



# UNIVERSITY OF HAWAII SYSTEM

## Legislative Testimony

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Testimony Presented Before the  
Senate Committees on Agriculture and Environment and Water and Land  
Wednesday, March 17, 2021 at 1:10 p.m.

By  
Judy Lemus, PhD  
Interim Director  
Hawai'i Institute of Marine Biology  
School of Ocean and Earth Science  
and Technology  
University of Hawai'i at Mānoa

### HB 553 HD2 – RELATING TO THE PROTECTION OF SHARKS

Chairs Gabbard and Inouye, Vice Chairs Nishihara and Keith-Agaran, and members of the Committees:

The Hawai'i Institute of Marine Biology (HIMB) recognizes the ecological and cultural importance of sharks in Hawai'i and supports the intent of this measure to help protect sharks within state waters but wishes to offer the following comments. Scientific research is a critical tool for understanding the behaviors and ecology of sharks, as well as any potential anthropogenic threats that could impact their survival. HIMB catch and release records show that all size ranges of sharks are captured during scientific fishing – from neonates to very large adults approaching maximum size, which is a sign of a healthy population. Recent data (2017) obtained via remote underwater camera systems also suggests that shark populations in Hawai'i may be utilizing deep water refugia, which could result in underestimation of some species using only traditional visual surveys done by divers.

Shark research at University of Hawai'i has always promoted and contributed to the conservation of sharks in Hawai'i. For example, early tracking research conducted by HIMB scientists (and funded by DLNR) provided information that led to endorsement by a Governor's Shark Task Force and subsequent change in state policy to no longer conduct shark hunts after shark attacks. This single piece of research alone has probably saved several hundred sharks since the policy was adopted. Tracking research also uses barbless hooks and releases all animals alive and unharmed. More recently, DLNR also requested and funded HIMB research on Maui to investigate the reasons behind the higher incidence of shark attacks on that island. These results have been published and disseminated through local media.

All of this research for the past two decades has been conducted under the review of an Institutional Animal Care and Use Committee (IACUC). IACUC oversees all vertebrate (including sharks) research in Hawai'i to comply with rigorous federal policies set forth by

the National Institutes of Health. IACUC requires scientists to explain the reason why the research is worthwhile and to ensure humane and appropriate treatment of the animals - for instance, to specify the manner in which they are captured and restrained (such as using barbless hooks and inducing tonic immobility by placing the animals upside down while still in the water) and appropriate attachment of tags (using mixed metals that corrode over time and allow for the tag to fall off). The protocols are reviewed by veterinarians, scientists, and non-scientists.

UH previously supported version HB 553 HD1 of this bill, which included exemption for researchers operating under an IACUC protocol, and would request a return to similar language in the bill:

(f) This section shall not apply to:

- (1) Special activity permits issued under section 187A-6; or to research overseen by a state approved institutional animal care and use committee (IACUC).

Aloha Legislators,

**I am writing to you today to oppose the HB553 HD2 bill relating to shark protection.** My name is Chloé Blandino, and I am a graduate student at the University of Hawaii at Manoa in the Hawaii Institute of Marine Biology Shark Lab. Although the HB553 bill may have been drafted with the intention to promote shark conservation, the language of this bill actually sets in place higher hurdles to jump for **accredited researchers** who are already **legally permitted** and well equipped with the necessary tools needed to provide resource managers with fact-based information as it pertains to shark conservation.

In passing a bill that would only complicate the bureaucratic process current researchers navigate to gain approval for their studies, you will effectively be limiting the overarching goal of pushing for environmental sustainability policies which are **factually-based**. Legislation enacted based on unsubstantiated viewpoints is detrimental to true research initiatives. Shark researchers who conduct legitimate studies under nationally qualified educational institutions are required by law to have an IUCUC permit. This permit ensures that the species and number of sharks used in science-based studies are justified, and that the practices implemented in these studies are ethical. Furthermore, there is no science-based evidence supporting a need to enact the HB553 bill in state waters, where no current shark-based fishery operates. Coastal shark meat is not sold in Hawaii, and shark finning is currently banned under existing laws. **Sharks are already well-protected**; for roughly 67% of the Hawaiian chain, fishing is banned (Papahānaumokuākea Marine National Monument). Global shark populations are primarily in decline due to poorly regulated high seas fishing or intensive targeted fishing. Neither of these issues actually applies to Hawaii. **Fishing methods used to target sharks are widely used to target other species**, placing local fishers in potentially unfair positions legally. Additionally, DLNR has testified that it cannot enforce such legislation, because of the lack of required resources. The bottom line is that nothing in this bill addresses real concerns pertaining to shark protection, and it fails to **redirect the emphasis of protection efforts towards local shark bycatch**. Local fishers have participated in the tagging and releasing of by-caught sharks, helping to aid our understanding about survival rates. However, at risk of prosecution, this bill would effectively de-incentivize community-based efforts.

In order to accomplish goals that ensure the health of shark populations in Hawaii, and ensure legitimate shark research is not disrupted (thus providing the framework for the most effective conservation policies), I suggest strongly opposing the HB553 bill. **We need to:** (1) engage all stakeholders in the process via community hearings, (2) quantify the type, volume and impact of human interactions with sharks, (3) focus conservation measures on activities that have the largest impact on sharks, and (4) identify and implement practical solutions where these activities threaten the health of local shark populations or are unnecessarily wasteful, or destructive. Practical solutions should include stakeholder engagement to reduce negative impacts on sharks in addition to carefully crafted legislation that addresses specific threats with clearly enforceable regulations.

I respectfully urge you to consider the ramifications of this type of anti-science initiative, both as a graduate student conducting research that is beneficial to the conservation and management of sharks, and as a young woman helping to pave way for, and encouraging other young women to pursue STEM careers.

Mahalo,

Chloé Blandino

**HB553 HD2  
RELATING TO THE PROTECTION OF SHARKS**

Ke Kōmike ‘Aha Kenekoa o ka ‘Oihana Mahi‘ai a me ke Ao Kūlohelohe  
Senate Committee on Agriculture and Environment  
Ke Kōmike ‘Aha Kenekoa o ka Wai a me ka ‘Āina  
Senate Committee on Water and Land

Malaki 17, 2021

1:10 p.m.

Lumi 229

The Office of Hawaiian Affairs (OHA) **SUPPORTS** HB553 HD2, which would prohibit individuals from knowingly killing, capturing, or harming culturally and ecologically significant manō (sharks) in state waters, subject to certain exceptions. **OHA does offer comments below, to address certain exceptions in the current draft of this bill that may unnecessarily limit its enforceability and effectiveness.**

**OHA supports strong protections for manō, which are culturally important and serve critical ecological functions.** Hawai‘i’s manō species hold great cultural significance for Native Hawaiians. Manō serve as the kinolau, or physical forms, for two prominent akua, Kū and Kanaloa. Manō are also associated with many other akua and are regarded as ‘aumakua, or family guardians and incarnations, by some ‘ohana. Manō are prominently featured throughout Hawaiian mo‘olelo (oral history), ka‘ao (legends), ‘ōlelo no‘eau (proverbs), and other cultural narratives; indeed, their symbolism and survival are key to explaining and informing Hawaiian perspectives of the natural environment and kinship. Moreover, manō serve critical ecological functions as apex predators. By controlling fish populations, manō help mālama the healthy ocean environment that is necessary for the continuation of Native Hawaiian cultural and subsistence practices. **Accordingly, OHA appreciates the enhanced protections provided in HD2 for the curbing of unnecessary manō deaths in state waters.**

OHA notes that manō are used in some Native Hawaiian traditional and customary practices, including in the crafting of certain implements, weapons, and ceremonial objects. Therefore, **OHA further appreciates that this measure explicitly allows for the continuation of such cultural practices.**

Additionally, OHA offers the following comments for the Committees’ consideration:

**First, OHA does have concerns regarding the “incidental take” exception within the HD2 version of this measure, which could potentially hinder its enforcement and effectiveness.** While OHA appreciates the desire to avoid punishing fishers for the incidental take of manō, such an explicit exception may be unnecessary, and may further render this measure largely unenforceable. Notably, similar explicit exceptions have not been found necessary to prevent imposing liability on fishers for the truly incidental take of protected species such as honu (green

sea turtles)<sup>1</sup> or ‘īlioḥoloikauāua (monk seals).<sup>2</sup> **Fishers who are truly targeting non-protected species and who immediately release incidentally hooked or taken protected species such as honu or out-of-season fish are not held liable for an unlawful “take” despite the lack of an explicit statutory or regulatory incidental take exception, such as that found in the current draft of this measure.** Moreover, the existing mental state requirement of “knowingly” taking or entangling sharks will already preclude liability for negligently or even recklessly taking or entangling a shark. Meanwhile, individuals specifically targeting and even killing manō could nonetheless claim that they were targeting another predatory fish, and thereby avoid liability under this measure and its explicit incidental take exception. **Accordingly, OHA strongly urges the Committee to consider removing the incidental take exception found on page 4, lines 8-9 and 20-21, in the current draft of this measure.**

Second, OHA similarly questions the need for the exception for subsistence fishing of manō by permit. OHA notes that the existing exemption of Native Hawaiian traditional and customary practices from this measure would already accommodate traditional and customary subsistence manō fishing by Native Hawaiians. Moreover, the extremely limited amount of subsistence shark fishing currently occurring, as noted in the preamble to this measure, weighs against the need to expand subsistence fishing beyond that which may occur as a Native Hawaiian traditional and customary practice. **The existence of a subsistence fishing permit may only provide a mechanism by which “trophy” shark fishing or the hunting of sharks for non-subsistence purposes by certain individuals may be allowed notwithstanding the intent of this bill.** Accordingly, OHA also urges the Committee to also consider removing the subsistence fishing exception found on page 4, lines 4-7 and page 5, lines 4-6, in the current draft of this measure.

Finally, OHA expresses its appreciation for the changes made in the HD2 draft, to allow for the review of shark related research activities by DLNR and Native Hawaiian cultural practitioners. This process would allow for the vetting of proposed research activities by appropriate experts and stakeholders to best manage our ecologically and culturally significant manō species.

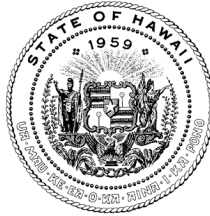
Accordingly, OHA urges the Committees to **PASS** HB553 HD2, with consideration of the additional comments above. Mahalo nui for the opportunity to testify on this measure.

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<sup>1</sup> Haw. Admin. R. §13-124.

<sup>2</sup> HRS § 195D-4.5.

DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

**Testimony of**  
**SUZANNE D. CASE**  
**Chairperson**

**Before the Senate Committees on**  
**AGRICULTURE AND ENVIRONMENT**  
**and**  
**WATER AND LAND**

**Wednesday, March 17, 2021**  
**1:10 PM**

**State Capitol, Via Videoconference, Conference Room 229**

**In consideration of**  
**HOUSE BILL 553, HOUSE DRAFT 2**  
**RELATING TO THE PROTECTION OF SHARKS**

House Bill 553, House Draft 2 proposes to establish an offense of knowingly capturing, entangling, or killing a shark in state marine waters; provides penalties and fines; provides certain exemptions; and requires the Department of Land and Natural Resources (Department) to establish rules to achieve certain objectives. **The Department supports this measure and provides the following comments.**

The Department recognizes the important role sharks play in maintaining healthy marine ecosystems, and the detrimental impact from significantly depleting their populations. The Department also recognizes the importance of these species for native Hawaiian cultural beliefs and practices, as well as their value for ocean recreation and tourism.

In Hawaii, sharks are infrequently caught and retained by subsistence fishers. Existing levels of subsistence take in state waters do not pose a threat to nearshore shark populations. On the other hand, indiscriminate fishing gear and wasteful fishing practices have avoidable adverse impacts on shark populations and should be better regulated. The Department supports allowing limited take of sharks for subsistence purposes through a permitting system to allow for pre-approved subsistence harvest of sharks. The Department also supports allowing scientific shark research to continue through our existing Special Activity Permit process.

Thank you for the opportunity to comment on this measure.

**SUZANNE D. CASE**  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

**ROBERT K. MASUDA**  
FIRST DEPUTY

**M. KALEO MANUEL**  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

**HB-553-HD-2**

Submitted on: 3/14/2021 9:09:44 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Jim Hori, DDS	Testifying for Lokahi Fishing, LLC	Oppose	No

Comments:

I strongly oppose HB553 because it threatens our local fishing while not protecting sharks. There has been no collaboration with fishers and managers for transparency for their feedback. This bill is vague, unenforceable and creates jeopardy because normal fishing methods may catch sharks as a bycatch. DLNR lacks the resources or desire to enforce this action. Sharks are already protected by existing laws and are tagged and released to help understand post release survival rates.

Mahalo,

Jim Hori, DDS

Founder, Lokahi Fishing, LLC



**HB-553-HD-2**

Submitted on: 3/15/2021 10:54:19 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Shelby Serra	Testifying for Pacific Whale Foundation	Support	No

Comments:

Testimony to the Hawaii State Senate Committee on Water & Land

March 17th, 2021

1:10 pm

Hawaii State Capitol – Conference room 229

RE: HB 553, Relating to the Protection of Sharks

Aloha Chair Inouye, Vice-Chair Keith-Agaran, and members of the Committee,

Thank you for the opportunity to submit testimony on House Bill 533.

My name is Shelby Serra and I am the Conservation Coordinator for Pacific Whale Foundation, based on the island of Maui. For the last 40 years, Pacific Whale Foundation's (PWF) mission has been to protect the ocean through science and advocacy, and to inspire environmental stewardship. Our nonprofit work includes active research, education, and conservation projects here in Hawai'i and abroad in Australia and Ecuador.

On behalf of our nearly 20,000 supporting members, PWF would like to support HB 533, establishing an offense of knowingly capturing, entangling, or killing a shark in State marine waters.

We acknowledge the important role sharks play in the health of ocean ecosystems around the globe. A recent report has found there has been over 70% decline in oceanic sharks and rays in the last 50 years, due in large part to overfishing (1). Sharks balance the ocean ecosystem; the decline of large apex predatory sharks impacts lower tropic level ecosystems (2), such as those found in the coastal waters of Hawai'i.

Sharks are often referred to as apex predators. Apex predators impact population dynamics by not only consuming prey, but they control the spatial distribution of potential prey through intimidation (3). Fear of shark predation causes some species to

alter their habitat use and activity level, leading to shifts in abundance in lower tropic levels (3). This is particularly important as the State continues to increase its resiliency to climate change impacts by protecting biodiversity, and as we become more independent of major imports through support of small-scale fisheries.

One study compared sharks around the uninhabited Northwestern Hawaiian Islands (NWHI) and those in main Hawaiian Islands (MHI). The results showed a larger number of fish surrounding the NWHI, with apex predators making up over half the fish biomass, while in the waters surrounding the MHI, these same apex predators were less than 10% of the fish biomass (3). Locations with greater apex predator biomass also showed a high biomass of herbivorous fish (3), which help keep coral reef ecosystems, and therefore the ocean, healthy.

Pacific Whale Foundation believes that protecting sharks from the intentional capture, entanglement, or killing in State marine waters will help to keep marine resources abundant and ecosystems healthy.

Thank you for the opportunity to testify on HB 553.

## References

1. Pacoureau, N., Rigby, C.L., Kyne, P.M. et al. Half a century of global decline in oceanic sharks and rays. *Nature* 589, 567–571 (2021).  
<https://doi.org/10.1038/s41586-020-03173-9>
2. Census of Marine Life  
[http://www.coml.org/discoveries/trends/shark\\_decline\\_effects.html](http://www.coml.org/discoveries/trends/shark_decline_effects.html)
3. Griffin, E., Miller, K.L., Freitas, B. and Hirshfield, M. *Oceana Report - Predators as Prey: Why Healthy Oceans Need Sharks* (2008).



**THE HUMANE SOCIETY**  
OF THE UNITED STATES



**HUMANE SOCIETY**  
INTERNATIONAL

**TO:** Senator Mike Gabbard, Chair  
Members of the Senate Committee on Agriculture and Environment

Senator Lorraine R. Inouye, Chair  
Members of the Senate Committee on Water and Land

**In Support of:** HB 553; Relating to the Protection of Sharks

**Date:** March 17, 2021

**From:** Lindsay Vierheilig, State Director, The Humane Society of the United States

Dear Chair Gabbard, Vice Chair Nishihara, and Members of the Committee on Agriculture and Environment and Chair Inouye, Vice Chair Keith-Agaran, and Members of the Committee on Water and Land,

On behalf of The Humane Society of the United States, Humane Society International, and our members and supporters across Hawaii, we urge your support of HB 553, which would impose penalties for anyone who knowingly captures, takes, or kills sharks in state waters except for a few specific exemptions, such as research purposes, under DLNR issued Special Activity Permits, exercising native Hawaiian gathering rights and cultural practices, and at the discretion of DLNR for specific, emergency public safety reasons.

**Why sharks need protection:**

- Hawaii is one of the first states to prohibit shark finning. In 2010, Hawaii became the first state to enact a ban on the sale of shark-fins or fin products. To this date, over a dozen states have adopted similar measures following Hawaii's footsteps. HB 553 would further complement existing law, which has now become a global initiative, and further maintain Hawaii's global conservation leadership in shark and marine conservation. While current laws prohibit the possession or sale of shark fins or fin products there is no law preventing the capture, abuse, or killing of sharks in state waters.
- The number of shark and ray landings globally increased by 227% from 1950 to 2003.<sup>1</sup> However, actual number of animals killed is much larger since these data represent when animals are caught and brought to shore (landed) and do not account for illegal catches or discards.
- One quarter of shark and ray species are threatened with extinction due to overfishing and other fishing threats.<sup>2</sup>
- Tens of millions of sharks are estimated to be killed annually for their fins. While anti-finning laws are designed to halt further shark population declines, many species are still threatened and face possible extinction. Recent research from the University of Hawaii<sup>3</sup> has shown that many species of shark, such as tiger and hammerhead, frequent state waters, especially the marine shelf around Maui, and are faced with numerous threats most notably humans and pollution.

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<sup>1</sup> IUCN Shark Specialist Group. Questions and Answers.

<sup>2</sup> <http://www.iucnssg.org/global-conservation-status-of-sharks-and-rays.html>

<sup>3</sup> <https://www.voanews.com/a/2641635.html>

- There is no directed commercial shark fishery in Hawaii state waters. HB 553 would not be expected to have a negative economic impact on commercial fishing interests. Commercial fisheries operating in federal waters reported catching 85,067 sharks and releasing 84,441 of them.<sup>4</sup>
- This measure does NOT preempt or impact federal fishing laws, and only applies to Hawaii state waters.
- With the growing number of interactions between ocean users and sharks, this measure would prevent consideration of ineffective mass culling efforts and those individuals who may target sharks due to misinformation. Cases involving cruelty against sharks in recent years<sup>5</sup> have prompted public outcry and highlighted public desire for strong penalties for cruelty against sharks.<sup>6</sup>
- Sharks are apex predators and play a vital role in maintaining the balance of marine ecosystem. Research has found that massive removal of sharks has a cascading effect throughout the ecosystems that they inhabit.
- Sharks share life history traits that make them particularly vulnerable to overexploitation and population collapse.<sup>7</sup> These include slow growth; low fecundity; few, well-formed young; long gestation period; and delayed age at first reproduction that together are known in the ecological literature as a “K-selected life history”.<sup>8</sup>

**Thank you for the opportunity to testify on this important marine conservation issue. We urge swift passage of HB 553.**

Sincerely,



Lindsay Vierheilig  
Hawaii State Director  
808-462-3561

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<sup>4</sup> [http://www.pifsc.noaa.gov/fmb/reports/hlreports/areport\\_items.php?yr=2014&type=tbl&num=1](http://www.pifsc.noaa.gov/fmb/reports/hlreports/areport_items.php?yr=2014&type=tbl&num=1)

<sup>5</sup> Video of tiger shark torture sparks outcry in Hawaii. [https://www.huffingtonpost.com/2013/09/13/shark-torture-video- n\\_3922319.html](https://www.huffingtonpost.com/2013/09/13/shark-torture-video- n_3922319.html)

<sup>6</sup> Three Florida men charged for shark dragging. <http://www.foxnews.com/us/2017/12/12/3-florida-men-charged-in-shark-dragging-video.html>

<sup>7</sup> Ebert, D.A. 2001. Sharks, Rays, and Chimaeras of California. University of California Press.

