien Hotel, 30-print exhibition, Boulder, CO
CCAMLR Presentation, Hobart, Tasmania
Banff Book Festival. Banff, Canada (articles plus radio and newspaper interviews)
NASA Environmental Sciences Annual Meeting, San Jose, CA
First Thursday Art Event, Santa Barbara, CA
Friends of the Elephant Seal and Cambria GreenSpace Event, Cambria, CA
Moss Landing Marine Labs, Moss Landing, CA
Stanford University Bookstore, Stanford, CA
20-page Ross Sea photo story in *Geo Magazine* (Germany) April, 2015. Released in *Geo International* in December, 2015 in Hungary, Slovakia, Czech Republic, Bulgaria, Turkey, Estonia, Latvia, Lithuania, Finland, Spain, Italy and Russia. >

DEMIAN CHAPMAN & DEBRA ABERCROMBIE – Publications

Feldheim, K.A., Gruber, S.H., DiBattista, J.D., Babcock, E.A., Kessel, S.A., Hendry, A.P., Pikitch, E.K., Ashley, M.V., Chapman, D. D. 2014. Two decades of genetic profiling yields first evidence of natal philopatry and long-term fidelity to parturition sites in sharks. *Molecular Ecology* 23 (1):110-117.

Reyier, E.A., Franks, B.R., Chapman, D.D., Scheidt, D.M., Stolen, E.D., Gruber, S.H. 2014. Regional-scale migrations and habitat use of juvenile lemon sharks (*Negaprion brevirostris*) in the U.S. South Atlantic. *PLoS ONE* 9 (2), e88470.

O'Leary, S.J., Dunton, K.J., King, T.L., Frisk, M.G., Chapman, D.D. 2014. Genetic diversity and effective number of breeders of Atlantic sturgeon, *Acipenser oxyrinchus oxyrinchus*. *Conservation Genetics*. DOI: 10.1007/s10592-014-0609-9

Nalluria D., Baumann Z., Abercrombie D.L., Chapman, D.D., Hammerschmidt, C.R., Fisher, N. 2014. Methylmercury in dried shark fins and shark fin soup from American restaurants. *Science of the Total Environment* 496: 644–648.

Kessel, S.T., Chapman, D. D., Franks, B. R., Gedamke, T., Gruber, S. H., Newman, M.J., White, E. R., Perkins, R. G. 2014. Predictable temperature regulated residency, movement and migration in a large, highly-mobile marine predator. *Marine Ecology Progress Series* 514: 175-190.

Chapman, D.D., Feldheim, K.A., Papastamatiou, Y., Hueter, R.H. 2015. There and Back Again: A review of residency and return migrations in sharks, with implications for population structure and management. *Annual Reviews in Marine Science* 7: 547–570.

Ashe, J., Feldheim, K.A., Fields, A.*, Brooks, E.J., Skomal, G., Gruber, S.H., Chapman, D.D. 2015. Local population structure and context-dependent isolation by distance in a large coastal shark. *Marine Ecology Progress Series* 2015: 203-216.

O'Leary, S.J., Feldheim, K.A., Fields, A.T., Natanson, L.J., Wintner, S., Hussey, N., Shivji, M.S., Chapman, D.D. 2015. Genetic diversity of white sharks, *Carcharodon carcharias* in the Northwest Atlantic and southern Africa. *Journal of Heredity* 2014, 1–8.

Fields, A.T., Abercrombie, D.L., Eng, R., Feldheim, K.A., Chapman, D.D. 2015. A novel mini-DNA barcoding assay to identify processed fins from internationally protected shark species. *PloS one*, 10(2).

Malvezzi, A.J., Murray, C.S., Feldheim, K.A., DiBattista, J.D., Garant, D., Gobler, C.J., Chapman, D.D., Baumann, H. 2015. A quantitative genetic approach to assess the evolutionary potential of a coastal marine fish to ocean acidification. *Evolutionary Applications* 8(4): 352-362.

