JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKAʻOLE
FIRST DEPUTY

DEAN D. UYENO
ACTING 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

Testimony of
DAWN N.S. CHANG
Chairperson

Before the House Committee on
WATER & LAND

Thursday, April 11, 2024
9:00 AM
VIA VIDEOCONFERENCE, Conference Room 430, State Capitol

In consideration of
SENATE CONCURRENT RESOLUTION 122
REQUESTING THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO WORK WITH THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND OTHER EXPERTS TO CONDUCT A STUDY ON THE POPULATION STATUS OF DEPLETED CORAL REEF HERBIVORES AROUND THE ISLAND OF OʻAHU AND DEVELOP EFFECTIVE ALTERNATIVE POLICIES FOR SUBSTANTIALLY REPLENISHING THOSE POPULATIONS WITHIN A DECADE

Senate Concurrent Resolution 122 requests the Department of Land and Natural Resources (Department) to work with the National Oceanic and Atmospheric Administration (NOAA) and other experts to conduct a study on the population status of depleted coral reef herbivores around the island of Oʻahu and develop effective alternative policies for substantially replenishing those populations within a decade. **The Department supports this measure and offers the following comments.**

The Department recognizes the importance of herbivorous reef fish for both the health of coral reef ecosystems as well as sustainable non-commercial and commercial fisheries. It is the responsibility of the Department to find a balance between ecosystem health and continued access to sustainable fisheries through effective management informed by public input. The Department would welcome a collaboration with NOAA to conduct a study on the population status of various herbivore fish species around the island of Oʻahu. The Department lacks positions and staff with the level of expertise to independently conduct formal stock assessments and could use additional assistance from our federal partners.

In response to mounting scientific evidence and community concerns regarding the sustainability of many herbivorous reef fish, the Department's Division of Aquatic Resources (DAR) led a multi-year statewide stakeholder engagement process to develop conservation measures for these important species. As a result of this process, the Board of Land and Natural Resources recently approved amendments to statewide herbivore rules, including restrictions on both commercial and non-commercial take. The Department will continue to monitor the health of statewide herbivore populations to gauge the effectiveness of these new regulations.

Additionally, through the Holomua Marine Initiative, the Department is facilitating a community-led process to identify island-scale fisheries issues and establish island- and place-based management measures reflecting varying resource conditions and cultural practices. This process, which involves input from fishers and other affected stakeholders, could help identify policies and strategies to substantially increase coral reef herbivore populations around O‘ahu.

Mahalo for the opportunity to provide testimony in support of this measure.

To: The Honorable Chair Linda Ichiyama, Vice-chair Mahina Poepoe, and members of the Committee on Water and Land

From: Hawai‘i Reef and Ocean Coalition (by Ted Bohlen)

Re: **Hearing SCR122 SD1/SR104 REQUESTING THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO WORK WITH THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND OTHER EXPERTS TO CONDUCT A STUDY ON THE POPULATION STATUS OF CORAL REEF HERBIVORES AROUND THE ISLAND OF OAHU AND DEVELOP EFFECTIVE POLICIES FOR SUBSTANTIALLY INCREASING THOSE POPULATIONS WITHIN A DECADE.**

Hearing: Thursday, April 11, 2024, 9:00 a.m. CR430

Aloha Chair Ichiyama, Vice-chair Mahina Poepoe, and members of the Committee on Water and Land:

The Hawai‘i Reef and Ocean Coalition (HIROC) is a group of scientists, educators, filmmakers and environmental advocates who have been working since 2017 to protect Hawaii’s coral reefs and ocean.

The Hawai‘i Reef and Ocean Coalition STRONGLY SUPPORTS SCR122 SD1/SR104!

To remain healthy and resist climate stresses, coral reefs require abundant and diverse herbivores, which are fishes that eat seaweeds, such as parrotfishes (uhu), surgeonfishes (e.g., kala, kole, manini), and chubs (nenue). A diverse population of these fish keep reef surfaces clean so that corals can flourish. The depletion of herbivores, especially in the presence of wastewater nutrients, results in reefs being dominated by seaweeds rather than corals, thus reducing fishing and other recreational, commercial, and traditional cultural opportunities.

The population of coral reef herbivores around Oahu is the lowest in the State, existing **at below five percent of its potential**. Ever-increasing ocean warming has caused coral bleaching events that kill corals and are predicted to occur every year in Hawai‘i before the year 2040.

To help Oahu's coral reefs survive, this concurrent resolution **asks the Department of Land and Natural Resources** to:

(1) Work with the National Oceanic and Atmospheric Administration Pacific Islands Fisheries Science Center and other experts to **conduct a study on the population status of individual species and families of coral reef herbivores around Oahu, prioritizing uhu and kala**; and

(2) Conduct an analysis of policies and strategies to substantially increase the populations of coral reef herbivores around Oahu within a decade.

Please help coral reefs by approving this concurrent resolution!

Mahalo!