<sup>8</sup> Hoenig, J.M. and Gruber, S.M. 1990. Life-History Patterns in the Elasmobranchs: Implications for Fisheries Management *in* Elasmobranchs as Living Resources: Advances in the Biology, Ecology, Systematics, and the Status of the Fisheries (H.L. Pratt Jr., S.H. Gruber, and T. Taniuchi, eds.) NOAA Technical Report 90 (1990).

Below is a list of species of sharks that may be found in Hawaii waters.

**Hawaii Shark Species List:** <http://dlnr.hawaii.gov/sharks/hawaii-sharks/species-list/>

(EN: Endangered; VU – Vulnerable; NT – Near Threatened; LC: Least Concern; DD – Data Deficient)

## **Sharks**

### **Order Orectolobiformes**

#### **Family Rhincodontidae**

Whale shark, *Rhincodon typus*, VU

### **Order Carcharhiniformes**

#### **Family Scyliorhinidae**

Sponge-headed cat shark, *Apristurus spongiceps*, DD

#### **Family Pseudotriakidae**

False cat shark, *Pseudotriakis microdon*, DD

#### **Family Carcharhinidae**

Bignose shark, *Carcharhinus altimus*, DD

Gray reef shark, *Carcharhinus amblyrhynchos*, NT

Silky shark, *Carcharhinus falciformes*, NT

Galapagos shark, *Carcharhinus galapagensis*, NT

Blacktip shark, *Carcharhinus limbatus*, NT

Oceanic whitetip, *Carcharhinus longimanus*, VU

Blacktip reef shark, *Carcharhinus melanopterus*, NT

Sandbar shark, *Carcharhinus plumbeus*, VU

Tiger shark, *Galeocerdo cuvier*, NT

Blue shark, *Prionace glauca*, NT

Whitetip reef shark, *Triaenodon obesus*, NT

#### **Family Sphyrnidae**

Scalloped hammerhead, *Sphyrna lewini*, EN

Smooth hammerhead, *Sphyrna zygaena*, VU

### **Order Lamniformes**

#### **Family Odontaspidae**

Smalltooth sand tiger shark, *Odontaspis ferox*, VU

Bigeye sand tiger shark, *Odontaspis noronhai*, DD

#### **Family Pseudocarchariidae**

Crocodile shark, *Pseudocarcharias kamoharai*, NT

#### **Family Megachasmidae**

Megamouth shark, *Megachasma pelagios*, DD

#### **Family Alopiidae**

Pelagic thresher shark, *Alopias pelagicus*, VU

Bigeye thresher shark, *Alopias superciliosus*, VU

#### **Family Lamnidae**

White shark, *Carcharodon carcharias*, VU

Short-finned mako, *Isurus oxyrinchus*, VU

Longfin mako, *Isurus paucus*, VU

### **Order Hexanchiformes**

#### **Family Hexanchidae**

Frilled shark, *Chlamydoselachus anguineus*, NT

Bluntnose sixgill shark, *Hexanchus griseus*, NT

## **Order Squaliformes**

### **Family Echinorhinidae**

Prickly shark, *Echinorhinus cookei*, NT

### **Family Dalatiidae**

Combtooth dogfish, *Centroscyllium nigrum*, DD

Kitefin shark, *Dalatias licha*, NT

Blurred smooth lantern shark, *Etmopterus bigelowi*, LC

Blackbelly lantern shark, *Etmopterus lucifer*, LC

Smooth lantern shark, *Etmopterus pusillus*, LC

Hawaiian lantern shark, *Etmopterus villosus*, LC

Pygmy shark, *Euprotomicrus bispinatus*, LC

Cookiecutter shark, *Isistius brasiliensis*, LC

Viper dogfish, *Trigonognathus kabeyai*, DD

Velvet dogfish, *Scymnodon squamulosus*, DD

### **Family Centrophoridae**

Mosaic gulper shark, *Centrophorus tessellatus*, DD

Gulper shark, *Centrophorus granulosus*, VU

### **Family Squalidae**

Shortspine spurdog shark, *Squalus mitsukurii*, DD

**HB-553-HD-2**

Submitted on: 3/16/2021 10:31:49 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lisa Bishop	Testifying for Friends of Hanauma Bay	Support	No

Comments:

To: COMMITTEE ON AGRICULTURE AND ENVIRONMENT

Senator Mike Gabbard, Chair

Senator Clarence K. Nishihara, Vice Chair

To: COMMITTEE ON WATER AND LAND

Senator Lorraine R. Inouye, Chair

Senator Gilbert S.C. Keith-Agaran, Vice Chair

From: Friends of Hanauma Bay

Re: HB553 HD2 RELATING TO THE PROTECTION OF SHARKS

POSITION: STRONG SUPPORT WITH AMENDMENTS

Hearing: Wednesday, March 17, 2021 1:10 PM Conference Room 229 and Videoconference

Aloha Chair Gabbard, Vice Chair Nishihara, and Members of the AEN Committee; Chair Inouye, Vice Chair Keith-Agaran, and Members of the WTL Committee:

Friends of Hanauma Bay strongly supports HB553 HD2 providing important protection for sharks, with the following amendments:

1) Page 1, 2, Amend preamble to clarify that: "The purpose of this Act is to protect sharks for their ecological value while not criminalizing the accidental capture and release of sharks that may be unintentionally caught while fishing for other species as allowed by law or rule"

2) Page 2, line 11 add "intentionally" or knowingly

3) Page 4, remove lines 4-9 to remove sections(4)(5), as those issues are clarified in preamble and in any subsequent rules

4) Page 4, line 18-20, (h) Clarify that the department of land and natural resources may adopt rules pursuant to chapter 91 to implement this section and to ensure that the incidental capture and release of sharks while targeting other species is not a violation;

5) Delete page 5, lines 4-6 as native Hawaiian cultural and subsistence practices are already exempt in section (g) and per our state constitution

Mahalo for the opportunity to testify in strong support of a further amended HB553 HD2.

Lisa Bishop

President

Friends of Hanauma Bay





Environmental Caucus of  
The Democratic Party of Hawai'i



Legacy Reef Foundation



March 17, 2021 110pm

AEN/WTL Committees

TO: Honorable Chairs Gabbard and Inouye and Senate Agriculture & Environmental Protection and Water and Land Committee Members,

SUBMITTED BY: Inga Gibson, Policy Consultant, For the Fishes  
PonoAdvocacy@gmail.com, 808.922.9910

**RE: SUPPORT WITH AMENDMENTS HB553 HD2; Relating to Shark Protection**

The above businesses and organizations respectfully urge your support of **HB553, with the below critical amendments**, which would prohibit the intentional/knowning capture or killing of sharks in state waters (within 3 nm) except for the following:

- 1) research purposes under DLNR issued Special Activity Permits;
- 2) sharks taken outside state waters as regulated by federal laws;
- 3) the use or take of sharks for native Hawaiian cultural purposes;
- 4) for the defense of one's safety or;
- 5) at the discretion of DLNR for any specific, emergency purposes.

We acknowledge that a few fishers, unfamiliar with prosecutorial procedures, are concerned they may be charged for the incidental capture of a shark while fishing for other species. To address this concern, and to aid in proper enforcement, we recommend the following:

**Proposed Amendments:**

**1) Page 1, 2, Amend preamble to clarify that:** "The purpose of this Act is to protect sharks for their ecological value while not criminalizing the accidental capture and release of sharks that may be unintentionally captured while fishing for other species as allowed by law or rule"

**2) Page 2, line 11 add "intentionally" or knowingly**

The bill sets forth a prosecutorial burden of “knowingly” and does NOT apply to those who, in the lawful course of fishing, may accidentally capture and subsequently release a shark. We are suggesting the addition of “intentionally” as well.

**3) Page 4 remove lines 4-9 to remove sections (4) and (5),** as incidental capture while fishing for other species is clarified in the preamble, by using the highest mens rea (state of mind) and will be further addressed in DLNR’s rulemaking process.

We also recognize the additional provisions added by the House, which advise DLNR to explore issues such as wanton waste and prohibiting gill nets and other gear in shark nursery areas. We support these provisions being further discussed during a public scoping and rule-making process and therefore recommend the following additional changes:

**1) Page 4, line 18-20, (h) Clarify that The department may adopt rules pursuant to chapter 91 to implement this section and to ensure that the incidental capture and release of sharks while targeting other species is not a violation;**

**2) Delete page 5, lines 4-6 relating to subsistence take as native Hawaiian cultural and subsistence practices are already exempt in section (g)** and per our state constitution and any further take of individual sharks can be addressed in the DLNR rule-making process

**3) January 1, 2022, 6 month extended effective date to allow for community outreach and education about the importance of protecting sharks and info about the forthcoming rule process.**

### **Why do sharks need protection?**

Last month, research published in *Nature* found that since 1970, the global abundance of oceanic sharks and rays has **declined by 71%** owing to an 18-fold increase in relative fishing pressure. This depletion has increased the global extinction risk to the point at which **three-quarters of the species comprising this functionally important assemblage are threatened with extinction**. Strict prohibitions and precautionary science-based catch limits are urgently needed to avert population collapse, avoid the disruption of ecological functions, and promote species recovery.

Further, in 2019, research comparing earlier predator population assessments between the Main Hawaiian Island and the protected remote Northwestern Hawaiian Islands have shown **reef shark abundance depletion values in the main islands of about 90% (shallow-water towed-diver surveys) and 84% to 94% (shallow- and deep-water baited/unbaited camera surveys)** Asher et al. (2019) - *Marine Ecology Progress Series*. Vol. 630: 115–136 Nadon et al. (2012) - *Conservation Biology*. Vol. 26(3): 493-503

Sharks do not know jurisdictional boundaries thus any and all efforts are needed to protect shark populations within the state’s jurisdiction. In 2019, the state legislature extended the same protections proposed in HB553 to all Ray species.

It is also important to note that while in 2010, Hawaii became the first state in the world to enact a prohibition on shark-finning and the sale of shark-fins or fin products, this law does not protect sharks from intentional capture or killing, only finning and possession or sale of detached fins. If amended, HB553 would complement our existing finning law, which has now become a global initiative, by again poising Hawaii to be a leader in shark and marine conservation.

There have been many cases in recent years where sharks appear to have been intentionally entangled, injured and harmed and current law does not provide for adequate enforcement or prosecution of such cases. Research from the University of Hawaii has shown that many species of shark, such as tiger and hammerhead, frequent state waters, especially the marine shelf around Maui, and are faced with numerous threats including negative human interactions and pollution.

Further, sharks are apex predators; when they are removed our entire marine ecosystem is negatively impacted. Fortunately, there is no longer any directed shark fisheries (for their meat/fill etc.) and sharks are not a staple human food source as other fish species are. DLNR notes that it is difficult to distinguish between certain species of shark thus this measure applies to all shark species that frequent Hawaii waters.

Thank you for your support of HB553 with the above noted critical amendments.

Cited Research:

<https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/j.1523-1739.2012.01835.x>

<https://www.sciencedirect.com/science/article/pii/S0960982219316008>

Recent incidents of intentional killing and entanglements:

[David Y. Ige | DLNR News Release-Shark Finning Raises Concerns on Hawai'i Island, July 31, 2019](#)

[Shark-finning incidents of Hawaii island raise alarm | Honolulu Star-Advertiser](#)

['Wiped out before our eyes': Hawaii offers bold plan to stop shark killings | Sharks | The Guardian](#)

(Below, Tiger shark with jaw/teeth cut out from Kaneohe Bay; Nearly 100 Hammerhead pups dumped at Keehi Lagoon; North Shore shark caught and pegged in the sand)





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**HB-553-HD-2**

Submitted on: 3/16/2021 12:16:18 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Ted Bohlen	Testifying for Hawaii Reef and Ocean Coalition	Support	No

Comments:

*TO: Honorable Chairs Gabbard and Inouye, Vice Chairs Nishihara and Keith-Agaran, and Senate Agriculture & Environmental Protection and Water and Land Committee Members:*

*From Hawaii Reef and Ocean Coalition (by Ted Bohlen)*

**RE: SUPPORT WITH AMENDMENTS HB553 HD2; Relating to Shark Protection**

*Hearing Wednesday March 17, 2021 1:10 pm*

*Aloha Chairs, Vice Chairs, and members of the committees:*

***Sharks are apex predators that are critical for preserving the health of coral reefs and aquatic species! The Hawaii Reef and Ocean Coalition-HIROC-STRONGLY SUPPORTS passage of HB553, HD2, with the below critical amendments! To address the concerns of fishers about allegedly criminalizing incidental takes, and to aid in proper enforcement, we recommend the following clarifications:***

*Proposed Amendments:*

*1) Page 1, 2, Amend preamble to clarify that: "The purpose of this Act is to protect sharks for their ecological value while not criminalizing the accidental capture and release of sharks that may be unintentionally captured while fishing for other species as allowed by law or rule"*

*2) Page 2, line 11 add "intentionally" or knowingly*

*The bill sets forth a prosecutorial burden of "knowingly" and does NOT apply to those who, in the lawful course of fishing, may accidentally*

*capture and subsequently release a shark. We are suggesting the addition of “intentionally” as well.*

*3) Page 4 remove lines 4-9 to remove sections (4) and (5), as incidental capture while fishing for other species is clarified in the preamble, by using the highest mens rea (state of mind) and will be further addressed in DLNR’s rulemaking process.*

*HIROC also supports the additional provisions added by the House, which advise DLNR to explore issues such as wanton waste and prohibiting gill nets and other gear in shark nursery areas. We support these provisions being further discussed during a public scoping and rule-making process and therefore recommend the following additional changes:*

*1) Page 4, line 18-20, (h) Clarify that The department may adopt rules pursuant to chapter 91 to implement this section and to ensure that the incidental capture and release of sharks while targeting other species is not a violation;*

*2) Delete page 5, lines 4-6 relating to subsistence take as native Hawaiian cultural and subsistence practices are already exempt in section (g) and per our State Constitution and any further take of individual sharks can be addressed in the DLNR rule-making process*

*3) January 1, 2022, 6 month extended effective date to allow for community outreach and education about the importance of protecting sharks and info about the forthcoming rule process.*

### ***Why do sharks need protection?***

*Last month, research published in Nature found that since 1970, the global abundance of oceanic sharks and rays has declined by 71% owing to an 18-fold increase in relative fishing pressure. This depletion has increased the global extinction risk to the point at which three-quarters of the species comprising this functionally important assemblage are threatened with extinction. Strict prohibitions and precautionary science-based catch limits are urgently needed to avert population collapse, avoid the disruption of ecological functions, and promote species recovery.*

*Further, in 2019, research comparing earlier predator population assessments between the Main Hawaiian Island and the protected remote Northwestern Hawaiian Islands have shown reef shark abundance depletion values in the main islands of about 90% (shallow-water towed-diver surveys) and 84% to 94% (shallow- and deep-water baited/unbaited camera surveys)*

*Asher et al. (2019) - Marine Ecology Progress Series. Vol. 630: 115–136*  
*Nadon et al. (2012) - Conservation Biology. Vol. 26(3): 493-503*

*Sharks do not know jurisdictional boundaries thus any and all efforts are needed to protect shark populations within the state's jurisdiction. In 2019, the state legislature extended the same protections proposed in HB553 to all Ray species.*

*There have been many cases in recent years where sharks appear to have been intentionally entangled, injured and harmed and current law does not provide for adequate enforcement or prosecution of such cases. Research from the University of Hawaii has shown that many species of shark, such as tiger and hammerhead, frequent state waters, especially the marine shelf around Maui, and are faced with numerous threats including negative human interactions and pollution.*

*As noted, sharks are apex predators; when they are removed our entire marine ecosystem is negatively impacted. Fortunately, there is no longer any directed shark fisheries (for their meat/fillets) and sharks are not a staple human food source as other fish species are. DLNR notes that it is difficult to distinguish between certain species of shark thus this measure applies to all shark species that frequent Hawaii waters.*

*Thank you for your support of HB553 with the above noted critical amendments to protect Hawaii's reefs and ocean.*

*Hawaii Reef and Ocean Coalition (by Ted Bohlen)*



**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

SECTION 1. The legislature finds that sharks, known as "mano" in the Hawaiian language, are extremely important to ocean ecosystems. As ocean predators near the top of the food chain, sharks keep the ecosystem balanced, regulate populations of other marine life, and ensure healthy fish stock and reefs.

~~The legislature also finds that a very limited number of sharks are caught by subsistence fishers as a source of food. In addition, some sharks are caught as incidental take by fishers targeting other species. There have been numerous incidents reported where young sharks, such as hammerhead shark pups, are killed by being entangled in gill nets set in shark nursery habitats. The legislature further finds that the very limited amount of subsistence fishing for sharks is not a threat to shark populations, and the incidental take of sharks by fishers targeting other species is unavoidable and should not be criminalized. In addition, the legislature finds that prohibiting the placement of gill nets in areas determined to be shark nursery habitats would be an effective tool to protect shark populations.~~

The purpose of this Act is to protect sharks for their ecological value while **not criminalizing the accidental capture and release of sharks that may be unintentionally captured while fishing for other species as allowed by law or rule** ~~allowing~~

~~their taking for subsistence purposes as well as for traditional and customary practices.~~

SECTION 2. Chapter 188, Hawaii Revised Statutes, is amended by adding a new section to be appropriately designated and to read as follows:

**"§188- Sharks; mano; prohibitions; exceptions; penalties and fines.** (a) Except as provided in subsection (f), or as otherwise provided by law, no person shall knowingly or intentionally capture or entangle any shark, whether alive or dead, or kill any shark, within state marine waters.

(b) Any person violating this section or any rule adopted pursuant to this section shall be guilty of a misdemeanor; provided that the fine for violating this section shall be:

- (1) \$500 for a first offense;
- (2) \$2,000 for a second offense; and
- (3) \$10,000 for a third or subsequent offense.

(c) A person convicted of violating this section may be sentenced to pay a fine not exceeding \$10,000 per offense.

(d) In addition to any other penalty imposed under this section, a person violating this section shall be subject to:

(1) An administrative fine of no more than \$10,000 for each shark captured or entangled, whether alive or dead, or killed in violation of this section;

(2) Seizure and forfeiture of any captured sharks or any part or product therefrom, commercial marine license, vessel, and fishing equipment; and

(3) Assessment of administrative fees and costs, and attorney's fees and costs.

(e) The criminal penalties and administrative fines, fees, and costs shall be assessed per shark captured or entangled, whether dead or alive, or killed in violation of this section.

(f) This section shall not apply to:

(1) Special activity permits issued under section 187A-6;

(2) The department of land and natural resources or its designated agent if the capture or entanglement, whether alive or dead, or killing is for the protection of public safety;

(3) Sharks taken outside of state marine waters and possessed on a vessel in state marine waters pursuant to any federally managed fishery, with the required documentation of the location where the capture occurred;

~~(4) Any person who captures or kills sharks for subsistence fishing purposes pursuant to a permit issued by the department of land and natural resources under subsection (h)(4);~~

~~(5) Any person who incidentally takes sharks while targeting other species; and~~

~~(6) (4)Any person if the capture or entanglement, whether alive or dead, or killing is the result of defense of the person's self or of another against death or bodily harm.~~

(g) Nothing in this section shall be construed to restrict the exercise of traditional and customary rights protected pursuant to article XII, section 7, of the Hawaii State Constitution.

(h) The department of land and natural resources shall **may** adopt rules pursuant to chapter 91 to implement this section **and** to:

(1) Ensure that the incidental **capture and release taking** of sharks while targeting other species is not a violation;

(2) Prevent the wanton waste of sharks;

(3) Limit gear, such as gill nets, in areas identified as shark nursery habitats; and

(4) Allow the taking of sharks by permit for subsistence purposes, subject to reasonable regulation by the State for the protection of shark species.

(i) For the purposes of this section, "shark" means any species of shark within the subclass Elasmobranchii."

SECTION 3. Section 188-70, Hawaii Revised Statutes, is amended by amending subsection (a) to read as follows:

"(a) Any person violating any provision of or any rule adopted pursuant to this chapter, except sections 188-23 [and], 188-39.5, and 188-\_\_\_\_\_, is guilty of a petty misdemeanor and, in addition to any other penalties, shall be fined [not] no less than:

- (1) \$100 for a first offense;
- (2) \$200 for a second offense; and
- (3) \$500 for a third or subsequent offense."

SECTION 4. This Act does not affect rights and duties that matured, penalties that were incurred, and proceedings that were begun before its effective date.

SECTION 5. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 6. This Act shall take effect on January 1, 2022~~50~~.