Madigan, D. J., Brooks, E. J., Bond, M. E., Gelsleichter, J., Howey, L. A., Abercrombie, D. L., Chapman, D. D. 2015. Diet shift and site-fidelity of oceanic whitetip sharks *Carcharhinus longimanus* along the Great Bahama Bank. *Marine Ecology Progress Series* 529:185-197.

Fields, A. T., Feldheim, K. A., Poulakis, G. R., Chapman, D. D. 2015. Facultative parthenogenesis in a critically endangered wild vertebrate. *Current Biology* 25(11): 446-447.

Brooks, E. J., Brooks, A. M., Williams, S., Jordan, L. K., Abercrombie, D., Chapman, D. D., Grubbs, R. D. 2015. First description of deep-water elasmobranch assemblages in the Exuma Sound, The Bahamas. *Deep Sea Research Part II: Topical Studies in Oceanography* 115: 81-91.

Watanabe, Y. Y., Goldman, K. J., Caselle, J. E., Chapman, D. D., Papastamatiou, Y. P. 2015. Comparative analyses of animal-tracking data reveal ecological significance of endothermy in fishes. *Proceedings of the National Academy of Sciences* 112 (19): 6104-6109.

Fields A.T., Feldheim, K.A., Gelsleichter, J., Pfoertner, C., Chapman, D.D. *Accepted*.

Population structure and cryptic speciation in bonnethead sharks, *Sphyrna tiburo*, along the North Western Atlantic. *Journal of Fish Biology*.

Portnoy, D.S., Puritz, J.B., Hollenbeck, C.M., Gelsleichter, J., Chapman, D.D., Gold, J.R. *Accepted*. Selection and sex-biased gene flow: philopatric sorting of adaptive alleles in bonnethead sharks (*Sphyrna tiburo*).

DEMIAN CHAPMAN & DEBRA ABERCROMBIE – Shark Fin ID Workshops

Hong Kong

Mainland China

Mozambique

Vanuatu

Fiji

Maldives

India

Taiwan

South Africa

The Safina Center Summary Statement of Financial Position

May 31, 2015

Assets

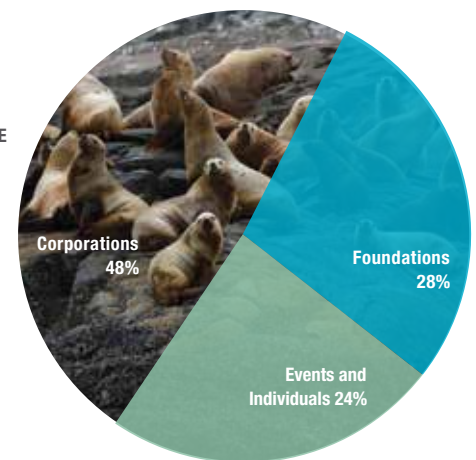
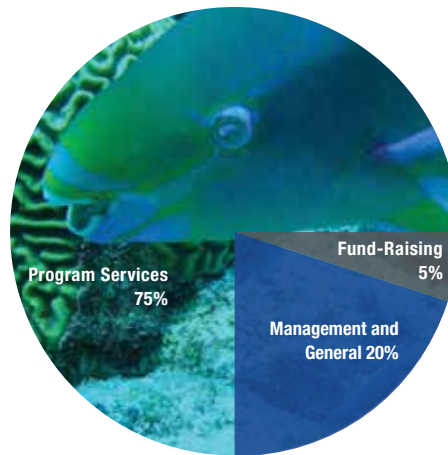
Cash And Interest Bearing Deposits	\$247,628
Investments	\$192,175
Contributions And Pledges Receivable	\$215,780
Other Assets	\$12,763
TOTAL ASSETS	\$668,346

Liabilities

Accrued Expenses	\$24,218
Fiscal Sponsorship	\$57,511
TOTAL LIABILITIES	\$81,729

Net Assets

Unrestricted	\$374,407
Temporarily Restricted	\$132,210
Permanently Restricted	\$80,000
Total Net Assets	\$586,617
TOTAL LIABILITIES AND NET ASSETS	\$668,346