**HB-553-HD-2**

Submitted on: 3/12/2021 6:13:55 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lois Crozer	Individual	Comments	No

Comments:

So basically anyone wontonly killing a shark will be fined. Well, that seems fair as long as those killing for subsistence get licenses. Right? Otherwise, what oversight can there be?

Testimony on HB 553  
House of Representatives  
State of Hawaii

March 13, 2021

To Whom It May Concern:

I am writing to voice my opposition to HB 553, "relating to the protection of sharks." I am a shark scientist with over 20 years experience studying sharks, including 9 years of work in Hawaii where I earned my Masters and Ph.D. at the University of Hawaii at Manoa.

My objections to HB 553 stem from its overly broad reach, its failure to incorporate basic scientific information on shark populations in Hawaii, the inherent difficulties of enforcing the regulations it proposes, and the fact that it is extremely unlikely to provide meaningful protection for local sharks.

Although the bill accurately states that sharks, as a group, tend to be more vulnerable to fishing pressure than other fishes, this does not mean that all shark populations are in need of protection. In fact, there is no demand for shark meat in Hawaii, shark fins are already banned, and there is no evidence of decline in Hawaii coastal shark populations.

The bill is also unenforceable, since the fishing methods used to target sharks can be used to catch other species of fish. This would make it impossible to prove that sharks were being targeted, and fishers who had unintentionally caught sharks would be indistinguishable from those who were targeting them intentionally.

To develop effective local shark conservation policies we need to (1) engage all stakeholders in the process, (2) quantify the type, volume and impact of human interactions with sharks, (3) focus conservation measures on activities that have the largest impact on sharks, and (4) identify and implement practical solutions.

This pathway toward effective shark conservation in Hawaii could be facilitated by a legislative resolution for a task force to characterize and quantify human impacts on sharks so that we can develop conservation policies based on a clear, fact-based understanding of actual threats to local shark populations.

I respectfully encourage the legislature to reject HB 553 and instead consult with their local, world-renowned shark scientists, local fishermen, and other stakeholders to come up with initiatives that could actually help local sharks.

Thank you for the opportunity to provide this testimony in opposition to HB 553.

Sincerely,



Dr. Nick Whitney  
[drnickwhitney@gmail.com](mailto:drnickwhitney@gmail.com)  
[www.drnickwhitney.com](http://www.drnickwhitney.com)

**HB-553-HD-2**

Submitted on: 3/13/2021 11:12:12 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Fern Anuenue Holland	Individual	Support	No

Comments:

Aloha! My ohana and I are in strong support of HB553. Mahalo! Fern Å€ Holland

## **STRONGLY OPPOSE**

### **HB 553: A misdirected conservation effort that will not protect sharks**

HB 553 is a well-intentioned but fundamentally flawed and misdirected shark conservation effort. Hawaii already has an excellent conservation environment for coastal sharks. The two-thirds of the Hawaiian archipelago contained within the Papahānaumokuākea Marine National Monument are already completely protected from commercial and recreational fishing and there are no commercial fisheries for coastal sharks in the remaining third (i.e. the Main Hawaiian Islands). Our conservation focus should be on maintaining and improving this already favorable environment.

#### **Major problems with HB 553 are:**

**1. The bill will produce no meaningful protection for sharks** because targeted fishing for sharks (the focus of the bill) is already a rare activity in Hawaii. Beyond rare subsistence harvesting, there is no demand for coastal shark meat in Hawaii and shark finning is already banned under existing laws. Coastal sharks are not sold at the fish auction nor at the various fish markets or supermarkets around the state. The oft-cited decline in global shark populations is primarily due to industrial high seas fishing or intensive targeted fishing for coastal sharks - neither of which applies to Hawaii. Multiple previous attempts (including government-sponsored efforts) to establish commercial fisheries for coastal sharks in Hawaii have all failed. Fishers in Hawaii try to avoid sharks and release those captured inadvertently. There is no evidence of any decline in Hawaii coastal shark populations. In fact, key biological indicators suggest local shark populations are healthy.

**2. The bill is unenforceable.** All fishing methods used to target sharks can be legitimately used to catch other species of fish so it would be impossible to prove that sharks were being specifically targeted. Fishers who inadvertently capture sharks could not be distinguished from those targeting sharks. Fisheries cases are difficult to prosecute and require clear legal definitions not provided by this bill (i.e. under HB 553, if a shark is captured, the prosecutor would need to prove the specific intent to capture the shark which is effectively impossible because sharks are routinely caught when targeting other species). Even if the bill provided clearly enforceable language (which it does not), by their own testimony, DLNR lacks the resources to enforce this kind of legislation. DLNR recently opposed a bill to regulate shark ecotourism (SB 578) based on limited resources:

*“A dedicated marine patrol, which was discontinued due to staff shortages, would be required to effectively enforce ocean regulations, including those contained in this measure. Reactivating the DOCARE marine patrol would require at least five positions that would be solely dedicated to patrolling and enforcing Department regulations by boat.”*

If DLNR lacks sufficient resources to patrol and enforce Department regulations by boat and where the locations of the activities are known, then they are clearly unable to enforce a shark protection bill because fishing occurs throughout state waters.



**3. The bill does not address the locally more significant issue of shark bycatch** where sharks are inadvertently captured by fishers targeting other species (e.g. gill net mortalities of hammerhead pups). Bycatch is the only area is where real conservation gains are to be made with coastal sharks in Hawaii because the state lacks the significant targeted fishing responsible for shark declines in other regions. HB 553 threatens ongoing community outreach and citizen science programs that engage stakeholders in shark bycatch mitigation efforts. For example, local citizen scientists have been tagging and releasing bycaught sharks to help us understand post-release survival rates. There is no provision for them to continue doing this under HB 553.

Poorly grounded, misdirected conservation legislation wastes time and effort and creates an illusion of efficacy without delivering meaningful protection. Instead of simply recycling the same fatally flawed bill year after year, [we should adopt a more inclusive and carefully targeted approach](#). We need to methodically identify specific threats to sharks and focus on targeted solutions to those threats.

To develop effective local shark conservation policies we need to (1) engage all stakeholders in the process, (2) quantify the type, volume and impact of human interactions with sharks, (3) focus conservation measures on activities that have the largest impact on sharks, and (4) identify and implement practical solutions where these activities threaten the health of local shark populations or are unnecessarily wasteful or destructive. Legislation is not always the most effective conservation tool so practical solutions should include stakeholder engagement via community outreach to encourage behavioral changes to reduce negative impacts on sharks in addition to carefully crafted legislation that addresses specific threats with clearly enforceable regulations (e.g. no gill nets in hammerhead shark nurseries).

This pathway toward effective shark conservation in Hawaii could be facilitated by a legislative resolution for a task force to characterize and quantify human impacts on sharks so that we can develop trenchant conservation policies based on a clear, fact-based understanding of actual threats to local shark populations.

**HB-553-HD-2**

Submitted on: 3/13/2021 2:21:23 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Dana Keawe	Individual	Support	No

Comments:

I support hb553 hd2

**HB-553-HD-2**

Submitted on: 3/14/2021 6:17:42 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Robert Culbertson	Individual	Support	No

Comments:

Aloha Senators!

Please **Support HB553 with amendments!**

While the tide for ecological understanding and appreciation of these marine apex predators is turning, please keep in mind the specific challenges and conditions as stated in the proposed new amendments to ensure the integrity and effectiveness of your law making. It's important to make this truly PONO!

Mahalo!

Rob Culbertson

Paauilo, HI

**HB-553-HD-2**

Submitted on: 3/14/2021 11:01:42 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Klayton Kubo	Individual	Support	No

Comments:

In support if this bill as of right now

**HB-553-HD-2**

Submitted on: 3/14/2021 12:56:33 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
William K. Chang	Individual	Oppose	No

Comments:

Although this bill is well-intentioned, in actuality it will not produce any meaningful or effective protection for sharks in Hawaii, is unenforceable, and could jeopardize legitimate shark conservation research. There is no commercial or recreational fishery for sharks in Hawaii, and this bill fails to address the more significant issue of shark bycatch. Bycatch is the only area where conservation goals for coastal sharks can be made. This bill not only criminalizes those stakeholders, but threatens existing community outreach and citizen science programs that are working to engage local fishers in shark bycatch mitigation. We can and should do much better than this bill when it comes to designing effective strategies for shark conservation in Hawaii. Poorly grounded, misdirected legislation wastes time and effort and creates an illusion of efficacy without delivering meaningful protection.

Mahalo for allowing my testimony

**HB-553-HD-2**

Submitted on: 3/14/2021 9:12:21 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lauren Hori	Individual	Oppose	No

Comments:

I strongly oppose HB553 because it threatens local fishermen and will not protect sharks that are already protected by law. Thank You.

**HB-553-HD-2**

Submitted on: 3/15/2021 8:38:11 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
David Itano	Individual	Oppose	No

Comments:

I am involved in fisheries research and strongly oppose this legislation for the following reasons: **There has been no meaningful consultation with the fishing community. The bill is unenforceable and creates legal jeopardy for local fishers. DLNR has testified that it lacks the resources required to enforce this type of legislation. This bill is unnecessary because there are no fisheries for Hawaii coastal shark species and meaningful regulations are already in place. This bill threatens ongoing research and tag and release programs.**

HB 553 HD2  
Oppose

Aloha Members of the Senate,

My name is Mark Royer. I am a Ph.D. graduate from the University of Hawai‘i at Mānoa and have studied sharks in Hawai‘i and on the mainland for over 12 years and published numerous scientific papers based on these studies. The objective information from these studies is used for the conservation of these species.

**While the intentions of this bill are good, with the purpose of seemingly providing protections to shark populations in Hawai‘i, it is fundamentally flawed and will not produce meaningful or enforceable protection.** The bill in its current form will also jeopardize legitimate research that provides crucial, objective information for the conservation of shark populations here and abroad. Particularly, the exemption statement in section II on line (f(1)) requires completely undefined permit requirements which could subject researchers from institutions to additional ambiguous and onerous bureaucracy. University researchers are required to undertake exhaustive reviews of their research plans before being permitted to work on animals, by Institutional Animal Care and Use Committees (IACUCs). University shark researchers already have oversight of their activities via an IACUC. If this bill in its current form is passed, permits could be denied and research could shut down based on someone's subjective opinion. This is not a case of “simply signing a piece of paper” as some testimonies have suggested. Specific calls to remove the IACUC exemption that was in a previous version of this bill are completely removed from the intention of actually preserving shark populations. Onerous, ambiguous, bureaucratic hang-ups can completely derail time-sensitive research and grant applications.

Past and on-going research in Hawai‘i has been applied to inform effective conservation and management strategies of these species, both within Hawai‘i and abroad. For example, studies on the life history and ecology of scalloped hammerhead sharks in Kāne‘ohe Bay were cited in the proposal and determination to list scalloped hammerhead sharks under the US Endangered Species Act. The tiger shark tagging studies led by Dr. Kim Holland and Dr. Carl Meyer have provided crucial, objective information on the ineffectiveness and ultimate cancelation of shark culling as a measure for reducing shark bites in state waters. Crucial information on the life history, behavior, ecology, and physiology of various species are needed to create effective species management plans, and scientific studies conducted in Hawai‘i are critical to management of shark and ray species. Such nuanced information is also needed to predict how climate change and overfishing will affect these species and marine ecosystems as a whole.

**Instead of simply recycling the same fatally flawed bill year after year, we should adopt a more inclusive and carefully targeted approach.** To develop effective local shark conservation policies we need to **(1)** engage all stakeholders in the process, **(2)** quantify the type, volume and impact of human interactions with sharks, **(3)** focus conservation measures on activities that have the largest impact on sharks, and **(4)**



identify and implement practical solutions where these activities threaten the health of local shark populations or are unnecessarily wasteful or destructive.

**A targeted approach can provide distinct, enforceable measures that can provide meaningful protections to sharks.** Examples include: 1) Designating certain areas as critical nursery habitat for species such as scalloped hammerheads (māno kihikihi, *Syphrna lewini*) and imposing restrictions on laynets in these areas. 2) Drafting specific measures for safe and effective release practices in the event of an incidental shark catch while fishing from shore or from a boat. These practices should be grounded in safety practicality and rigorous science for reducing shark mortality and risk of injury to the fisher. This will remove the problematic ambiguity of punishable “fishing intent” that is in the current version of the bill, and should prevent the rare but heinous events of intentional and fatal shark shoreline fishing as depicted in previous testimonies. Both of these examples of targeted measures are more readily enforceable by DLNR than the broad measures in the current bill.

**Poorly grounded, misdirected conservation legislation wastes time and effort and creates an illusion of efficacy without delivering meaningful protection.** To draft practical, meaningful, and enforceable measure, the legislature should convene a task force to assess actual threats to sharks in Hawaii and enable the participation of all stakeholders of the community including but not limited to recreational and commercial fishers, cultural practitioners, and scientists.

Thank you for your consideration.

Mahalo,  
Mark Royer Ph.D.

**HB-553-HD-2**

Submitted on: 3/15/2021 9:02:43 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Yannis Papastamatiou	Individual	Oppose	No

Comments:

This bill is well intentioned but as written will damage the ability of researchers to be able to perform effective conservation science. In particular, research must be approved by animal care committees, requiring humane treatment of animals. Its also important to note the important role of research in shark conservation in Hawaii, for example the planned cull of the 90s was rejected due to results of tiger shark tracking performed by UH. The bill would be ok with the appropriate exemption for scientific research.

**HB-553-HD-2**

Submitted on: 3/15/2021 10:17:02 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nanea Lo	Individual	Support	No

Comments:

Hello,

My name is Nanea Lo. I'm from Papakāleā, O'ahu. Now residing in Māhalele in my ancestral homelands. I'm writing in support of HB553 with amendments.

me ke aloha 'Āina,

Nanea Lo

**HB-553-HD-2**

Submitted on: 3/15/2021 10:34:48 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
James Anderson	Individual	Oppose	No

Comments:

Regarding HB 553 HD2 – RELATING TO THE PROTECTION OF SHARKS

To the Chairs and members of the Committee.

I am writing to convey my formal opposition to the Bill in it's current form.

The Bill seeks to protect sharks in Hawaii State waters, while allowing for cultural and subsistence take of sharks.

However, the wording of the Bill will afford little to no protection for shark populations, and in-fact, may further contribute to the inability to effectively protect and conserve coastal shark populations through enforcement.

The Bill establishes that certain fishing practices pose a threat to shark populations, specifically to populations of neonate and juvenile shark species, and names gill-netting as an example of one such practice. However, the Bill then goes on to exempt fishers using such methods from any responsibility, thereby negating the efficacy of any protective measures.

The Bill calls for limiting gear, such as gill nets, in areas identified as shark nursery habitats. This will limit any protection afforded to small handful of specific locations on Oahu and the Big Island for Scalloped Hammerhead sharks, as this is the only species with any defined nursery habitat in Hawaii. Thus, use of gill nets and other damaging fishing practices will continue to go unchecked in the rest of Hawaii, and will continue to impact upon other shark and ray species that utilize inshore areas as nursery habitat.

The Bill then goes on to exempt anyone who captures or kills a shark while targeting other species. This leaves the burden or onus upon any enforcement officers to demonstrate beyond all reasonable doubt that anyone who captures or kills a shark was deliberately intending to do so. Again, this negates the efficacy of any protective measures and hampers conservation initiatives.

This version of the Bill (HD2) specifically deleted language that would have exempted any person who holds a license or permit issued by the Department of Land and Natural Resources to conduct research or research overseen by a State-approved Institutional Animal Care and use Committee from the prohibition against knowingly capturing, entangling, or killing a shark in state marine waters. The irony here is that in it's current form, the only people the Bill will impact upon are those who strive to do most for informed and effective conservation – the scientific community.

The Bill is therefore hamstrung by it's own contradictory wording, and is fatally flawed in it's ability to deliver conservation and protection for sharks.

I am very much in favor of conservation and protection for shark and ray species. However, this Bill, in it's current form, will be to their detriment, rather than being their savior.

I urge the Chairs and the committee to reject this Bill, and instead embark on a path that includes consultation with stake holders and the scientific community to arrive at measures that will actually be both effective, and enforceable.

Sincerely,

James Anderson, PhD



## HB 553: A misdirected conservation effort that will not protect sharks

- **This bill is unnecessary because Hawaii coastal shark populations are healthy and already well-protected.** Fishing is already banned in two-thirds of the Hawaiian chain (Papahānaumokuākea Marine National Monument) and there are no commercial fisheries for coastal sharks anywhere in Hawaii. Coastal shark meat is not sold in Hawaii (due to long-term lack of demand) and shark finning is already banned under existing laws. The decline in global shark populations is primarily due to industrial high seas fishing or intensive targeted fishing for coastal sharks - neither of which applies to Hawaii.
- **The bill is unenforceable and creates legal jeopardy for local fishers.** All fishing methods used to target sharks can be legitimately used to catch other species of fish so it would be impossible to prove that sharks were being specifically targeted. Fishers who accidentally capture sharks could not be distinguished from those targeting sharks. This puts local fishers at risk of unfair prosecution.
- **DLNR has testified that it lacks the resources required to enforce this type of legislation:** *“A dedicated marine patrol, which was discontinued due to staff shortages, would be required to effectively enforce ocean regulations, including those contained in this measure. Reactivating the DOCARE marine patrol would require at least five positions that would be solely dedicated to patrolling and enforcing Department regulations by boat.”*
- **The bill does not address the locally more significant issue of shark bycatch** where sharks are inadvertently captured by fishers targeting other species (e.g. gill net mortalities of hammerhead pups). Bycatch is the only area is where real conservation gains are to be made with coastal sharks in Hawaii because the state lacks the significant targeted fishing responsible for shark declines in other regions.
- **This bill threatens ongoing tag and release programs.** Local fishers have been tagging and releasing bycaught sharks to help us understand post-release survival rates. There is no provision for them to continue doing this under HB 553.
- **Effective shark conservation requires a more inclusive and carefully targeted approach.** We need to (1) engage all stakeholders in the process via community hearings, (2) quantify the type, volume and impact of human interactions with sharks, (3) focus conservation measures on activities that have the largest impact on sharks, and (4) identify and implement practical solutions where these activities threaten the health of local shark populations or are unnecessarily wasteful or destructive. Practical solutions should include stakeholder engagement to reduce negative impacts on sharks in addition to carefully crafted legislation that addresses specific threats with clearly enforceable regulations (e.g. no gill nets in hammerhead shark nurseries).

To the Committee Hearing Bill HB553 HD2,

This testimony in **OPPOSITION** of **bill HB553 HD2** as it is another law that is redundant and will not further protect shark species. Sharks are already protected in the Hawaii Administrative Rules under Chapter 91 H189-2.5, HRS188-40.6, HRS188 40.7 in addition to Native Hawaiian customary and traditional rights protected by the Hawaii State Constitution.

Although this bill appears to have much support it does not come directly from the majority of true stakeholders within Hawaii's fishing and research community. By side stepping Hawaii Administrative Rule making Chapter 91 the process of proper vetting of this initiative has left out important sectors on this issue which have been purposely and totally ignored. If vetted properly perhaps the understanding and outcome of this bill or initiative would better serve Hawaii's community and resources in which it intended.

If the goal and mission of the legislature is for our community to come together to protect and manage our resources there is a better way.

Thank you for hearing this testimony.

Sincerely,

Clay Tam  
Researcher, Fishermen



**HB-553-HD-2**

Submitted on: 3/15/2021 1:57:43 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
james trujillo	Individual	Support	No

Comments:

Aloha,

Please pass HB 553

Providing protection, regulation and management of shark populations in state waters are essential for a healthy marine eco-system. Passing HB 553 will help tp protect and provide better management of the mano and underwater world that surrounds our island state.

Mahalo for considering this testimony in **STRONG SUPPORT OF HB 553.**

With respect and aloha,

James G Trujillo

Kapa'a, HI 96746

**HB-553-HD-2**

Submitted on: 3/15/2021 2:38:39 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Haunani Hess	Individual	Support	No

Comments:

As a Native Hawaiian, sharks are my family aumakua, I have been visited by sharks in my dreams my whole life. There are stories about family members who were able to change into sharks, and it is said my Auntie gave birth to a shark on a fishing boat, with witnesses to bear. I cannot emphasize enough, how sharks need to be protected just on the principal of being sacred to the Hawaiian people, who are native to these islands, essential to the culture that is now so widely exploited. To not penalize with severity, those who would commit atrocity to a sacred shark, would be a crime against the Hawaiian people, nature, and God's intelligent design. We can no longer tolerate this abuse of our culture and deranged attack on life. As a natural predator, sharks have such an essential role to the health of the oceans. As an ocean culture relying on tourism, it is quite ignorant not to come down hard on anyone who would jeopardize the very heart of what these islands are about. Please support HB553, support healthy oceans, protect sharks, honor the Hawaiian people.