The Safina Center Summary Statement of Activities

Year Ended May 31, 2015

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
PUBLIC SUPPORT AND REVENUE:				
Public support:				
Contributions	291,514	290,460	-	581,974
Revenue	57,346	-	1,900	59,246
Net assets released from restrictions	160,150	(158,250)	(1,900)	-
TOTAL PUBLIC SUPPORT AND REVENUE	509,010	132,210	-	641,220
EXPENSES:				
Program services	409,749	-	-	409,749
Supporting services:				
Management and general	112,618	-	-	112,618
Fund-raising	29,861	-	-	29,861
Total Supporting Services	142,479	-	-	142,479
TOTAL EXPENSES	552,228	-	-	552,228
Increase (Decrease) In Net Assets Before Other Increases	(43,218)	132,210	-	88,992
Other Decreases:				
Unrealized loss on investments	(13,048)	-	-	(13,048)
Increase (Decrease) In Net Assets	(56,266)	132,210	-	75,944
Net Assets, beginning of year	430,673	-	80,000	510,673
Net Assets, end of year	\$374,407	\$132,210	\$80,000	\$586,617

The Safina Center's complete audited financial statement may be obtained by writing to:
 Mayra Mariño, Business Manager
 The Safina Center
 #111 Nassau Hall,
 School of Marine and Atmospheric Sciences,
 Stony Brook University
 Stony Brook, NY 11794-5000

A HEARTFELT THANKS TO OUR SUPPORTERS!

Please accept our profound gratitude. Your support and partnership fueled our work in 2015, helping us broaden our reach to new audiences. Our aim is to create breakthroughs and transform values. Together, we will deliver the science, understanding and shift in attitude that can enable people and wildlife to better coexist now and in the future. WE SALUTE YOU!

Up to \$1,000

Richard Abbott
 Bill Akin
 Jane Alexander
 Anthony Allen
 Michael Ambrosino
 James Ammerman
 Max Anderson
 James Angley
 Nancy Badkin Antlitz
 Marilyn and John Paul Badkin
 Paula Houy Bailey
 Janice Badkin Elze
 Julia Bennett
 Judy and Ennius Bergsma
 Rodney Berens
 Jackie Black and
 Melanie Stiassny
 Elise Boeger
 John Boegman and
 Naomi Hadatsuki
 Jonas Bohn
 Robin Bolin
 Rema Boscov
 Waveney and
 Malcolm Bowman
 Angelica Braestrup
 Thomas Brightman
 Carrie Brownstein
 Azhar Butt and Nadia A. Aziz
 Elliot Cafritz
 Tom and Lee Caggiano
 Alyssa Satin Capucilli
 Chris Carrieri
 Mary Chapman
 David Chase

Sarah Chasis
 Pamela Childers
 John M. and Linda Clark
 Marlene Cole
 David Conover
 Adam Conover (in honor of
 Margaret Conover)
 Christine Cooke
 DeLaCour Family Foundation
 Sandra and Peter Desimone
 Robert Dezafra
 Anne Doubilet
 Dr. Sylvia Earle
 Martha Farmer and
 Steven Carhart
 Ruth and Peter Emblin
 Robert Fabricant
 Susan Cummings-Findel
 (Sunshine Comes First)
 Karen and Jack Finkenberg
 Kathy Fitzpatrick
 Flat Creek Fund
 Michael and
 Francesca Freedman
 Sandra and Rav Freidel
 Christine L. Gardiner
 Angus Gilchrist
 Marshall Gilchrist
 Ron Goodman
 Renee Gordon
 Jesse Grantham
 Amy Gulick
 Paul Hagen
 Steven Hardy
 Ann and Wayne Haskell
 Eric Hemion
 Deborah Heuckeroth, P.E.