**HB-553-HD-2**

Submitted on: 3/15/2021 3:37:31 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Marion McHenry	Individual	Support	No

Comments:

This is an important bill for our state to pass. Because of our location in the middle of the pacific, we must be leaders in protecting these species.

Thank you,

Marion McHenry

Princeville, Kauai

**HB-553-HD-2**

Submitted on: 3/15/2021 6:31:24 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Crystina Suh	Individual	Oppose	No

Comments:

I believe that this bill could help but not before reviewing some issues that it does not take into consideration.

- **There has been no meaningful consultation with the fishing community.** This bill was introduced by people who don't fish. Fishers should be given a fair chance to shape legislation that will directly impact them. Community hearings that involve ALL stakeholders should be held before this kind of legislation is considered.

- **The bill is unenforceable and creates legal jeopardy for local fishers.** All fishing methods used to target commercial seafood species can have incidental interactions with sharks. It would be impossible to prove or disprove that sharks were or were not being specifically targeted. Fishers who accidentally capture sharks could not be distinguished from those targeting sharks. This puts local fishers at risk of unfair prosecution.

- **DLNR has testified that it lacks the resources required to enforce this type of legislation:** *"A dedicated marine patrol, which was discontinued due to staff shortages, would be required to effectively enforce ocean regulations, including those contained in this measure. Reactivating the DOCARE marine patrol would require at least five positions that would be solely dedicated to patrolling and enforcing Department regulations by boat."*

- **This bill is unnecessary because there are no fisheries for Hawaii coastal shark species and meaningful regulations are already in place.** Fishing is already banned in two-thirds of the Hawaiian chain (Papahānaumokuākea Marine National Monument) and there are no commercial fisheries for coastal sharks anywhere in Hawaii. Coastal shark meat is not sold in Hawaii (due to long-term lack of demand and pressure from communities) and shark finning is already banned under existing laws.

The decline in global shark populations is primarily due to industrial high seas fishing or intensive targeted fishing for coastal sharks - neither of which applies to state regulated waters in Hawaii.

- **This bill threatens ongoing tag and release programs.** Local fishers have been tagging and releasing bycaught sharks to help us understand: shark interaction rates, depredation rates, historical mortality rates, post-release survival rates, habitat use and movement behaviour, FAD association dynamics of protected species, handling and discard practices, and shark population demographics around Hawaii. This is the **ONLY** research program in the region that is working to generate quantitative data on shark populations around Hawaii. It is imperative that this tagging program continues to generate the required information for effective conservation management. There is no provision for them to continue doing this under HB 553.

**HB-553-HD-2**

Submitted on: 3/15/2021 9:17:36 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Meredith Buck	Individual	Support	No

Comments:

I strongly support HB553. Sharks are worth far more alive than dead, especially during a time of catastrophic ecosystem crisis. Without proper management, entire species of sharks could be lost forever with devastating impacts to ocean ecosystems. Please pass HB553. Mahalo nui loa for your time and consideration.

**HB-553-HD-2**

Submitted on: 3/15/2021 9:40:28 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Clair Mason	Individual	Support	No

Comments:

Chair, Vice Chair, Members of the Committee,

I am in strong support of this measure. We should collectively do everything we can to protect the environment. Marine creatures are constituents too :')

Mahalo,

Clair Mason

**HB-553-HD-2**

Submitted on: 3/15/2021 11:21:50 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Laurent Pool	Individual	Oppose	No

Comments:

As a person with a Marine Biology degree, a captains license and approximately 20 years of experience in Hawaiian waters, I believe this bill to be unnesseary.

-No one is targeting sharks in Hawaii.

Why? Its an aumakua and there is no local market for shark meat or other shark products in Hawaii. I have never seen anyone bring a shark to the harbor in Hawaii.

I fish 1-2 times a week and the shark is the only species that I encounter EVERY time I fish. I don't target them. The shark and fishermen have the same targets. Other fish. Whether you are fishing for live bait, bottom fishing, or trolling.... once you have a fish on, you are likely to have a shark go after it and inadvertently end up on the your line. According to this bill, that makes me liable. That does not make any sense.

These apex predators are now highly conditioned to recognize boats as a way to get food. I believe that some of this is due to fishermen and sharks going after the same target.

Fishermen have to be represented here. This bill does nothing to help fishermen. It unfortunately targets us.

I think the shark may be one of the most important species in the sea but their numbers, anecdotaly , do not seem to be in jeopardy. I see at least 3 sharks each time I fish and I get at least 4 sharks on the line each time I fish. I wish I did not, but I do not land them and I actually make my rigs so that the sharks can cut the line avoiding a long fight and I use hooks that will rust quickly.



I believe that intentional interactions with sharks should be more closely monitored. Fishing in HAWAII is NOT an intentional interaction with sharks. It's an unavoidable, unintentional, and an unfavorable interaction with sharks.

There are other industries that specifically advertise and intentionally interact with sharks. That has the unfortunate potential to cause sharks to associate people in the water around boats with food. Sit in an idling boat on the north shore or Waianae coast for 15 minutes without any bait in the water and 90% chance a shark will surface near the boat.

This bill will hinder real shark research and hinder fishermen in order for an unenforceable law to be passed and for tour companies to get more likes on social media. Sad but true.

I do hope that other fishermen and women know about this bill and their voices are heard.

- **There has been no meaningful consultation with the fishing community.** This bill was introduced by people who don't fish. Fishers should be given a fair chance to shape legislation that will directly impact them. Community hearings that involve ALL stakeholders should be held before this kind of legislation is considered.

- **The bill is unenforceable and creates legal jeopardy for local fishers.** All fishing methods used to target commercial seafood species can have incidental interactions with sharks. It would be impossible to prove or disprove that sharks were or were not being specifically targeted. Fishers who accidentally capture sharks could not be distinguished from those targeting sharks. This puts local fishers at risk of unfair prosecution.

- **DLNR has testified that it lacks the resources required to enforce this type of legislation:** *"A dedicated marine patrol, which was discontinued due to staff shortages, would be required to effectively enforce ocean regulations, including those contained in this measure. Reactivating the DOCARE marine patrol would require at least five*

*positions that would be solely dedicated to patrolling and enforcing Department regulations by boat.”*

- **This bill is unnecessary because there are no fisheries for Hawaii coastal shark species and meaningful regulations are already in place.** Fishing is already banned in two-thirds of the Hawaiian chain (Papahānaumokuākea Marine National Monument) and there are no commercial fisheries for coastal sharks anywhere in Hawaii. Coastal shark meat is not sold in Hawaii (due to long-term lack of demand and pressure from communities) and shark finning is already banned under existing laws. The decline in global shark populations is primarily due to industrial high seas fishing or intensive targeted fishing for coastal sharks - neither of which applies to state regulated waters in Hawaii.

- **This bill threatens ongoing tag and release programs.** Local fishers have been tagging and releasing bycaught sharks to help us understand: shark interaction rates, depredation rates, historical mortality rates, post-release survival rates, habitat use and movement behaviour, FAD association dynamics of protected species, handling and discard practices, and shark population demographics around Hawaii. This is the **ONLY** research program in the region that is working to generate quantitative data on shark populations around Hawaii. It is imperative that this tagging program continues to generate the required information for effective conservation management. There is no provision for them to continue doing this under HB 553.

Please feel free to contact me regarding this matter. I truly hope that you oppose this bill.

**HB-553-HD-2**

Submitted on: 3/15/2021 11:52:16 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Patty Peters	Individual	Oppose	No

Comments:

This bill is in appropriate in it's timing. Collaborative research efforts and data collected from fishing practices (sometimes generations old) are allowing us to understand habitat, breeding and socializing behavior meant for survival of these amazing sharks. It is imparitive to find solutions for local fishing communties rather then bring penatly on them.

A wiser approach would be more specific "investments" like state fishing licencing and such. I understand there are reasons why this results in an issue. The data in which fisherman have provided over the dawn of time IS the data in which we base our counts from in comparison. My intention is not to condone bycatch but to bring light that we are still dependant and a more prudent approach would be to create a state fishing license and something the DLNR/DAR/DOCARE can appropriatly manage since they seem minimally funded. Possibly the worst out of all the state departments?

The purse siegn nets outside our archipelego have a deep, deep, deep affect on the long liners and the long liners on the commercial fisherman etc..... we understand that is where most of the shark populations are disapearing too. 200+/- sharks/ day due to long liner boats alone (OWT).

We are all intrested in saving the masses but that begins at an unfortunate level of improving the best we can the commercial fleets in federal waters.... espcecially in international waters. Granted this bill is mostly aimed at near coastal species.

On that agenda it is of most importance the comittee understands that detail is key. We are STILL understanding the dynamic life of all our shark species. Please consider a much more detailed and enforcable law to help our generations as DLNR/DOCARE mentions they cannot enforce. If we can further research and understanding of seasons and migration patterns we can take a more detail approach that will give everyone the best success model possible.

mahalo



**HB-553-HD-2**

Submitted on: 3/16/2021 4:28:48 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Ocean Ramsey	Individual	Support	No

Comments:

Mahalo nui loa honorable chair & committee,

Please help pass this bill for the protection of manā• & Hawaii's future.

Mahalo nui loa,

Ocean Ramsey

Malama Manā•

Aloha to the Hawai'i State Legislature,

*Please change or remove this bill to protect legitimate shark research and conservation that is vital for effective management of sharks in Hawai'i and abroad.*

I am a master's candidate at the University of Hawai'i at Mānoa having spent the last 7 years studying sharks (manō) in Hawai'i. My goals are to present facts referencing the collected data and analysis that may inform these types of socio-economic/political regulations. But I do think it is important to acknowledge the bounty of information that already exists.

Native Hawaiians (Kanaka Maoli) have long recognized and revered manō for genealogical ties to 'aumakua, for threat as in niuhi and even by species in sustainable harvest. This level of awareness expresses a deep knowledge and understanding of the value and ecological role of sharks, even recognizing and carrying relations with individuals. **The fact remains that Hawai'i has essentially no nearshore shark fishery.**

The reality of modern nearshore fisheries in Hawai'i is one of overharvest. The fate of the shark is being outcompeted by the demand of a global marketplace. In addition, these animals face constant habitat threat by thorough pollution, excessive runoff, and human-accelerated climate change. Over decades of 'open access' these types of pressures have contributed harm to both recreational and commercial fish stocks. The ocean can be a difficult place to regulate without efficient resources and community support. These are not addressed by HB 553.

Hawai'i remains a standing example of shark protection by Native Hawaiians and for passing legislation against shark finning in 2010, followed by the federal Shark Conservation Act in the same year\*. Unlike other coastal regions, this state has never mandated a target shark fishery, likely as a legacy of these people that continue to protect all natural resources.

The United States has restricted further participation in the global fin trade including limitations on transport and shipment of fins (including airlines, closing major ports/harbors and striking shark fin soup from the menu!). However, much of the trade of fins targets pelagic sharks outside of state waters. These sharks are not protected by HB 553.

The University of Hawai'i at Mānoa in association with the Hawai'i Institute of Marine Biology support over 25 years of shark and pelagic fishery research aimed to further protect and understand these animals, especially their movements, behaviors and habits.

*I see issue within this bill to my research and that of my lab as stakeholders in the appropriate management of shark research and conservation in the State of Hawai'i and currently operate under University Institutional Animal Care and Use Committee permits. I also do not believe that further legislation of this nature adequately protects sharks or hinders their threats.*

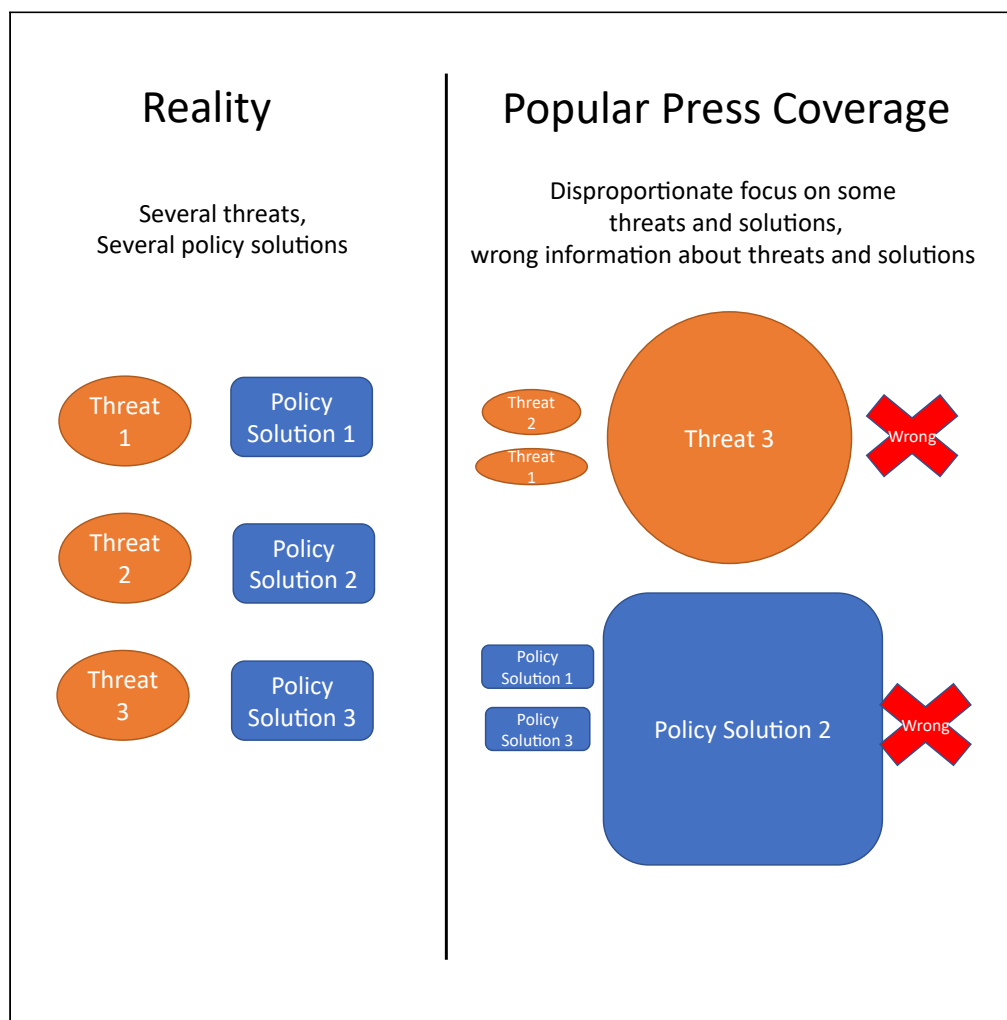
Thank you for your time.  
Julia M Hartl

\*The federal Shark Conservation Act was signed in 2011 in amendment of the High Seas Driftnet Fishing Moratorium Protection Act of the federal Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA was previously amended in 2000 with the Shark Finning Prohibition Act which restricts the possession, removal and landing of shark fins sans carcass in the United States of America. NOAA Fisheries provide annual reports to Congress detailing the implementation and management of fisheries law (including numerous sustainable shark fisheries).

Note: Shiffman, Dulvy, Nicholas, et al. (2020). Inaccurate and Biased Global Media Coverage Underlies Public Misunderstanding of Shark Conservation Threats and Solutions. *iScience*. 23. 101205. [10.1016/j.isci.2020.101205](https://doi.org/10.1016/j.isci.2020.101205).

Article

# Inaccurate and Biased Global Media Coverage Underlies Public Misunderstanding of Shark Conservation Threats and Solutions



David S. Shiffman, Sarah Joy Bittick, Madeline S. Cashion, ..., Riley A. Pollom, Jennifer Provencher, Nicholas K. Dulvy

david.shiffman@gmail.com

**HIGHLIGHTS**

The popular press plays a role in public understanding of environmental issues

Many members of the public are misinformed about shark conservation

We analyzed popular press coverage of shark conservation topics

Topics were frequently covered in a biased, misleading, or incorrect way

Shiffman et al., iScience 23, 101205  
June 26, 2020 © 2020 The Authors.  
<https://doi.org/10.1016/j.isci.2020.101205>



## Article

## Inaccurate and Biased Global Media Coverage Underlies Public Misunderstanding of Shark Conservation Threats and Solutions

David S. Shiffman,<sup>1,11,12,\*</sup> Sarah Joy Bittick,<sup>2</sup> Madeline S. Cashion,<sup>3</sup> Sheila R. Colla,<sup>4</sup> Laura E. Coristine,<sup>5</sup> Danielle H. Derrick,<sup>1</sup> Elizabeth A. Gow,<sup>6</sup> Catherine C. Macdonald,<sup>7,8</sup> Mikayla More O’Ferrall,<sup>1</sup> Melissa Orobko,<sup>1</sup> Riley A. Pollom,<sup>1,9</sup> Jennifer Provencher,<sup>10</sup> and Nicholas K. Dulvy<sup>1</sup>

## SUMMARY

**Sharks are a taxon of significant conservation concern and associated public interest. The scientific community largely supports management policies focusing on sustainable fisheries exploitation of sharks, but many concerned members of the public and some environmental advocates believe that sustainable shark fisheries cannot and do not exist and therefore support total bans on all shark fisheries and/or trade in shark products. The belief that sustainable shark fisheries cannot and do not exist persists despite scientific evidence showing that they can and do, and are important to livelihoods. Additionally, many concerned members of the public are only aware of one threat to sharks and are unaware of other threats—or of most available policy solutions. Here we assess whether the popular press plays a role in spreading misinformation and misunderstanding about these issues via the agenda-setting, priming, and cultivation roles of the media, with the goal of better understanding the causes and consequences of public confusion.**

## INTRODUCTION

## Shark Conservation

Sharks are a taxon containing many species of conservation concern (Dulvy et al., 2014), and there is intense and rapidly growing public interest in the conservation and management of this charismatic group of fishes (Simpfendorfer et al., 2011). Many possible policy approaches to shark conservation exist (Table 1) and these can be broadly divided into policies that promote effective management with a goal of sustainable exploitation and trade (“target-based,” e.g., fishing quotas) and those that promote total bans on all exploitation and trade (“limit-based,” e.g., nationwide bans on any commercial shark fishing termed “Shark Sanctuaries”) (Shiffman and Hammerschlag, 2016a). Although unsustainable fishing of sharks is common historically and currently, there is no scientific doubt that sustainable shark fisheries can and do exist (Walker, 1998; Simpfendorfer and Dulvy, 2017; Shiffman and Hueter, 2017) and are preferred over bans by an overwhelming majority of scientific experts (Shiffman and Hammerschlag, 2016a). Scientists have raised concerns that limit-based tools may not only be ineffective at protecting sharks (Davidson, 2012; Dulvy, 2013) but may even undermine existing target-based efforts that have been shown to be successful in conserving and recovering shark species (Shiffman and Hueter, 2017). Limit-based tools of course have their place in some situations, especially those focused on protecting an especially vulnerable species (Davidson and Dulvy, 2017; Mizrahi et al., 2019), and a science-based network of marine protected areas can coexist with sustainable fisheries in adjacent waters.