Maureen Hinkle
 Shanna Hodgson
 Lyla Hunt
 Nancy Hwa
 Joseph and Jeanne Jehl
 Charles Joy
 Rainer Judd
 Jeff and Maria Kelber
 Bill and Anita Kerr
 Vajra Kingsley
 Jeffrey Levinton
 Florence and Roger Liddell
 Melanie Lighthall
 James and
 Alice Walker Loehlin
 Peter Looman
 Jon Luoma
 Robert Lugibihl
 Andrew Luk
 Douglas Luke
 Dr. Richard Machemer
 Cynthia and Ramy Mahmoud
 Michael Marino
 Jodi Maas
 Christopher Maraghy
 Paul Marsolini
 Kristin Mateo
 Molly Matlock
 J. Brian and Briege McConville
 David McLaughlin
 Brittany McGuckin
 Mermaid Universe
 Bill Miller
 Shana Miller
 Joan Miyazaki
 William Muhlenfeld
 Tom and Sally Murphy

New York Community Trust
 Fred Osborn
 Dana and Carol Oviatt
 PG&E Corp Fdn
 Michael Pahre
 Alison Pearson
 Edward Pembleton
 Dennis Percher
 Ellen Prager
 Nina Price
 Martin Puryear
 George and Mary Raab
 Patricia Rathmann
 Richard Reagan
 Fran Recht
 Andrew Reich
 Luanne Rice
 Alexandra Rose
 Andrea Rosen
 Frederic Sater
 Silas Seandel
 Dr. Marco Seandel and
 Dr. Julia A. Grimes
 Linda Shockley
 Rebecca Shuford
 David Smith
 Linda Smith
 Tove Smith
 Jeff and Diana Spendelow
 Aviv and Naomi Springer-Galst
 Jon Stanley
 Joanne and Robert Steneck
 Robert Strawbridge, III
 Daniel Stubbs
 Sucaro Bags, Inc.
 Paul Tate
 Michael Testa

Charles Thompson
 Rebecca Tindle
 Gail and Robert Turner
 Veterinarians International, Inc.
 Amanda Vincent
 Edwina Von Gal
 Kate Wessling
 Mr. and Mrs. John Winkler
 Marianne Wudarsky
 Judy Zabriskie

\$1,001 to \$5,000

Anonymous donor
 Scott and Karen Amero
 The Susan A. and Donald P.
 Babson Charitable Fdn
 Gregory Brendel
 Laurence Coe
 Keith Cockrum
 Howard Fischer
 Mr. and Mrs. B. Eric Graham
 Miscellaneous Individuals
 The May Foundation
 Roslyn and Jerome Meyer
 Norcross Wildlife Foundation
 Susan and Roy O'Connor
 Will Reeves
 The Repass-Rodgers
 Family Foundation
 Pauline and Rob Rosen
 Dr. Carl Safina
 Schmitz-Fromherz Family Fund
 Peter Spagnuolo
 Theodore Gordon
 Flyfishers, Inc
 Townsend Harris High School
 Cynthia Tuthill



Eric Graham, Safina Center Board Chair and Fellow Paul Greenberg share a joke with a friend at our 2014 Benefit at The Explorers Club. Photo by Mike Misner.



Andy Sabin (second from left) and friends at our 2014 NYC Benefit. Photo by Mike Misner.

\$5,001 to \$20,000

Andrew Sabin Family Foundation
Alfred and Jane Ross Foundation
Avalon Park and Preserve
Robert Campbell
Yvon Chouinard
The Community Foundation of Santa Cruz
The Goldie Anna Charitable Trust
Lindblad Expeditions
Mom's Organic Market, Inc.
New Chapter, Inc.
Scott McPhee
Ann Hunter Welborn and David Welborn (the San Diego Fdn)

\$20,001 to \$50,000

Robert Burleson
(In memory of Sue Burleson)
The Gelfond Fund for Mercury Research and Outreach/SBU
Nicholas Naylor-Leyland
Gillian and Peter Neumeier
Pew Charitable Trusts
Wallace Research Foundation
Walton Family Foundation

\$50,001 to \$300,000

Anonymous Fdn
National Fish and Wildlife Fdn
Resources Legacy Fund
Whole Foods Market, Inc.