Despite increasing scientific evidence that target-based solutions are effective at preventing shark population declines or even recovering once-overfished populations (e.g., Peterson et al., 2017) and relatively limited evidence that limit-based policy solutions are effective, limit-based policy solutions have gained popularity in recent years (Shiffman and Hammerschlag, 2016a). This may be partially explained by some stakeholders inaccurately believing that sustainable fisheries management tools cannot possibly work on sharks and that more severe measures are needed (i.e., a belief that sustainable shark fisheries cannot and do not exist and therefore we have to ban all fishing). Additionally, there is significant

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<sup>2</sup>University of British Columbia, Department of Zoology, Biodiversity Research Centre, 2212 Main Mall, Vancouver, BC V6T 1Z4, Canada

<sup>3</sup>Hemmera, 4730 Kingsway, 18th Floor, Burnaby, BC, V5H 0C6, Canada

<sup>4</sup>Faculty of Environmental Studies, York University, Toronto, ON M3J 1P3, Canada

<sup>5</sup>Department of Biology, The University of British Columbia - Okanagan Campus, 1177 Research Road, Kelowna, BC V1V 1V7, Canada

<sup>6</sup>Department of Integrative Biology, University of Guelph, Guelph, ON N1G 2W1, Canada

<sup>7</sup>Field School, Miami, FL, USA

<sup>8</sup>University of Miami Rosenstiel School of Marine and Atmospheric Sciences, 4600 Rickenbacker Causeway, Miami, FL 33149, USA

<sup>9</sup>Wildlife Conservation Society Canada, 344 Bloor Street West, Toronto, Ontario M5S 3A7, Canada

<sup>10</sup>Acadia University, Department of Biology, 15 University Drive, Wolfville, Nova Scotia B4P 2R6, Canada

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<https://doi.org/10.1016/j.isci.2020.101205>





Threat	
Shark finning	The removal of a shark's fins at sea and the discarding of the shark's carcass at sea. (NB: if a shark's carcass is brought to shore, that shark has not been "finned" even if the fins are later removed and sold.)
Overfishing	Removing fish from a population at a rate that cannot be replaced by reproduction (i.e., unsustainable fishing)
Shark fin trade	Selling shark fins, which may or may not come from shark finning. (NOTE: if a shark's carcass has been landed and that shark's fins are later removed and sold, that is an example of shark fin trade that did not result from shark finning. This is common in the USA and also happens elsewhere.)
Shark meat trade	Selling shark meat, which may or may not come from sharks whose fins were also sold
Shark liver oil trade	Selling shark liver oil, used in some cosmetics and pharmaceuticals
Bycatch	Catching a species unintentionally while targeting a different species (aka "non-target catch")
Recreational fishing	Fishing for sharks for fun, as opposed to commercial shark fishing. Can be but does not have to be in the form of tournaments/derbies
Pollution	Human-made waste in the ocean, including but not limited to plastics
Climate change/ocean acidification	Anthropogenic changes to the climate and associated changes in ocean pH
Policy Solution	
Fishing quota/sustainable fisheries management	Any mention of any of a suite of policies designed to limit the catch of sharks to a level deemed sustainable by scientists and managers, not banning all fishing
Finning ban	A ban on removing the fins of a shark at sea and discarding the carcass at sea, distinct from a ban on selling fins
Bycatch reduction	Regulations designed to decrease the catch of sharks as non-target species in a fishery that targets other fish
No-take MPA	A total ban on all fishing (for sharks and for other species) in an area
Shark sanctuary	A ban on commercial fishing for sharks, but not other fish, in an area
Shark fin trade ban	Banning the sale of shark fins, distinct from a finning ban
Consumer boycott/corporate response	Refers to activists who criticize a company for involvement (often peripheral) with the shark fin trade, as well as how those companies respond to that criticism

**Table 1. Definitions of Threats and Policy Solutions**

misunderstanding among concerned members of the public about the threats facing sharks, with many examples of the specific and technical term "shark finning" being misused to refer to any threat to sharks (Shiffman and Hammerschlag, 2016a). There are also many examples of environmental activists (primarily those unaffiliated with larger science-based non-profits) focusing exclusively on shark finning, wrongly implying that shark finning is the only threat sharks face and the only significant source of shark mortality; focusing on only part of the problem means that significant sources of mortality remain unaddressed (Shiffman and Hueter, 2017). Although some shark species in some parts of the world are indeed targeted by fisheries primarily for their fins, an increasing number have their meat traded as well—and policy solutions focusing exclusively on fins ignore this significant and growing source of mortality.

It is important to assess the causes and consequences of this misunderstanding, as members of the public who misunderstand current threats and available solutions are more likely to support solutions that are not supported by the scientific data (e.g., Loomis et al., 2001 found that members of the public held

misconceptions about prescribed burning but were more likely to support this science-based solution after they had been educated about it). Such suboptimal solutions potentially come at the expense of solutions that are supported by the scientific data, which may in turn lead to alienation of key stakeholder groups like fishers and further exacerbate conservation challenges.

### The Role of the Popular Press in Informing the Public and Shaping Public Support for Environmental Policy

The way that scientific information reaches the public and eventually influences policy change can be conceptualized through diagrams of the science/policy interface, which allow us to model pathways of information flow as information moves from scientific experts to stakeholder groups to decisionmakers (see [Phillis et al., 2013](#) for a simplified reactionary pathway of this process). One important mechanism by which scientific information spreads across the science/policy interface is through media coverage from the popular press, which plays a role in public understanding and interpretation of scientific and environmental issues ([Hansen, 2011](#)).

Popular press coverage not only reflects current public opinion on a topic but has the ability to shape and influence current public opinion ([Scheufele and Tewksbury, 2007](#)), with potentially large implications for public policy change ([McCombs and Shaw, 1972](#)). This can take several forms, including agenda-setting (i.e., popular press repeatedly covering a topic causing readers to believe that the topic is important when they might not otherwise believe that), priming (i.e., getting people to view a given issue or policy solution as good or bad, important or unimportant, feasible or impractical through repetition alone), or cultivation (i.e., repeated exposure to one side of a policy debate resulting in people becoming more sympathetic to that side of the debate, [Scheufele and Tewksbury, 2007](#)). Such media influence has mostly been studied in areas of geopolitics and foreign policy, including the 9/11 terror attacks and the US response ([Entman, 2004](#)) and acceptance of European Union expansion ([De Vreese and Boomgaarden, 2003](#)). However, these same principles apply to media coverage influencing public understanding of environmental problems and public support for a particular set of policy solutions ([Muter et al., 2013](#); [Johns and Jacquet, 2018](#)).

Many people who do not directly interact with a given wildlife issue (i.e., people who do not live within an area where human-wildlife conflict is common) may hear about that issue primarily from media coverage ([Messmer et al., 2001](#)). How popular press coverage frames an environmental issue can have effects on how the public understands the problem and the possible solutions to it (e.g., in the case of habitat protections for threatened shorebirds influencing coastal construction projects, [Dayer et al., 2017](#)). Coverage of wolf-human interactions with a negative valence (tone/focus) limited the political feasibility of certain conservation policy options ([Houston et al., 2010](#)), whereas coverage of big cat-human interactions with a positive valence led to increased support for cougar conservation efforts ([Jacobson et al., 2012](#)) and panther conservation ([Wolch et al., 1997](#)).

Repeatedly hearing about a problem through one frame presenting one particular solution causes people to assume that this is the only way to understand the problem and the only solution (or the most effective solution, or the obvious solution); when new ways of understanding or solving the problem are presented, they can be dismissed as incongruous without being considered ([Entman, 2004](#)). Presenting two possible policy solutions as equally useful, effective, or supported by experts when they are not (i.e., “false balance”) can result in public confusion and support for less effective, less expert-supported policy solutions ([Boykoff and Boykoff, 2004](#)).

In the world of shark conservation, one set of policy solutions (limit-based total bans on fisheries and trade) are often supported by people who wrongly believe that shark populations have declined by more than they actually have, that the consequences of those declines will be worse than the evidence suggests they will be, and that sustainable shark fisheries cannot and do not exist ([Shiffman and Hammerschlag, 2016a](#)). Such a pessimistic “doom and gloom” approach ([Johns and Jacquet, 2018](#)) has been applied throughout the world of ocean conservation, especially with respect to fisheries management—some believe there is no such thing as a sustainable fishery and that total bans on all fishing are the only genuine conservation option. This approach, based on misrepresenting or exaggerating the data to get people to pay attention, risks “crying wolf,” or creating a situation where people do not believe you even when you later try to accurately describe a problem ([Ladle et al., 2004](#)). The increasingly widespread (and

demonstrably false) belief that there is no such thing as a sustainable fishery makes it much harder to gain the public support necessary for effective sustainable fisheries management (Hilborn, 2010).

Technical information presented in the popular press can be demonstrably false or simply misleading. Misleading information can include a problem we term here “aggregate coverage bias” (i.e., even if an individual article is accurate, there is disproportionate focus on one topic at the expense of another topic among all articles combined). Aggregate coverage bias falsely suggests that one aspect of a problem is more important than other aspects of that problem, whereas demonstrably false and misleading statements misinform readers in more direct ways. This is especially problematic if the aggregate coverage is biased toward a threat that is not the largest threat, or a solution that is not the most effective solution; this goes farther than “false balance” (presenting two options as equally valid when one is overwhelmingly supported by experts and the other is not, as with climate change in Boykoff and Boykoff, 2007).

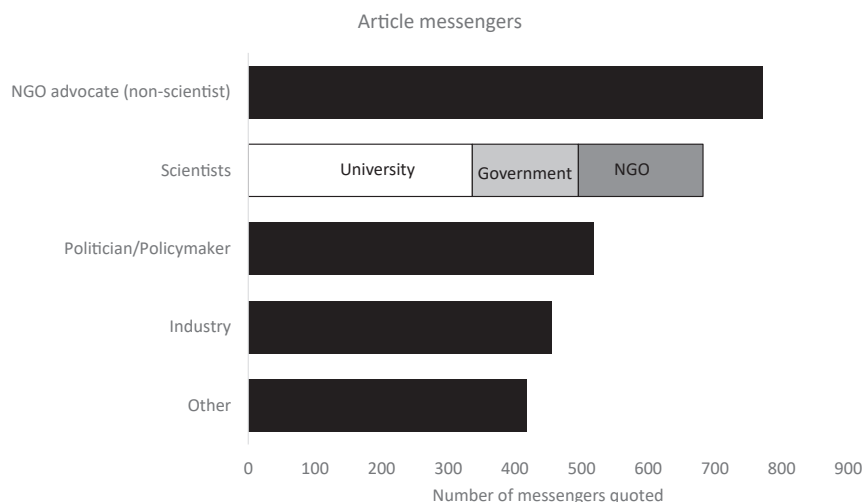
When concerned non-experts wrongly believe that a problem is worse than it really is, or when they are misinformed about which policy solutions exists, they may be more likely to support more extreme solutions that are less supported by scientific evidence. This is distinct from the widely discredited “knowledge deficit model” (Sturgis and Allum, 2004), which suggests that, if everyone only knew what the experts know, they would agree with the experts on what the best solution is. Human psychology is obviously more complex than that. However, although the deficit model does not work, if people are only presented with a limited and inaccurate subset of the available information, they would not even get the chance to blend accurate facts with their personal values and form their own opinions and policy preferences that might have aligned with expert-backed policy preferences. Data suggest that policy-relevant facts have a significant impact on public policy preferences (Gilens, 2001) and that information exchanged between scientists and the public can lead to changes in the opinions including in discussions of emotionally charged environmental issues (e.g., flood mitigation in Europe; Slinger et al., 2009). In short, having access to accurate information is a necessary, but not sufficient, step in gaining public support for evidence-backed policy solutions supported by experts.

### Media Content Analysis

Media content analysis is a scientific approach to measuring the relative focus and factual accuracy of how an issue is covered in the popular press. This method is important because sensationalist science media coverage has been found to drive future research goals and funding (e.g., Hilborn, 2006; Branch, 2013). This method has been applied to environmental issues like climate change (e.g., Boykoff and Boykoff, 2007, which found that lots of media coverage of climate change was misleading or wrong) and overfishing (e.g., Johns and Jacquet, 2018, which focused on the tone of coverage and found that optimism was more common than pessimism in coverage of ocean conservation), as well as wildlife conservation and human-wildlife conflict (e.g., Dayer et al., 2017, which found that most articles framed an environmental problem as being caused by a threatened species rather than by government policies). Media content analysis focuses on the tone, factual accuracy, and framing of stories, as well as who the messengers (experts interviewed and quoted) are.

A past media content analysis (Muter et al., 2013) of how sharks are covered in the media found that only 9% of all shark-related media coverage in the USA and Australia was related to shark conservation, but no more detailed breakdown of that shark conservation media coverage was performed. Additionally, to the best of our knowledge, no study has examined how shark conservation issues are presented in media coverage globally.

Here we present the results of a global media content analysis of shark conservation topics over the last decade, 2008–2017. We assessed the relative amount of coverage of various shark conservation threats and policy solutions (aggregate coverage bias) and determined if each was presented in a factually accurate manner with appropriate context provided. In addition to major threats (those identified by global-scale conservation analyses as threats facing many species) and the most common policy solutions, we also explored how a variety of minor and emerging threats (those facing some populations of some species, which may expand in the future) are covered and how information related to threats and solutions is covered. Overall, this study seeks to assess whether a concerned layperson (someone who is sympathetic to the goals of shark conservation but unaware of it, distinct from people who are actively involved in



**Figure 1. Numerical Frequency of Each Category of Messenger Quoted in This Analysis, with “Scientists” Broken Down by Employer Type**

seeking out information about this issue) who learned about the state of shark conservation exclusively by reading mainstream media coverage would be learning accurate information about shark conservation issues.

## RESULTS

We find that shark conservation threats and solutions are frequently presented in an oversimplified, biased, or factually inaccurate manner that would likely contribute to widespread public misunderstanding about these topics.

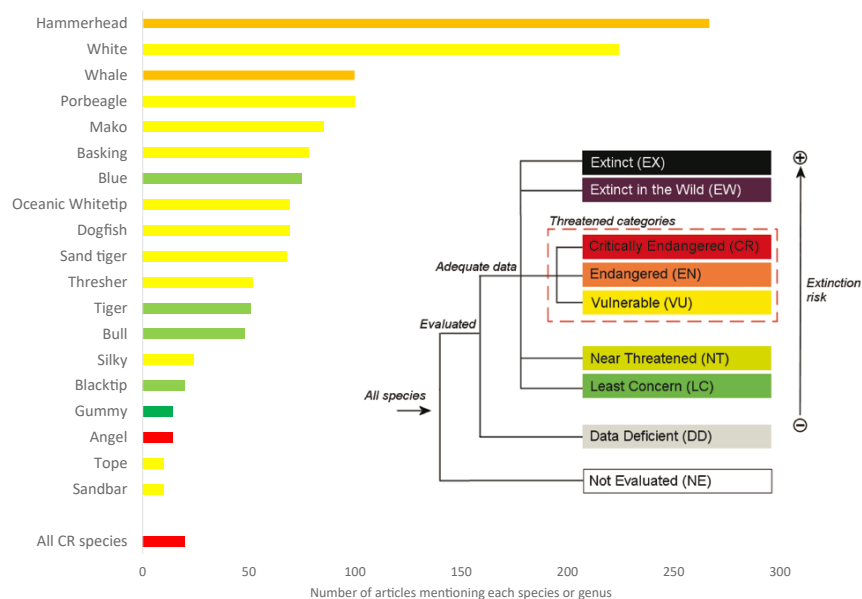
Shark conservation threats and solutions were the most common topic of sampled articles, with threats featured in a third of articles ( $N = 594$ , which is 32.8% of articles) and proposed or newly enacted policy solutions featured in nearly half of all articles ( $N = 816$ , 45.18% of articles). Articles that focused on new scientific research, new governmental or non-profit reports, or violations of existing conservation policies each received less than 10% of the topic focus of all articles and were not analyzed further.

### Article Messengers

The most common messenger interviewed in articles analyzed here was a non-scientist conservation advocate working for non-governmental organizations ( $N = 772$  interviews, Figure 1). Government decision makers, including elected officials and natural resource management policymakers, were interviewed 518 times, and industry representatives were interviewed 456 times (Figure 1). Of the 682 scientists featured as messengers, 59.1% were independent academic scientists working for educational institutions and the rest were a mix of scientists employed by government agencies or environmental non-governmental organizations (Figure 1). The most common employers of interviewed messengers were WWF, WildAid, the Pew Environment Group, and Oceana (each  $N > 50$ ). Those categorized as “other” included attorneys, children, concerned members of the public unaffiliated with a non-profit group, and representatives of industries not directly related to shark fishing or shark conservation (e.g., beach tourism and surfing). There were no significant patterns in which type of messenger was correlated with which type of story, although many of the factual errors in describing conservation policy solutions (see below) came from non-scientist employees of environmental non-profit groups. We should note that not all non-profit group representatives had quotes attributed to them containing inaccurate information and inaccurate information was attributed to representatives of every type of messenger.

### Shark Species Mentioned

In an era of highly publicized biodiversity loss, one might expect that more threatened species would get disproportionate media coverage, but this is not the case. The most threatened species are not the species



**Figure 2. Species Mentions by Threat Status**

The number of articles that mention specific shark species, genera, or families (e.g., hammerhead, mako, dogfish, angel), color-coded by IUCN Red List status. Red represents an assessment of “Critically Endangered,” whereas Green colors are not threatened (either Near Threatened or Least Concern). Inset: Schematic diagram of the IUCN Red List Categories, with extinction risk increasing toward the top. Red List assessments are valid as of 2018 when the analysis was conducted.

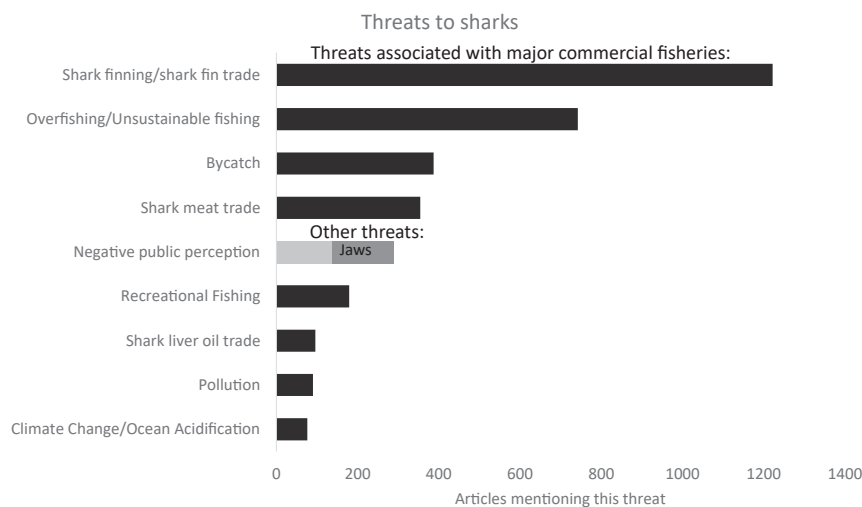
that get the most media coverage (Figure 2). The most commonly mentioned species or genus groupings of sharks were hammerhead sharks (all *Sphyrna* spp.), white sharks, whale sharks, porbeagle sharks, and mako sharks both *Isurus* spp., Figure 2). There were a total of just 20 mentions (1.1% of articles) of the ten shark species assessed as Critically Endangered (CR) on the IUCN Red List as of this writing (a reassessment of all species is currently underway by the Red List, Figure 2), and 75% of those (15) were mentions of angel sharks (*Squatina* spp.).

### Threats to Sharks

The most commonly mentioned threat, by far, was shark finning and the shark fin trade, mentioned in 1,222 articles (67.7% of articles, Figure 3) Although conflating shark finning and the shark fin trade is not a best practice (see definitions), this was done so often in these popular press articles that it was impossible to tease the two threats apart. In contrast, overfishing in general, which is a larger threat that includes but is not limited to shark finning, was mentioned in less than half of articles (742 articles, 41.1% of articles, Figure 3). The shark meat trade, which is a growing threat generally comparable with the shark fin trade, was mentioned in just 354 articles (19.6% of articles, Figure 3), often in the context of wrongly stating that there is *not* a significant shark meat trade but *only* a trade in shark fins. Recreational fishing, an emerging conservation threat, was mentioned in 179 articles (9.9% of articles, Figure 3), usually focusing on fishing tournaments rather than individual anglers. Other threats received less coverage, with climate change/ocean acidification mentioned in 76 articles (4.2% of articles, Figure 3) and ocean pollution mentioned in 90 articles (5.0% of articles, Figure 3).

Sharks’ negative public image, and the associated idea that sharks are threatened at least partially because they frighten people, was mentioned in 288 articles (15.9% of articles) with the movie “Jaws” being specifically referenced in 136 articles (7.5% of articles, Figure 3, Table 2).

Shark population decreases were mentioned in 442 articles (24.5% of articles) with 474 articles (26.2% of articles) specifically mentioning the number of sharks killed by humans each year. The numbers provided were often misleading or exaggerated or involved quoting controversial and/or disputed figures from the scientific literature without context (Table 3). Within the literature, there are (disputed) reports showing approximately 90% declines in some subpopulations of some species (Baum et al., 2003, 2005). This is often



**Figure 3. Mentions of Threats**

The number of articles mentioning threats to sharks, categorized by threats associated with commercial fisheries and “other threats” (including comparatively minor threats as well as emerging threats). Mentions of the negative public perception of sharks are broken down into those specifically mentioning the film “Jaws” and those that do not. Recall that overfishing as a category includes bycatch, shark finning, and the shark meat trade and is the single most dominant threat to sharks globally

wrongly exaggerated to 90% declines in all shark species everywhere in media coverage (and media coverage almost never noted the existence of rebuttals to claims they were not accurately representing). Additionally, many media reports only noted shark fins and the shark fin trade as a reason for why sharks were being killed, which is not accurate and not what the sources they are referencing claim.

Four hundred and twenty-three articles (23.3%) noted the negative ecological consequences associated with shark population declines. Descriptions of these effects or of the ecological importance of sharks were often oversimplified, greatly exaggerated, or just plain factually incorrect (Table 4). Common factual errors and examples of incomplete context included claims that a loss of shark populations would result in widespread catastrophic ecological effects, when only limited impacts have been reported in the literature—and all of those have been disputed by other scientists via rebuttals.

### Policy Solutions

The most commonly mentioned policy solutions were a shark fin trade ban (380 mentions, 21% of articles) and a shark finning ban (372 mentions, 20.6% of articles, which was most often in the context of why a shark fin trade ban is needed, e.g., “shark finning is already banned but the sale of shark fins is not,” Figure 4). Such mentions were often misleading or factually incorrect, suggesting that allowing the sale of fins from sharks that have been landed whole (not finned) is an unintended loophole of US shark fisheries management policy, when in reality it was the stated goal of the policy at the time and the stated goal of non-profit groups advocating for that policy (Atlantic shark fisheries management plan 1994). Shark finning bans were also mentioned in the context of a proposed shark finning ban in New Zealand, but much less frequently than mentions in the context of shark fin trade bans. Shark fin trade bans received more than twice as many mentions as all sustainable fisheries management tools combined. When categorized into policy families following Shiffman and Hammerschlag (2016a), this means that target-based policies were mentioned in 624 articles (34.6% of articles) and limit-based policies were mentioned in 643 (35.6% of articles, Figure 4); however, 59.1% of all articles that mentioned a target-based policy only mentioned a shark finning ban. Consumer boycotts were mentioned in 194 articles (10.7% of articles, Figure 4).

Wildlife tourism such as SCUBA diving or snorkeling with sharks was mentioned in 170 articles (9.4% of articles), with the idea that “sharks are worth more alive than dead” (and therefore that non-consumptive use is preferable to fishing) often mentioned in these articles. These mentions never included key context and limitations and often exaggerated the broad applicability of results (Table 5). It is true that, in some cases,

"In today's world, the shark is seen as an evil villain using the beauty of the ocean to stalk its prey. For most, the very thought of sharks has them fleeing water and running to safety from the predator. Yet, while many see the human as the shark's prey, the reverse is the case."

"When sharks eat children, or bite the legs off surfers, they really do make it difficult to care about their well-being."

"Why protect these sharks? They eat people right? Not really. Death by shark attack is more rare than a lightning strike, yet the perception remains that sharks are dangerous. In fact, many species of shark are becoming endangered."

"At the end of the day, sharks get a really bad rap, she said. Sharks are suffering declines all over the world and we need to raise awareness of sharks and their role in the ecosystem and that they're not trying to harm us."

"Every kid knows about sharks and knows to fear them... but they're not big bloodthirsty man-eaters."

"While sharks may have a reputation as Jaws-style savage killers, shark attacks are rare - there is a much higher chance of being killed by being struck by lightning than being killed by a shark."

"And despite sharks' reputation as fierce predators - enhanced by the Jaws films - none of the species found in Scottish water are known to attack humans."

"Sharks, it must be said, do not get a good press. You might blame Peter Benchley for that. The publication, and more importantly the filming, of his book Jaws scared a generation out of the water. Evidently the author felt remorseful for this, since he devoted the rest of his life to convincing the world that sharks were a threatened rather than a threatening species."

"They are the puppies of the ocean - they're not Jaws. They are very gentle creatures but we're down to the last 1500 or so."

"I think sharks are feared or loved. People fear them because they don't understand them or have watched Jaws one too many times."

"Of course people immediately think of Jaws and the teeth, but we're the predators really, not them. We kill millions and millions of them every year."

**Table 2. Representative Examples of Mentions of Public Fear of Sharks/the Movie Jaws**

wildlife tourism can be worth more money than extractive fisheries, but this is not always true and there are important caveats (wildlife tourism is not going to help Critically Endangered species, the revenue from wildlife tourism often goes to different people than the fishermen who lose revenue and/or food security when they stop fishing, etc.).

## DISCUSSION

Through this analysis, we show that key issues surrounding shark conservation are not being communicated accurately to the public in the popular press. This could result in concerned members of the public who are learning about shark conservation primarily through reading articles in the popular press (henceforth "readers") being misinformed about the threats sharks face and the most effective solutions to those threats, with potentially problematic implications for eventual policy change via the media's agenda-setting, priming, and cultivation roles (Scheufele and Tewksbury, 2007). Although some people who are highly engaged in this issue would seek out information from a variety of sources, many people learn about wildlife conservation issues, including threats and solutions, primarily from the popular press (Mesemer et al., 2001).

Although exaggerated and oversimplified messages may be useful for getting concerned members of the public to engage with shark conservation, people who are misinformed about threats and solutions can undermine existing successful conservation initiatives through actively pursuing the wrong policies (i.e., policies that are not the best supported by available data and expertise, Shiffman and Hueter, 2017) or through voting for policymakers who support the wrong policies. Our data show that much of the wrong information presented is simply misquoting facts from the peer-reviewed literature or presenting them out of context, whereas some misinformation comes from unknown sources. Some may just be a simple typographical

"Shark's fin soup was popularized only in the last 30 or so years, and during this short span, shark populations have faced worldwide declines of approximately 80 per cent"
"90 per cent of the world's large-shark populations have been wiped out"
"Population collapses in the region of 80–99 per cent in the past 50 years"
"The world population of sharks has decreased by 80–90 per cent over the past few hundred years"
"Ninety percent of the world's sharks have disappeared over the past 100 years"
"The demand for shark fin - seen as a delicacy in China - killed between 26 million and 75 billion sharks a year"
"About 89 million sharks are killed for their fins globally each year"
"73 million sharks are killed each year for their fins"
"We're killing 100 million sharks a year for shark fin soup"
"About 100 million sharks are killed worldwide [each year] and 70 per cent of them are targeted for their fins"

**Table 3. Representative Examples of Misleading Exaggerated or Disputed References to Shark Population Decreases**

These examples also demonstrate a wide range of quoted figures, sometimes even combining misquoted stats from multiple sources.

error (e.g., "billion" instead of "million"). Regardless, the way a problem is framed and described affects peoples' understanding of that problem and informs their support for various solutions.

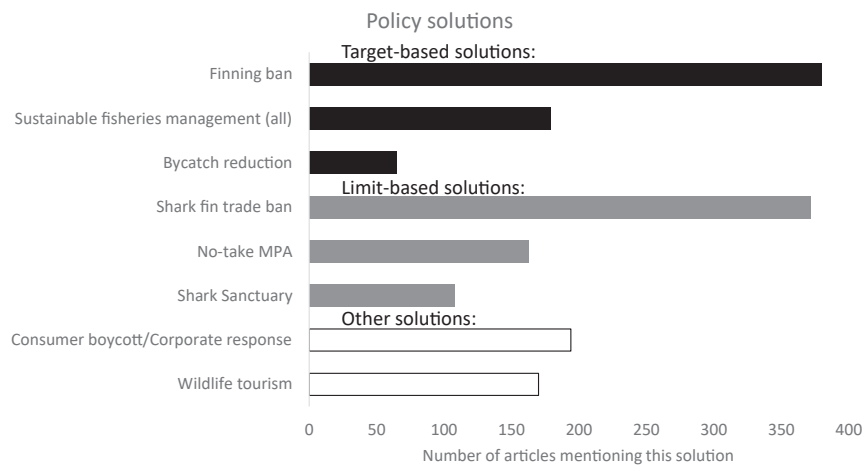
Although there were no patterns in misinformation associated with our general analysis of messenger, much of the wrong information about threats and policy solutions came from non-scientist representatives of non-profit groups. There are a wide range of such non-profit groups in the very crowded public policy space of shark conservation (Shiffman and Hammerschlag, 2016a), with many who employ qualified experts and should be considered reputable sources for information, and many others who do not and perhaps should not.

We found strong evidence of aggregate coverage bias, with media outlets focusing overwhelmingly and disproportionately on just one threat sharks face (finning and the fin trade) and one type of policy solution to protect sharks (shark fin trade bans) at the expense of other important threats and policy solutions. This aggregate coverage bias was not aligned with the most serious threats to sharks or the most effective conservation policy solutions (based on scientific data, Dulvy et al., 2014, and the perceptions of experts, Shiffman and Hammerschlag, 2016b). Threats and policy solutions were also frequently covered in a misleading manner or with demonstrably false information. This is likely to impact policy change directly or indirectly

"Sharks are at the top of the food chain and they keep the populations of fish and other species in check. Should sharks become extinct, it will eventually cause fish stocks that are essential to our survival to be depleted. The fate of humans is closely tied to the survival of sharks. We certainly do not want our current or future generations to experience the day when we can no longer benefit from seafood as a source of protein as a result of shark extinction"
"No sharks means more skates and rays, and more skates and rays means less scallops and oysters and shellfish because the rays are eating them before the fishermen can catch them. Shellfish have filtration systems that improve water quality; with fewer shellfish, water becomes more susceptible to aberrations like brown tides"
"Removal of predators is likely to lead to an increase in ocean ecosystems' CO2 production, and ultimately that fishing and shark finning are contributing to climate change"
"Sharks are essential to maintain the balance of the ocean's ecosystem"
"If no sharks are left, all the other fish will die"

**Table 4. Representative Mentions of the Ecological Importance of Sharks/the Negative Ecological Consequences Associated with Shark Declines Highlighting some Examples of Misleading Phrasing**





**Figure 4. Relative Frequency of Policy Solutions Mentioned in Analyzed Articles, Sorted into Target-Based, Limit-Based, and Other**

(policymakers learn about issues of concern from the popular press or from concerned constituents who have, [Phillis et al., 2013](#)).

Based on media coverage, readers may wrongly believe shark finning is the only major threat that sharks face and that the shark meat trade and overfishing in general are not significant threats. This is problematic because policy solutions focusing on only the shark fin trade allow other threats to proceed without the policy interventions that can come from public awareness and pressure (as argued in [Shiffman and Hueter, 2017](#), although other policy tools are still actively discussed by decision makers, they often generate much less public pressure). Furthermore, readers would wrongly believe that shark declines are more severe and pervasive than they really are (see [Burgess et al., 2005](#) for a discussion on why that is not the case and [Peterson et al., 2017](#) for population increases) and would wrongly believe that the ecological consequences of shark population declines are worse than they really are (see [Grubbs et al., 2016](#) for a detailed discussion about the lack of evidence of shark population declines causing trophic cascades). Sharks are a diverse taxon that experience diverse threats to varying degrees. Assumptions that homogenize beliefs about conservation challenges risk ignoring significant threats or building support for suboptimal policy solutions which are unsupported by scientific data and evidence. Total bans on shark fishing and trade in shark products can detrimentally affect employment, economic development, and food security, especially in the developing world ([Simpfendorfer and Dulvy, 2017](#)).

Readers would also have much more limited awareness of conservation issues affecting the most-threatened species of sharks, those assessed as Critically Endangered by the IUCN Red List, than awareness

“A live shark is worth over a million dollars in tourism revenue over its life span because sharks live for decades and thousands of people will travel and dive just to see them up close.”

“Fishermen could be better supported through eco-tourism, where divers pay to swim with the sharks. In the Bahamas, such trips are worth US\$78 million (\$\$99 million) to its economy each year. This would also be more sustainable in the long run.”

“People from all around the world are dying to come to South Africa and witness them first-hand. We should be proud of that and should do everything in our power to make sure they’re here for years to come.”

“Sharks are charismatic animals that are beloved by divers and therefore can play an important role in attracting more tourists and tourist revenue for coastal communities”

“Diving destinations in Palau, the Maldives, Fiji, Mexico and other shark hot spots now realize they can make more money by protecting sharks than by butchering them for soup.”

**Table 5. Representative Examples of Mentions of Wildlife Tourism as a Conservation Solution**

of the conservation issues facing better-known (but less threatened) species. These species are in the greatest need of conservation assistance and could perhaps receive the largest benefit from increased publicity toward their issues, which are often distinct threats from those facing more widely known species (e.g., habitat destruction for species with a narrow restricted range, [Dulvy et al., 2014](#)). It should be noted that this problem of disproportionate focus on a subset of better-known species is also a problem of the scientific literature, not just of the media (e.g., [Bonnet et al., 2002](#) in general, [Shiffman et al., 2020](#) for sharks).

The idea that the film “Jaws” and associated public fear of sharks can have a negative impact on public support for shark conservation has been discussed in the literature. However, proponents of these arguments do not claim that this is as significant or direct of a threat to sharks as the shark meat trade, and here the shark meat trade was mentioned only slightly more frequently than public fear of sharks.

Certain threats that received less attention in the popular press (pollution and climate change/ocean acidification) are indeed generally considered to be relatively minor threats facing sharks overall. Although plastic pollution has been proposed as a threat to filter-feeding shark species, there is no documented evidence of actual population-level harm caused yet ([Germanov et al., 2018](#)). Similarly, chemical pollutants have been shown to cause harm to a few subpopulations of a few species of sharks, but only in very high levels. Climate change and ocean acidification are generally not considered a major threat to sharks ([Chin et al., 2010](#)) because many sharks can just adjust their ranges to a more thermally suitable environment (e.g., [Bangley et al., 2018](#)). Recreational shark fisheries are also considered a relatively minor threat to sharks overall but are a problem for some subpopulations of sharks ([Kilfoil et al., 2017](#); [Kyne and Feutry, 2017](#); [Shiffman et al., 2017](#)).

Readers of the articles analyzed here may wrongly believe that limit-based solutions (especially shark fin trade bans) are the best, most popular, most widely used policy solution, if not the only policy solution available—these tools receive by far the most media coverage of any policy tool analyzed here, but criticism of the effectiveness of these policies is almost never mentioned. Readers would learn much less about target-based tools and the large body of scientific evidence supporting their effectiveness. The authors would again like to stress that, although much of the media coverage surrounding shark fin trade bans contains factual inaccuracies or misleading statements, that does not mean that supporters of these policies, which include scientific and technical experts from universities and science-based non-profits, are in any way unscientific. Additionally, most of the mentions of shark fin trade bans included in this 2008–2017 analysis were at the US state level; discussions of a national US-level fin ban (which involve different stakeholder groups and supporters) occurred only at the end of this analysis.

Readers may wrongly believe that wildlife tourism and consumer boycotts of companies peripherally related to the shark fin trade are more effective solutions to protect sharks than they really are. Wildlife tourism is an effective solution in some circumstances, but the idea that “sharks are more valuable alive than dead” is not universally correct, and many of the most threatened species of sharks are not candidates for wildlife tourism because they are not reliably seen near any kind of tourism infrastructure, are small and uncharismatic, or are found offshore in cold or deep waters ([Macdonald et al., 2017](#)). Consumer boycotts of companies peripherally involved in the shark fin trade may generate flashy media-friendly protests, but even if they accomplish their stated goals, targeted companies typically do not have any influence over a significant amount of shark mortality.

The degree to which scientists and scientific expertise should be the key determinant of management decisions is debatable (see [Backstrand, 2003](#)). Some desire for total bans on shark fishing (or total bans on all fishing overall) may be based on personal or cultural values rather than scientific data (e.g., an animal rights perspective versus a goal of population-level sustainability). However, claiming to make a science-based argument while misrepresenting scientific data in support of a values-based argument is problematic. Additionally, current management norms call on scientific data to make determinations about environmental policy decisions, but such scientific data are often absent from mass media coverage of shark conservation issues that informs the public about this topic (e.g., [Stone et al., 1998](#)).

Although no individual media article can reasonably be expected to cover every dimension of a complex global conservation problem, the fact that so many media articles focused on the same subset of topics is

problematic in aggregate, and the presence of so many easily checkable factual inaccuracies goes against most journalistic norms. Additionally, it is important to note here that the media industry is changing rapidly and fewer science-specialty journalists are being employed by large media outlets. In our experience, the remaining reporters on the science beat, and those who work for science-focused specialty news outlets not included in this analysis, try very hard to get the story right and often succeed. Finally, scientists who are approached for interviews and want to make sure that journalists get the story right would benefit from media training and building relationships with reporters who cover their “beat”; in our experience this also leads to improved coverage, as does proactively reaching out to journalists who cover our beat and offering a background briefing.

Nevertheless, a concerned member of the public learning about sharks and their conservation from reading the popular press in aggregate would wrongly believe that shark finning and the demand for shark fins are the only major threat sharks face and that banning the sale of shark fins is the best available solution to protect sharks. Neither of these beliefs are aligned with the current state of scientific research on shark conservation or with scientific expert opinion.

Shark conservation is far more complicated than what the information in the popular press suggests. Targeting sharks for the meat trade may not be as flashy as the shark fin trade, but it is a significant source of mortality that should not be ignored, dismissed, or misrepresented. Conservation issues facing species such as the daggernose shark (*Isogomphodon oxyrinchus*, largely threatened by fisheries bycatch in Brazil) may not drive as many clicks to a media organizations website as showing a video of a great white shark swimming near a popular resort community, but this Critically Endangered species could truly benefit from increased public attention and concern resulting from popular press coverage.

The real story of shark conservation is more complicated than the simplified, biased, and inaccurate version frequently presented in the popular press. However, the real story needs to be told if we are to effectively leverage public support to ensure the continued survival of these ecologically important, evolutionarily distinct animals. Although facts are not the only thing that influences public support for a policy, facts do matter, and currently the mainstream media is not contributing as fully as it could to accurate public understanding of these issues.

### Limitations of the Study

The magnitude of observed trends and the frequency of documented factual errors gives us confidence that our central claims capture problems that genuinely exist in media reporting on shark conservation. However, we acknowledge several limitations of this study’s approach. Although many people do get science and environment-related news exclusively from the popular press, such information can come from a variety of sources, which means inaccurate and biased information in the popular press could be partially counterbalanced by accurate information available through other sources (work analyzing the accuracy of several of those other sources is underway). Second, limitations of available databases and our own language skillsets meant that we focused exclusively on English-speaking media outlets, despite the presence of significant shark conservation issues in non-English speaking countries. A comparative study on how these issues are presented in Spanish (a great deal of shark meat consumption occurs in South and Central America) or in Mandarin Chinese (fin consumption mostly occurs in China) media outlets could potentially illuminate these issues further across cultural contexts, although we note that our corpus of articles does include English-language papers from these regions. Next, although we included most well-known, accurate, and reliable science to summarize facts about shark conservation threats and solutions in section 2.5 of Supplemental Information and facts provided were independently confirmed by numerous experts, this should not be treated as a comprehensive review of all the existing scientific literature on this topic. Additionally, the use of 10 coders introduces possible intercoder reliability issues not found with a smaller number of coders, although we minimized this risk through comprehensive training and categorization guides and choosing straightforward variables that leave little room for interpretation. Finally, in order to get a sense of the global scope of these issues, we did not focus exclusively on the most widely read media outlets, although it is probably fair to say that inaccurate information presented in a media outlet with a huge readership is a larger problem than wrong information presented in a smaller regional media outlet.

### Resource Availability

#### *Lead Contact*

Lead author Dr. David Shiffman.

#### *Materials Availability*

All articles downloaded from LexisNexis are available upon request to lead author Dr. David Shiffman.

#### *Data and Code Availability*

All articles downloaded from LexisNexis re available upon request to Dr. David Shiffman.

### METHODS

All methods can be found in the accompanying [Transparent Methods supplemental file](#).

### SUPPLEMENTAL INFORMATION

Supplemental Information can be found online at <https://doi.org/10.1016/j.isci.2020.101205>.