In-Kind Contributions

Dan Barber – Blue Hill at Stone Barns
Elite Island Resorts
Ann and Wayne Haskell
Keith Lloyd Couture
Lindblad Expeditions
Dr. Carl Safina



Megan Smith meets her favorite comedian, Chevy Chase, at our 2014 Benefit. Photo by Mike Misner.

Elephants on the move. Photo by Carl Safina.



4 WAYS TO GIVE TO THE SAFINA CENTER

“Direct compassion and heart-filled work toward the living creatures of this planet.” –DR. ERIC GILCHRIST

In 2011, we established an endowment fund to honor the memory of our dear friend and board member, Dr. Eric Gilchrist. His steady support for The Safina Center has continued beyond his passing through a bequest that now serves as the seed for our endowment.

His generosity continues to inspire us.

There are four easy ways to contribute to The Safina Center.

1 ONLINE

Visit <http://safinacenter.org/donate>

2 TELEPHONE

631-632-3763

3 MAIL

Please send your tax-deductible donation to:

The Safina Center
Suite 111, Nassau Hall,
School of Marine and
Atmospheric Sciences
Stony Brook University
Stony Brook, NY 11794-5000

Please make your check payable to "The Safina Center."

4 TO CONTRIBUTE TO THE SAFINA CENTER ENDOWMENT FUND:

Please contact Jesse Bruschini, Vice President: 631-632-3763 or jbruschini@safinacenter.org.

The Safina Center is a 501(c) 3 non-profit organization based on Long Island, NY.



THE SAFINA CENTER CREW

SAFINA CENTER STAFF

Dr. Carl Safina, President
 Jesse Chapman-Bruschini, Vice President
 Mayra N. Mariño, Business Manager
 Elizabeth Brown-Hornstein, Research Scientist
 and Sustainable Seafood Program Director
 Megan Smith, Communications Manager

SAFINA CENTER FELLOWS

Debra Abercrombie
 Dr. Demian Chapman
 Paul Greenberg
 Dr. Ellen Prager
 John Weller

SUSTAINABLE SEAFOOD ANALYSTS

Caitlin Craig
 Tara Duffy
 Stacy Knight
 Katie May Laumann
 Alexia Morgan

ASSOCIATES

Dr. Eric Gilman, Marine Ecology and
 Fisheries Consultant

COMMUNICATIONS CONSULTANTS

Sharon Guynup
 Mike Misner
 Linda Shockley

GRAPHIC DESIGNERS & ILLUSTRATOR

John Blanchard - illustrator: Mercury Project and
Greenest of the Green blog
 Troy Cavaliere - graphic designer: TSC logo, Mercury
 Project & Annual Benefit designs
 iThree Graphic Design - Kimi Mischke, Margaret Mathers
 & Sharon Newsom: Annual Report

WEB DEVELOPER & PRINTER

Jeff Wayne - Wayne Printing, Inc.
 ZAO website developers - Justin Sainton, Liz Karaffa:
carlsafina.org and safinacenter.org

BOARD OF DIRECTORS

B. Eric Graham
 Chairman of the Board
 Carl Safina
 President
 Jeffrey F. Rizzo
 Treasurer
 Rainer Judd
 Sven-Olof Lindblad
 John (Jack) Macrae, III
 Richard Reagan (retired as of June, 2015)
 Jane Ross (new as of August, 2015)

Author and scientist Dr. Carl Safina founded The Safina Center (formerly Blue Ocean Institute) in 2003. The Safina Center is based in the School of Marine and Atmospheric Sciences at Stony Brook University on Long Island, NY and is a 501(c)3 nonprofit organization. We are also affiliated with the University's Alan Alda Center for Communicating Science.