### ACKNOWLEDGMENTS

The authors would like to thank the editorial team at iScience and two anonymous referees for their thorough and constructive feedback on earlier drafts of this article, which significantly improved the final product. The authors would also like to thank the attendees of conference talks based on this research at the International Marine Conservation Congress and the North American Congress for Conservation Biology for feedback and would like to thank a team of independent experts in shark conservation policy who generously volunteered to fact check section 2.5 of Supplemental Information. Authors D.S.S., S.J.B., E.A.G., and J.P. were supported by the Liber Ero Postdoctoral Research Fellowship during this study. Author N.K.D. was supported by a Natural Sciences and Engineering Research Council of Canada Discovery Grant and the Canada Research Chairs Program. Author M.O. was funded by a Graduate Dean's Entrance Scholarship at Simon Fraser University. The authors have no conflicts of interest to declare

### AUTHOR CONTRIBUTIONS

D.S.S. conceived the study, trained readers, analyzed data, and produced the manuscript under the supervision of N.K.D. and with the assistance of C.C.M. C.C.M. also contributed significantly to the write-up and analysis. All other authors read, coded, and scored 1 year's worth of popular press articles and provided feedback on drafts.

### DECLARATION OF INTERESTS

The authors declare no competing interests.

Received: September 18, 2019

Revised: January 14, 2020

Accepted: May 25, 2020

Published: June 17, 2020

### SUPPORTING CITATIONS

The following reference appears in the Supplemental Information: [Abreo et al., 2019](#); [Akama and Kieti, 2007](#); [Ali and Sinan, 2014](#); [Anderson and Ahmed, 1993](#); [Bäckstrand, 2003](#); [Baum and Blanchard, 2010](#); [Braccini, 2015](#); [Catlin et al., 2013](#); [Clarke et al., 2006, 2013](#); [Currie et al., 2019](#); [Davidson et al., 2016](#); [Dent and Clarke, 2015](#); [Dulvy et al., 2008](#); [Fong and Anderson, 2002](#); [Gelsleichter and Walker, 2010](#); [Jacques, 2010](#); [Manire and Gruber, 1990](#); [Myers et al., 2007](#); [Neff, 2015](#); [O'Bryhim and Parsons, 2015](#); [Roff et al., 2016](#); [Ruppert et al., 2013](#); [Shiffman et al., 2014](#); [Shiffman and Hammerschlag, 2014](#); [Worm et al., 2013](#); [Adams, 2006](#).

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iScience, Volume 23

## **Supplemental Information**

### **Inaccurate and Biased Global Media**

#### **Coverage Underlies Public Misunderstanding**

#### **of Shark Conservation Threats and Solutions**

**David S. Shiffman, Sarah Joy Bittick, Madeline S. Cashion, Sheila R. Colla, Laura E. Coristine, Danielle H. Derrick, Elizabeth A. Gow, Catherine C. Macdonald, Mikayla More O'Ferrall, Melissa Orobko, Riley A. Pollom, Jennifer Provencher, and Nicholas K. Dulvy**

## ***2.1 Search/Dataset***

Using LexisNexis (See Appendix I for search terms), we identified popular press articles from 2008-2017 in English-speaking media around the world (N=1,806). Although a focus on English-language media leaves out an important audience (the leading consumers of shark fins are in Asia, the leading consumers of shark meat are in South America), it is a necessary limitation of our language skills and the databases we had access to. It should be noted that our analysis did capture many outlets from southeast Asia that were written primarily in English, including outlets from China and Singapore.

The internal LexisNexis similarity filter was applied to help ensure that each article was only counted once even if it was reprinted in multiple publications.

## ***2.2 Coding and scoring***

Ten readers were trained in media content analysis and the basics of shark conservation threats and solutions. Initially, every reader was assigned the same set of 25 articles, and intercoder reliability was measured at over 97%. A handful of initially-considered variables that were responsible for the greatest variation and confusion were discarded from subsequent analysis, placing intercoder reliability at 99.5%.

Each reader was then assigned one year of articles. For each article, readers answered 76 questions (mostly dichotomous yes/no questions asking if a given topic was mentioned in the article at all, e.g., “Is ocean acidification and/or climate change mentioned in this article: Yes/No,” see Appendix II for questions and examples forming the codebook). Questions focused on the topic of the article, what threats to sharks were mentioned in the article, and what policy solutions were mentioned in the article, as well as miscellaneous related information described below.

When a coder was not 100% certain how to code and score a variable, they flagged it for author DSS to confirm; all but two of these flagged variables were coded correctly and those two were adjusted. Additionally, author DSS randomly selected 100 articles to code and score independently to further assess intercoder reliability; six out of 100 articles had one error in the original coding out of 76 questions, one out of 100 had two errors out of 76 questions, and the rest were correct. This is an extremely high rate of inter-coder reliability, likely due to the presence/absence nature of many questions that require little judgement or interpretation that could introduce personal bias.

We examined articles for information that was unequivocally false, information that was misleading due to incomplete context, and aggregate coverage bias. Representative quotes showing particular types of statements are included throughout in tables, with minor punctuation and spelling corrections made (errors were likely due to LexisNexis text import or export errors, not the original media article).

## ***2.3 Messengers***



An article messenger is an external expert interviewed and quoted by the journalist to provide their perspective. We categorized messengers into one of the following categories: NGO-employed advocate/non-scientist (someone who works for an environmental non-profit group in an advocacy based role not a science-based role), scientific researcher (someone whose role is performing scientific research rather than advocacy or management, further categorized into independent academic scientists, those who work for government natural resource management agencies, or those who work for environmental non-profits), representatives of industry (typically fishing or the seafood trade), and politicians and policymakers (those who make decisions, which may be elected officials or regulators associated with a natural resources management agency). Those who did not fit into one of these categories were listed as “other”.

## ***2.4 Definitions***

We used the following definitions for the purpose of determining if a given threat or policy solution was mentioned in a media article for coding and scoring (Table 1).

## ***2.5 Factual information for assessments of demonstrably false or misleadingly presented information***

In addition to studying the relative coverage topics related to sharks and policy solutions to protect sharks, we assessed the factual accuracy of this coverage. To assess the factual accuracy of media coverage related to these topics, we first generated a list of verified accurate facts from the peer-reviewed scientific technical literature. Importantly, this was not used for initial coding and scoring of whether or not a topic was discussed in an article, but for a separate analysis of the factual accuracy of points that were discussed in articles searching for commonly shared misconceptions and inaccuracies.

To generate a list of verified accurate facts, we searched our extensive personal libraries for literature related to topics of interest (see codebook and questions in Appendix II); these libraries have been developed through many years of performing policy relevant research, conversations with experts in policy research and science based advocacy, and extensive experience in public engagement in shark conservation. For every statistic or figure or question, we refer to (and cite) the most commonly-available, widely-used sources of information on this subject. Section 2.5 was also independently checked by several independent expert colleagues.

Each question is categorized into either “threats to sharks” or “available policy solutions,” and then answered in-depth highlighting key figures, key references, and common misunderstandings shared with us through conversations with relevant experts. Information presented in media articles that contradicts this without providing an alternative, reliable source was generally considered to be inaccurate, though much of the contradictory information was already known to us as “common misconceptions.”

### **2.5.1 Threats to sharks: what are the biggest threats to sharks?**

The biggest threat facing chondrichthyan fishes (sharks and their relatives) as a group is overfishing (Dulvy et al. 2014). Overfishing includes fishing that supplies the international shark fin trade as well as fishing that supplies that shark meat trade locally, internationally, and for subsistence. Overfishing further includes both targeted catch as well as unintentional bycatch that may or may not be landed. This report also noted that habitat destruction is a major threat facing some particularly threatened species (e.g., coastal mangroves being destroyed to create aquaculture operations, Dulvy et al. 2014). Claiming that shark finning and the shark fin trade is the only major threat that sharks face is not supported by the data (see “how extensive is the shark meat trade?” below).

### **2.5.2 Threats to sharks: how extensive is the shark fin trade?**

The most commonly-used statistics on the scope of the shark fin trade come from Clarke et al. 2006, which noted that the fins of between 26 and 73 million sharks (with a median of 38 million) a year are traded in the shark fin trade. This figure has been misquoted so often that author Shelley Clarke wrote an opinion piece for the popular press about misunderstanding of her work in 2011, noting that “selective and slanted use of information devalues and marginalizes researchers who are working hard to impartially present the data.” This opinion piece specifically criticized the misunderstanding that her figures show how many sharks are killed for their fins, when in reality it shows how many sharks have fins that pass through the fin trade—these are different problems that require different solutions, and understanding the difference is important. “Some sources quote these figures as “the number of sharks killed for their fins”, or “the number of sharks finned” (carcasses discarded at sea), or the “number of sharks finned alive” every year. The truth is that no one knows how many sharks are *killed for their fins*, how many have their carcasses dumped at sea, or how many sharks are alive when finned,” she wrote (emphasis ours). References to how “up to 73 million sharks each year have their fins pass through the fin trade” are defensible and fact-based, while references to how “up to 73 million sharks a year are killed for their fins” demonstrate a common misunderstanding (not all shark fins that are traded result from finning, see Definitions). Additionally, higher numbers than 73 million (for the fin trade specifically, not total shark mortality, see “how many sharks are killed every year” below) are unsubstantiated.

### **2.5.3 Threats to sharks: how extensive is the shark meat trade?**

A recent global analysis of how all shark products are traded around the world, including trends over time, found that the shark meat trade is significant and increasing, and responsible for a great deal of shark mortality around the world (Dent and Clarke 2015). While it is commonly claimed that shark meat is never or rarely consumed, or that sharks are never or rarely killed for their meat, the truth is that the shark meat trade is a significant and rapidly growing source of shark mortality.

### **2.5.4 Threats to sharks: how many sharks are killed every year?**

Worm et al. (2013) estimated that between 63 and 273 million sharks are killed per year, with median estimates of about 100 million sharks killed in 2000 and about 97 million sharks killed in 2010. This figure is the total number of sharks killed for all purposes from all sources of anthropogenic mortality. A common misuse of these data is wrongly claiming that this count refers exclusively to the number of sharks killed by shark finning or by the shark fin trade. Another common misuse of these data is combining them with the data from Clarke (2006,) i.e., “100 million sharks are killed each year, 73 million of which are killed for their fins”. An earlier estimate, Manire and Gruber (1990), placed that number of sharks killed annually at “at least 25 million;” the higher estimate from Worm et al. 2013 may reflect changing trends in the fishery in the intervening 25 years or may reflect newly obtained access to global fisheries data. It should be noted that due to significant limitations in data availability beyond the control of the authors (largely due to decades of mismanagement around the world) Worm et al. 2013 is functionally an extensive “back of the envelope” calculation.

### **2.5.5 Threats to sharks: how many sharks are threatened or endangered?**

Twenty-four percent of all known species of chondrichthyan fishes (1,041 total species) were assessed or estimated to be threatened (Vulnerable, Endangered, or Critically Endangered) according to IUCN Red List criteria in 2014 (Dulvy et al. 2014, though reassessment is underway as of this writing). This figure is distinct from an earlier value that is widely misused; Dulvy et al. (2008) calculated that 1/3 of all known species of pelagic sharks (21 total species) are IUCN Red List threatened. A common misuse of this narrower finding is attributing the 1/3 figure to all known species of chondrichthyans, generating 96 new threatened species out of thin air (1/3 of 1041 is 344, 24% of 1041 is 248). Additionally, reports that 55% of sharks and their relatives are threatened do not appear to be supported by any published papers or reports. Finally, combining the number of sharks in the threatened and Near Threatened categories is not a practice supported by IUCN Red List guidelines, as a Near Threatened designation means that a species *is not* threatened. It should also be noted that a global IUCN Red List status assessment of Endangered is a scientific assessment that intentionally comes with no inherent legal requirements, and that threatened and endangered mean something totally different in the context of laws such as the US Endangered Species Act. Reports that do not note this are misleading.

### **2.5.6 Threats to sharks: how severely have shark populations declined and over what time frame?**

There are published reports of populations of some shark species declining in population by 90% or more since the 1970's (Baum et al. 2003, Baum et al. 2005), as well as a published report that the abundance of all large pelagic fishes (sharks, tuna, billfish, etc) have declined by approximately 90% over the last several decades (Myers and Worm 2005). However, these declines have been revised downwards by subsequent analyses by the original authors (Baum and Blanchard 2010) and are disputed by other scientists via published rebuttals and other independent re-analyses (Burgess et al. 2005, Braccini et al. 2015). Reporting 90% declines in some shark subpopulations without reporting that these figures are disputed by scientists does not accurately reflect the current state of scientific knowledge. Reporting that 90% of all sharks have been killed is misstating what the data in those disputed papers say (some populations of

sharks have declined by 90% and 90% of all predatory fishes including but not limited to sharks have declined).

### **2.5.7 Threats to sharks: what are the negative ecological consequences associated with shark population declines?**

There are published reports that shark population declines cause ripple effects in the food chain called “trophic cascades,” with examples off the coast of North Carolina (declines in sharks led to increases in cownose rays which fed on economically important scallop populations leading to a scallop fishery collapse, Myers et al. 2007) and in Pacific coral reefs (declines in sharks led to mesopredator increases that disrupted the reef food web, Ruppert et al. 2013). However, both of these papers have been disputed by other scientists via rebuttals (Grubbs et al. 2016 and Frisch et al. 2016 respectively), and reporting these results without noting these concerns from other experts presents only a partial picture. At least in the case of the North Carolina example, this purported trophic cascade played into a century old narrative circulating in the local scallop fishing industry, but the new evidence directly led to widespread persecution of cownose rays (a highly sensitive species whose numbers supposedly increased as a result of a trophic cascade) through the “save the bay, eat a ray” campaign. We note that for nine of the ten years of our analysis, the formal rebuttal to Myers et al. 2007 had not yet been published in the peer-reviewed scientific literature, though we can anecdotal reported that these concerns about Myers et al. 2007 were widely discussed in shark research circles. Additionally, references to Myers et al. 2007 appear well after the publication of the Grubbs et al. 2016 rebuttal, which received some, but not very much, coverage when it was published and is almost never mentioned outside of articles specifically about the publication of Grubbs et al. (2016).

### **2.5.8 Threats to sharks: What is known about comparatively minor/emerging threats to sharks, including climate change and ocean acidification, plastic pollution, recreational angling, and the “Jaws effect”?**

There are several comparatively minor threats to sharks (some of which are considered emerging conservation issues) that we chose to analyze in this study. Here we define a minor or emerging issue as one that is not listed as a primary/major threat to sharks as a group worldwide in Dulvy et al. (2014,) but has been identified as a possible or emerging threat for some populations of some species in other literature. There are not enough articles about these minor threats to analyze inaccurate or misleading claims, but consideration of how they are portrayed in the popular press is important.

Climate change is currently considered a minor but emerging threat to sharks (Chin et al. 2010, Dulvy et al. 2014) because most species are capable of dispersing to a different more suitable habitat (e.g., Banglely et al. 2018). The key question that remains globally is whether these new habitats have a reduced carrying capacity, resulting in a decrease in abundance of sharks that move there, as indeed has been recently observed in South Africa (Currie et al. 2019). However, for a few species of sharks whose ranges are restricted, particularly to tropical estuaries, climate change can be a significant threat due to uncertain rainfall and changed water flow patterns (Chin et al. 2010).

Ocean acidification may cause direct disruptions to the sensory abilities (e.g., Dixon et al. 2015), hunting behavior (e.g., Pistevos et al. 2015), and swimming ability (e.g., Green and Jutfelt 2014) of individuals of some shark species but this is not yet expected to pose a significant population level risk to sharks. There may be indirect effects to sharks as a result of food web disruption to other organisms, but there is currently no evidence that this represents a major threat.

While ocean plastic pollution (microplastics and larger pieces of litter) is a hot topic in ocean conservation at the moment, and ingestion of plastic may pose health hazards for some filter-feeding sharks (Germanov et al. 2018), there is currently no evidence that plastic pollution or other pollution poses any kind of significant risk for sharks at the population or species level. Inhalation of larger pieces of plastics and litter as recently observed in a whale shark in the Philippines may be a larger threat to filter-feeding sharks (Abreo et al. 2019), but again, there is no evidence to date that plastic pollution causes a significant population-level threat to sharks.

There is no doubt that artisanal and commercial fisheries pose the largest threat to sharks as a group, but recreational angling can pose a significant threat to some specific subpopulations of some at-risk species through fishing-related mortality including post-release mortality. Recreational angling is expected to be a threat to some populations in places like the USA and Australia where commercial fisheries are better regulated, and other threats are better recognized and minimized through policy (e.g., Shiffman et al. 2014, Kyne and Feutry 2017, Shiffman et al. 2017).

It has long been proposed that negative public perception of sharks can contribute to shark conservation issues (i.e., that people who are afraid of sharks are less likely to want to protect them, see Jacques 2010). This is often attributed directly to the film “Jaws” (Neff 2015) as well as inflammatory and false content on Shark Week (Myrick et al. 2014, O’Byrhim and Parsons 2015) and in popular press coverage (Neff and Hueter 2014). As noted in section 1.2, media coverage has the potential to shape public perception on environmental issues, and negative, inflammatory coverage may make the public less likely to support certain conservation measures (Houston et al. 2010).

### **2.5.9 Available policy solutions: What policy solutions are available to protect sharks?**

There are at least 14 distinct conservation policies that can be applied to the conservation and management of sharks, and these can be broadly divided into target-based policies that aim to maximize sustainable fisheries exploitation and limit-based policies that aim to ban all fisheries and trade of shark products (for more detail on which policies are included in which category and why, please see Shiffman and Hammerschlag 2016). It should be noted while some limit-based policies can co-exist with some target-based policies (i.e., a marine protected area network that bans all fishing in some parts of a country’s territorial waters while allowing sustainable fishing in adjacent waters), many of these policies are mutually exclusive. A country cannot have a well-managed sustainable fishery while all fishing in that country is banned, a country cannot be a source of sustainably-exploited shark fins if the sale of shark fins is banned in that country.

Media coverage that focuses heavily on a subset of these policies and rarely or never mentions the other policies is misleading in aggregate.

#### **2.5.10 Available policy solutions: are sustainable fisheries for sharks possible, and do sustainable shark fisheries exist?**

While some environmental advocates claim that sustainable shark fisheries not only do not exist but cannot exist, this claim is easily refuted by scientific evidence. There is no doubt in the scientific literature that sustainable fisheries for sharks can exist in theory (Hoenig and Gruber 1990, Walker 1998) and do exist in reality (Simpfendorfer and Dulvy 2017, Shiffman and Hueter 2017), though it is important to note here that most current shark fisheries are unsustainable (over 90% according to Simpfendorfer and Dulvy 2017). There are some species whose life histories and population sizes are unlikely to support a sustainable fishery, and there are some nations which are unlikely to have a governance structure in place to support sustainable fisheries anytime soon. However, media reports that share a claim that sustainable shark fisheries cannot exist and/or do not exist are sharing demonstrably false information that directly undermines a popular (among surveyed experts) and effective (according to scientific data) management tool.

#### **2.5.11 Available policy solutions: What is known about shark fin trade bans?**

Shiffman and Hueter (2017) performed an analysis of a proposed shark fin trade ban in the United States and found that such a policy would likely do little to conserve sharks since the US is a comparatively minor player in the shark fin trade, but would also undermine existing efforts that have been successful at conserving sharks like international fisheries development aid (e.g. a 2016 NOAA fisheries workshop in West Africa that provided technical support and training for fisheries managers of nine nations, this aid would be unavailable when the US is no longer participating in a market for a given fishery). Many of the shark fin trade bans included in this analysis are state-level, occurring before the relatively recent discussion of a US national level ban. While fin trade ban policies undoubtedly have their supporters who include scientific and technical experts from academia and from science-based environmental non-profits, exclusively citing these supporters in media coverage implies that these policies are widely supported and have no potential downsides, which is misleading—especially when coverage of other proposed policies regularly quotes experts with concerns about those policies. While we looked for factual inaccuracy in coverage supporting fin bans, we do not mean to imply that support for fin trade bans is itself an example of scientific inaccuracy.

#### **2.5.12 Available policy solutions: Which policy solutions are supported by scientific experts?**

Shiffman and Hammerschlag (2016B) surveyed shark researchers about their conservation policy preferences, and found that researchers overwhelmingly believe that sustainable shark fishing exists (83% of respondents) and should be the goal of conservation policy rather a ban on all exploitation and trade whenever possible (90% of respondents). This survey also found that 63% of surveyed experts support the idea of a shark fin trade ban, which is a majority, but significantly less support than any other policy tool except Shark Sanctuaries- the only two

policy tools that multiple experts expressed specific concerns about. While this research came out after 9 of the 10 years of this media content analysis had elapsed, media reports that state or imply that bans are overwhelmingly supported by scientific experts, as well as media reports that do not mention that any experts oppose such bans, may be misleading readers into believing that no such disagreement is occurring.

### **2.5.13 Available policy solution: What is known about non-traditional policy solutions like wildlife tourism and consumer corporate boycotts with the goal of negatively impacting the shark fin trade?**

In addition to these traditional policy solutions, there are two newer non-traditional conservation strategies that do not involve regulatory or legal changes that we wanted to investigate: wildlife tourism and consumer corporate boycotts. These have not been analyzed in the scientific literature sufficiently to assess misleading or inaccurate claims, but these emerging issues may have significant conservation implications in the near future.

Some conservation advocates and wildlife tourism operators claim that wildlife tourism is the solution to protect sharks, citing studies showing that sharks are “worth more alive (to wildlife tourism operations) than dead (to fisheries)” (e.g., Ahmed and Anderson 1994, Gallagher et al. 2011). This statement is true in some but not all cases, and therefore must be presented with appropriate caveats to avoid being misleading (Caitlin et al. 2013). While some species of sharks in some nations are excellent candidates for wildlife tourism-focused conservation initiatives, sharks are absolutely not “worth more alive than dead” overall—the total value of all shark fisheries far exceeds that of all shark wildlife tourism (Brunnschweiler and Ward-Paige 2014). Additionally, few of the most threatened species of sharks are suitable candidates for wildlife tourism because they live in the open ocean or the deep sea (MacDonald et al. 2017). Additionally, the people who profit from wildlife tourism are often not the fishermen who lost income when fishing was banned in favor of wildlife tourism, they are often wealthy westerners rather than locals (e.g. Akama and Kieti 2007).

Consumer corporate boycotts occur when consumers organize a protest of a company perceived as playing a role in the shark fin trade. Often these companies do not play a significant role in the shark fin trade and therefore cannot accomplish the stated goal of the protest organizers even if the company does exactly what protesters call for (e.g., a 2018 protest called on Starbucks coffee to end their involvement with the shark fin trade. The connection between Starbucks and the fin trade was tenuous, said involvement consisted of Starbucks selling coffee to a food distributor in Hong Kong that was owned by a separate food company which also owned restaurants that sold sharks fins).

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Appendix I: LexisNexis Search terms

shark and ((conservation) or (protection) or (threatened) or (endangered) or (endangered species act) or (species at risk act) or (sanctuary) or (population) or (fishing) or (commercial fishing) or (recreational fishing) or (bycatch) or (overfishing) or (fin) or (fin soup) or (finning) or (fin trade) or (finning ban) or (fin ban) or (fin trade ban) or (unsustainable) or (sustainable) or (convention on international trade in endangered species) or (convention on migratory species))

Appendix II: Codebook used in this analysis. Readers answered each of these questions for every article.

<b>Question</b>	<b>Possible answers</b>
Name of publication featuring this article	Open
Title of Article	Open
Year article was published	Open
What is the primary theme of this article?	Multiple choice: A new/proposed conservation policy, a violation of a policy, a conservation meeting, new scientific research, a new government/NGO report, a conservation threat (not a solution), other
What is a secondary theme of this article, if any?	Multiple choice, same options as above.
Who is the primary article messenger/ interviewed expert?	Multiple choice: scientist (university), scientist (government), scientist (NGO), NGO employee (not a scientist), policymaker, industry, other.
Who employs the primary messenger?	Open
Who is the secondary article messenger, if any?	Multiple choice, same options as for primary article messenger.
Who employs the secondary article messenger?	Open
Who is the tertiary article messenger, if any	Open
What shark species are listed by name in the article?	Open with options to list 5
<b>THREATS AND BACKGROUND</b>	
Is overfishing, overexploitation, and/or unsustainable fishing (i.e., killing too many sharks) mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is shark finning, the shark fin trade, and/or shark fin soup mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is shark fishing for meat and/or the shark meat trade mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is fishing for liver oil and/or the shark liver oil trade mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is fisheries bycatch mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is recreational shark fishing, fishing tournaments, and/or trophy fishing mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is shark wildlife tourism/SCUBA tourism mentioned at all in the article?	Yes/No, if yes copy/paste the entire mention
Is illegal fishing (explicitly noting “illegal” or “against the law”) mentioned in the article?	Yes/No, if yes copy/paste the entire mention

Supplementary materials for shark conservation media analysis: Transparent Methods and Appendices

Is climate change, ocean acidification, and/or global warming mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Is ocean pollution mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Is negative public image (i.e., the idea that sharks are scary and people don't like them) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Is the movie "Jaws" mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are shark population decreases mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are threatened or endangered shark species mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Does the article specifically mention the number of shark species that exist?	Yes/No, if yes copy/paste the entire mention
Does the article specifically mention the number of sharks killed by humans each year?	Yes/No, if yes copy/paste the entire mention
Does the article mention negative ecological consequences of shark declines and/or the ecosystem importance of healthy shark populations?	Yes/No, if yes copy/paste the entire mention
<b>POLICY SOLUTIONS</b>	
Are fishing quotas/total allowable catch mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Is bycatch reduction (i.e., gear requirements to reduce bycatch) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are finning bans (bans on the discarding of shark carcasses at sea, distinct from fin trade bans) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are consumer boycotts (e.g., of airline or shipping companies, hotels/restaurants, etc) and or corporate policy changes in response to these boycotts mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are no-take marine protected areas/marine reserves mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are Shark Sanctuaries (a ban on catching or landing sharks within a nation's entire EEZ) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are shark fin trade bans (making it illegal to buy or sell shark fins) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are public education campaigns (distinct from consumer boycotts) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Are species-specific catch or trade bans (just for particularly threatened species not for all sharks) mentioned in the article?	Yes/No, if yes copy/paste the entire mention
Is a petition signed by concerned citizens mentioned in the article?	Yes/No, if yes copy/paste the entire mention

**HB-553-HD-2**

Submitted on: 3/16/2021 7:09:21 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
joe pavsek	Individual	Oppose	No

Comments:

- **There has been no meaningful consultation with the fishing community.** This bill is being rammed down our throats by people who don't fish. Fishers should be given a fair chance to shape legislation that will directly impact them. Community hearings should be held before this kind of legislation is considered.

- **The bill is unenforceable and creates legal jeopardy for local fishers.** All fishing methods used to target sharks can be legitimately used to catch other species of fish so it would be impossible to prove that sharks were being specifically targeted. Fishers who accidentally capture sharks could not be distinguished from those targeting sharks. This puts local fishers at risk of unfair prosecution.

- **DLNR has testified that it lacks the resources required to enforce this type of legislation:** *"A dedicated marine patrol, which was discontinued due to staff shortages, would be required to effectively enforce ocean regulations, including those contained in this measure. Reactivating the DOCARE marine patrol would require at least five positions that would be solely dedicated to patrolling and enforcing Department regulations by boat."*

- **This bill is unnecessary because Hawaii coastal shark populations are healthy and already well-protected.** Fishing is already banned in two-thirds of the Hawaiian chain (Papahānaumokuākea Marine National Monument) and there are no commercial fisheries for coastal sharks anywhere in Hawaii. Coastal shark meat is not sold in Hawaii (due to long-term lack of demand) and shark finning is already banned under existing laws. The decline in global shark populations is primarily due to industrial high seas fishing or intensive targeted fishing for coastal sharks - neither of which applies to Hawaii.

- **This bill threatens ongoing tag and release programs.** Local fishers have been tagging and releasing bycaught sharks to help us understand post-release survival rates. There is no provision for them to continue doing this under HB 553.



My name is Kim Holland. I am the founder of the Shark Research Group at the Hawaii Institute of Marine Biology. I am presenting this testimony as a private individual.

I am opposed to this bill.

Like many other professional marine biologists working in the area of shark biology, I feel that this bill is unnecessary and unenforceable. Sharks populations in Hawaii state waters are NOT under threat from people "knowingly fishing" for sharks. Global declines in shark populations are mainly due to industrial high seas fishing or coastal fisheries where there is a coastal fishery targeting sharks – neither applies to Hawaii. On the other hand, scientific research into shark biology has made significant and demonstrable contributions to the conservation and protection of sharks in Hawaii and this essential research could be negatively impacted by this legislation by imposing unnecessary and unpredictable permitting requirements.

Shark research conducted by universities already requires a rigorous screening process to obtain permits such as those issued by an Institutional Animal Care and Use Committee (IACUC). These committees are comprised of veterinarians, scientists and non-scientists who evaluate the value of the research and the way in which it conducted. An IACUC permit should be a legitimate exemption from the regulations in the proposed legislation. The University of Hawaii has provided testimony that suggests changes in the language of the current bill to make it similar to previous House bills that would exempt activities covered by an IACUC permit.

There has been no meaningful engagement of the scientific community in the drafting of these bills. We need to hit the “reset” button. This bill should be deferred to give room for meaningful dialogue. As a community, we should establish a format for meaningful exchange of opinions and factual analysis of the status of sharks in Hawaii and then plot a path forward which may or may not involve formal legislative measures..

**HB-553-HD-2**

Submitted on: 3/16/2021 8:34:43 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Matthew Crane	Individual	Support	No

Comments:

Thank you for your time and the opportunity to give a testimony.

Apex predators are vitally important for our ecosystems. They keep them healthy and functioning properly. There is a mountain of evidence supporting this in the scientific literature. From helping seaegrass and coral communities to helping human economies. Apex predators, like sharks are much more important alive in nature than killed for a simple short term profit. This too is supported by the literature.

I am very thankful of the wise steps members of our government are taking to protect these important species. I am in full support of HB553 and hope the rest of our government can see the wisdom in protecting sharks, which are already in severe decline.

Mahalo nui loa,

Matthew Crane

**HB-553-HD-2**

Submitted on: 3/16/2021 9:38:38 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sherrell Watson	Individual	Support	No

Comments:

Aloha,

I am writing to you in support of HB553, to protect the ocean's apex predator, Sharks. Sharks are immensely important to the general health of the ocean ecosystem. We need to do everything we can to protect them.

**HB-553-HD-2**

Submitted on: 3/16/2021 10:16:50 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Diane Ware	Individual	Support	No

Comments:

Dear Chair and Committee members,

Sharks are apex predators essential to the life and resilience of ocean. I support the strongest protections possible to protect our marine ecosystem.

In 2019, lawmakers did succeed in getting passed into law expansion of existing prohibitions on knowingly capturing, abusing or killing manta rays in state marine waters to apply to all rays. But sharks originally included in the Bill were removed. Please consider the strongest protections for sharks in HB553. The bill has been amended to create loopholes and broad exemptions that endanger sharks and make enforcement difficult.

For the ocean,

Diane Ware 99-7815 Kapoha Volcano HI 96785

**HB-553-HD-2**

Submitted on: 3/16/2021 10:20:52 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Kaikea Nakachi	Individual	Support	No

Comments:

Aloha senators, mahalo nui for your past support for shark protection bills over the years. We were very close to passing HB808 last year before COVID-19 shifted our priorities. I stand in support of HB553 and hope you will continue to support restoring protection to sharks.

Unfortunately, in the house of representatives some added amendments have seriously undermined the intent of this bill:

Firstly, there is no reason for any researcher to be allowed to invasively study a sacred being with zero oversight. If a researcher cares more about paperwork than the well-being of the sacred being they are studying then they have no place here in Hawaii nei, and I hope you as elected officials will uphold them to that justice. There has to be state and cultural oversight, and that requires transparency, communication, and permits. (Please see DAR and DLNR's testimony in support). Please remove amendments giving blanket exemptions for researcher permits.

Secondly, the entire point of this bill is to protect sharks and restore the protections they once had. The only exemption for a shark being killed is clearly stated in the language of the bill as it pertains to Native Hawaiian traditional and customary rights and practices. We do not want to create a fishery. Please see DAR's testimony and adopt their recommendation to remove the amendment for adding an exemption for subsistence fishing of sharks. That not only directly contradicts several laws in place such as the shark-finning law, but defeats the whole purpose of this bill. In response to people who are claiming they use shark as bait, that should be a violation and a fine. Killing and using an apex predator as bait for a lower trophic level species is the definition of unsustainable fishing.

There is clear scientific evidence of the decline in shark populations in the main Hawaiian Islands compared to the NW Hawaiian islands. We cannot let this trend continue. There are so many benefits for our reefs that begin with protecting our apex predators. The longer we delay in restoring protection for sharks, the closer we get to irreversibly damaging to our reefs. This bill provides basic protection that is incredibly overdue. Even if the main Hawaiian Islands had shark populations on par with the NW Hawaiian Islands this bill would still be appropriate and pono. The fact that we do not have comparable shark populations make this bill necessary. In order for this bill to

function as intended please adopt these recommended amendments that are also aligned with DAR and DLNR's testimony. Mahalo for your time, and please continue to support protecting Hawaii's sacred sharks. Malama Mano and Malama Pono,

Kaikea Nakachi

**HB-553-HD-2**

Submitted on: 3/16/2021 2:55:41 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Gregg Gruwell	Individual	Support	No

Comments:

I strongly support this bill with amendments!

Time to make this situation Pono!

Gregg Gruwell

Kamuela

**HB-553-HD-2**

Submitted on: 3/16/2021 7:52:58 PM

Testimony for AEN on 3/17/2021 1:10:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
jennifer schneider	Individual	Support	No

Comments:

Aloha;

We must protect these sacred beings. Sharks are important apex predators.

Sharks are declining, and we must protect this species from becoming decimated.

PLEASE SUPPORT HB 553 HD2! THE ONLY CURE IS KINDNESS.

MAHALO NUI LOA



**HB-553-HD-2**

Submitted on: 3/17/2021 10:16:59 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

**LATE**

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sylvia Dolena	Testifying for Aloha Animal Advocates	Support	No

Comments:

Stop the killing of marine life!!!

Support HB 553.

Mahalo.

Aloha Animal Advocates,

Sylvia Dolena, Director

**HB-553-HD-2**

Submitted on: 3/17/2021 11:24:55 AM

Testimony for AEN on 3/17/2021 1:10:00 PM



<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Elaine Partlow	Individual	Support	No

Comments:

I am writing to support HB553 HD2, protecting sharks in our local waters. Sharks are apex predators and are under extreme pressure worldwide, their numbers falling precipitously, leading to the threat of endangerment or extinction of many species.

Sharks are critical to the health of the ocean environment, and we, as humans, are responsible for the protection of all ecosystems that we affect.

Please pass this bill, and have it take effect immediately, before it's too late to undo the damage.

Thank you

Elaine Partlow  
Pahoa

# LATE

In support of HB553.

## THE IMPORTANCE OF BENTHIC SHARKS

Although larger destruction numbers of sharks are from commercial fisheries in pelagic (deeper water) zones, by-catch and poaching are also popular off Hawaii's beaches. Sharks play a crucial role in maintaining a healthy reef ecosystems (the benthic zone.) Benthic sharks balance predatory fish away from reef lines allowing the smaller herbivore fish to keep reefs clean from overgrowth of seaweeds and algae suffocation.

Despite the "Expert/Researchers" claiming sharks not being targeted in Hawaiian waters, the following is to clarify misleading agendas.

## NIGHTLY WAIKIKI SHARK HUNTS

On February 18, while the Bill 553 was being introduced, I took the following image at Ala Was Harbor of Blue Ocean Fishing which offers nightly shark hunts. Similar nightly tours are also offered from Kewalo Harbor. Shark Hunts is the definition of targeting sharks.



While the intent of shark hunts are "catch & release," the animals are often mutilated and left for dead as large hooks impale their throat and gills.



A sandbar shark found dead on the West Side Dec 2017



This is him, I saw this morning that he had another hook through his mouth that came out of his right eye, so his eye is gone. And he has another rusty hook in his left jaw.

If you zoom in you can see where it came through his eye, really sad. This is my only shark buddy on this side!

If you google Kaneohe Shark fishing, several youtube videos will come up showing similar activities involving targeting Hammerhead juveniles & pups. (Often used to bait Uluu hooks.). Here are more examples of targeted shark fishing including a dead shark in Maui fished out two days after the Shark Bill reading.



Instead of Hawaii Institute of Marine Biology educating legislators about the important role sharks play in relation to Hawaii’s reef ecosystems they are covering up their own archaic methods. This research also includes targeted fishing practices such as hooking, dragging, lassoing, cutting, drilling, impaling, flipping, etc. The research has yet to make our waters safer much less “conserve” any species. In fact they have been documented killing sharks w/ their irresponsible research. These incidents often include endangered species.



sharktagger\_hi Two different species of thresher sharks off Kona, caught, filmed and released/tagged by local fisherman Lama Gaspar. He put a miniPAT, (satellite archival) tag on the pelagic thresher (first video), which recorded some incredible data on its movement and habitat. The second video is a bigeye thresher. How do you tell these species apart? Both have the characteristic elongated tail, sleek bodies, long pectoral fins and relatively large eyes. However, the bigeye thresher, for its namesake, has enormous eyes with sockets that extend over the top of the head. The bigeye thresher also has a prominent helmet-like crease behind the head. We highlight these features in our free

Like Comment Share

Liked by marc.dando.92 and 137 others

JULY 31, 2019

Add a comment... Post





## NEGATIVE BUOYANCY

Sharks do not have bladders and are negative buoyant. When they thrash it causes internal damage and they often die within 48 hours as a result. By removing sharks from water, it crushes their bodies. (Sitting on a dry-docked shark to tag it is even more irresponsible increasing internal damage.)



## INDUCED LABOR

Pregnant sharks often abort pups prematurely after being caught. Hawaii has had at least two recent occurrences of this unnatural behavior.

1. Hammerhead neonates were dumped in a parking lot near La Mariana Restaurant off Keehi Lagoon, which can be traced to the commercial longliners. (they came out of adult female wombs as determined by fresh umbilical openings.)






2. A female tiger shark aborted her pups after being caught for tagging recently off Kaneohe. The video shows the first pup sinking while the second pup was able to swim away.



 sharktagger\_hi • Following ...

 sharktagger\_hi Tiger shark birthing. While tagging adult tiger sharks with the @himb\_soest Shark Lab offshore out of the north end of Kāne'ohe Bay, this female tiger shark on the line gave birth to 10 full term pups, and probably had at least 20 more to go after release. Each pup is in an individual embryonic sac while gestating inside the mother. During birth, each pup breaks out of the sac while leaving the

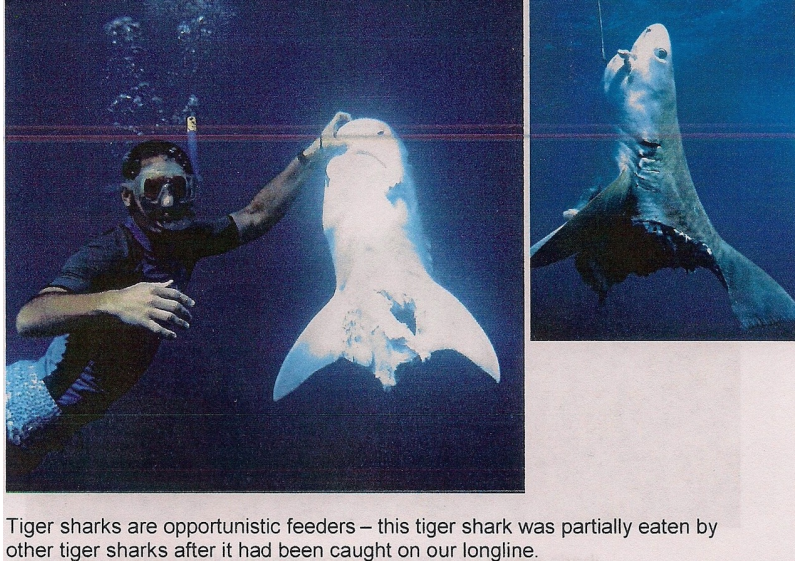
618 views

SEPTEMBER 28, 2018



## DEATH BY RESEARCH

<https://www.civilbeat.org/2018/10/the-story/>



Tiger sharks are opportunistic feeders – this tiger shark was partially eaten by other tiger sharks after it had been caught on our longline.



This is Roxanne, a juvenile tiger shark found Feb. 2016 on the North Shore. As you can see from the hook, this was a targeted attack. She was also tagged for a study by researchers on Oahu.

The intent is not to sabotage responsible research, however after listening to misleading testimonies by those who know better, its best if these practices are known. If the misconceptions continue, there is much more material that can be provided to media outlets which will expose a massive reality of Hawaii's controversial fishing practices and who is involved.

**HB-553-HD-2**

Submitted on: 3/17/2021 11:41:58 AM

Testimony for AEN on 3/17/2021 1:10:00 PM

**LATE**

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Kaikea K. Blakemore	Individual	Support	No

Comments:

Support