“Jane is a true citizen of the world, ardent and impassioned about spreading great ideas to those who need to know.”

— Carl Safina

Jane Ross in one of her favorite places: Central Park, NYC. Photo by Alfred Ross.

JANE ROSS

A Hummingbird Leads to Friendship and a New Board Member

Jane Ross's journey to becoming a Safina Center board member began with a hummingbird on a migration gone awry. It was a Rufous hummingbird (*Selasphorus rufus*) to be exact, wearing the green and brownish-red feathers of the female of the species. The bird had drifted off-course during her migration from Alaska to Baja California and Mexico, and spent the winter in East Hampton, New York.

Ross, an advanced amateur birder, explains, “We found her outside our home and enlisted a group of people who helped to keep her well fed during the snowstorms of December and January when she stayed with us.”

She adds, “I also invited a group from the American Bird Conservancy to visit and see ‘Georgie Girl,’ the name we gave her after finding her on Georgica Road in East Hampton. Carl was among this group of birders and scientists. He later called to thank me and gave me a copy of ‘Lazy Point.’ My husband and I loved ‘Lazy Point’ and then we were hooked. We promptly read his other books and we’ve been friends with Carl ever since.”

Ross is vice-president and principal program officer of the Alfred and Jane Ross Foundation. She describes her philanthropic philosophy as “providing support where it can make a real difference.” That’s why, she says, she supports The Safina Center.

She explains, “We’re a small family foundation and we try to support work that can have a significant impact. For this reason, we take great pleasure in supporting The Safina Center and the School of Marine and Atmospheric Sciences (SOMAS), both at Stony Brook University. Carl is pretty unique in what he brings to the table. There’s so much noise out there and he writes so beautifully about the natural world, to communicate and educate with real science. Without the science, we can’t sustain and preserve the natural world.”

Ross is also a member of the Dean’s Council at SOMAS and for Stony Brook’s Southampton Campus. In addition to her love of science and the natural world, she also has a passion for languages and music.

Complementing her love of music and education, Ross is a longtime member of the board of directors for the Interschool Orchestras of New York, the Young Concert Artists and Pianofest, all of which provide high-level training and performance opportunities for young musicians.

Ross’s love of languages became her career and a philanthropic focus. She taught at Lycée Français de New York for 30 years. When she “retired,” she developed a program for French-speaking immigrants, called the French Heritage Language Program, for which she serves as president. Created in 2005, it provides students with free French classes in public schools and

community centers. It currently serves students in Boston, Maine, Miami and New York City.

“Most of the students in the program hail from West Africa and Haiti, and live in areas where no other French language programs, whether dual language or private, are available or affordable to them,” says Ross. “In other words, without our classes, these students would simply not have the possibility to continue learning French in the United States. The program also helps them translate their language skills into college and career skills.”

In addition to her work on The Safina Center board of directors, Ross has served as a trustee at the American University of Paris since 2010. This arts and sciences university serves approximately 1,200 undergraduate and graduate students. As a member of its board of trustees, Ross currently co-chairs the Committee on Academic Affairs and serves on the Trustee Matters Committee.

Her philanthropic efforts in languages, music and science often unite in creative ways. For example, the Alfred and Jane Ross Foundation provided support for an exchange program for marine research students between the American University of Paris and SOMAS. And she’s currently looking for ways to connect The Safina Center with an environmental program at the American University of Paris — stay tuned!



“With all the evidence from comparative brain studies and detailed field observations, why are some people still unwilling to acknowledge that other animals think and feel in ways similar to humans? Part of the answer is that admitting animals have complex inner lives makes it more difficult to abuse and exploit them.”

—Carl Safina

The Safina Center
A Voice for Nature

The Safina Center
(formerly Blue Ocean Institute)
Nassau Hall, Suite 111
School of Marine and Atmospheric Sciences
Stony Brook University
Stony Brook NY 11794-5000
www.safinacenter.org
admin@safinacenter.org
631-632-3763