Hawai‘i Reef and Ocean Coalition (by Ted Bohlen)

SCR-122-SD-1
Submitted on: 4/8/2024 8:16:29 PM
Testimony for WAL on 4/11/2024 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Lisa Bishop	Friends of Hanauma Bay	Support	Written Testimony Only

Comments:

Friends of Hanauma Bay is grateful for the opportunity to join so many others in strong support of this resolution. DLNR is not adequately resourced to study the depleted herbivore populations around Oahu or develop effective alternative policies for replenishing those populations within a decade. We cannot continue to hope for more funding for DLNR in ten years to save the day. We must act now on behalf of our ever depleting populations of herbivores that are so critical to maintaining our coral reefs.

We urge you to pass this resolution and let's get this study started!

With Aloha,

Lisa Bishop

Friends of Hanauma Bay I President

Scientific Testimony in Support of Resolutions
SCR122 SD1
Relating to Coral Reef Herbivores of the Island of Oʻahu

Dr. Mark Hixon (Professor, University of Hawaiʻi at Mānoa, School of Life Sciences)

Dr. Alan Friedlander (Chief Scientist, Pristine Seas, National Geographic Society, and University of Hawaiʻi Institute of Marine Biology)

Dr. Randy Kosaki (Marine Ecologist, NOAA, Papahānaumokuākea Marine National Monument)

Dr. Kawika Winter (Director, Heʻeia National Estuarine Research Reserve, and University of Hawaiʻi Institute of Marine Biology)

testifying as private citizens

Aloha Hawaiʻi State Legislators hearing these resolutions:

We marine scientists with long experience studying coral reef herbivores in Hawaiʻi, especially on Oʻahu, strongly support Resolution SCR122 SD1. The scientific evidence is overwhelming that herbivores are severely depleted around Oʻahu, and that strong remedial action must be taken very soon if our living-coral reefs are to survive.

Coral reefs provide extremely valuable ecosystem goods and services for the people of Hawaiʻi, including habitat for nearshore fisheries, opportunities for tourism and other industries and activities, sand production for our beaches, and coastal protection from waves, storms, and erosion as sea level rises.[1] Reefs are also fundamental to the fabric of local communities, providing a source of food, materials, and cultural activities.[1] From a purely economic perspective, Hawaiʻi's coral reefs generate about $800 million per year in gross revenues.[2] One estimate of the total economic value of coral reefs in the main Hawaiian Islands is nearly $34 billion.[3]

Hawaiʻi's coral reefs, especially on Oʻahu, have suffered tremendously from increasing population density and coastal development, resulting in damage by snorkelers and divers, anchor drags and vessel groundings, runoff and leaching of sediment and fertilizers from poor land use practices, urban runoff and leaching of cesspool sewage and other pollutants, plastic debris, invasive species, and overfishing near population centers.[4] More recently, ever-increasing ocean warming has caused coral bleaching events that have killed over 50% of the corals on some reefs.[1] **Ocean climate models predict that Hawaiʻi's coral reefs will bleach every year starting sometime between 2040 and 2045 (Fig. 1).**[5]

Maintenance and recovery of coral reefs requires abundant and diverse herbivores, which are fishes and invertebrates that eat seaweeds (technically, benthic algae).[6] Herbivores prevent seaweeds from outcompeting and replacing corals, especially following coral mortality events.[6] Where herbivores are depleted, seaweeds eventually proliferate, which prevents reef recovery and eventually resulting in coral death.[6] The major herbivores that clean dead reef surfaces so corals can flourish are parrotfishes (uhu), surgeonfishes (kala, kole, manini, and others), and chubs (nenue or enenue).[7]

Building on previous studies, [8] a recent peer-reviewed publication by Donovan et al. (2023)[9] documented that **herbivore abundance in all moku around O‘ahu is not only the lowest in the state, but also less than 5% of its potential compared to relatively unexploited Kaho‘olawe (Fig. 2).** The Division of Aquatic Resources (DAR) considers the status of both parrotfishes and surgeonfishes in Hawai‘i to be “unsustainable”.[10] **The depletion of herbivores leaves Hawai‘i’s coral reefs extremely vulnerable to severe degradation because once coral dies and seaweeds cover a reef, corals cannot recover.**[11]

A major contributor to herbivore depletion is illegal or otherwise unethical spearing of these fish at night, especially parrotfishes while these fish sleep helplessly under reef ledges, and especially around O‘ahu (Fig. 3).[12] Legal and otherwise ethical (pono) fishing of herbivores occurs during the day by subsistence, recreational, and commercial fisheries.[10]

Management agencies have long been concerned about herbivore depletion.[13] DAR proposed a substantial package of herbivore fishing rules in December 2022.[14] By the time the final rules package was passed by the Board of Land and Natural Resources in December 2023,[15] **explicit protections of uhu and kala had been weakened to point where we believe these new rules will be ineffective, especially around O‘ahu. Importantly, the new rules do not address the sale of fish from successful poaching and pillaging, which the Division of Conservation and Resources Enforcement (DOCARE) reports is widespread at night around O‘ahu**.[12]

Resolution SCR122 SD1 is a positive step toward saving the coral reefs of O‘ahu and eventually other islands by encouraging action to increase the abundance of herbivores before coral bleaching becomes an annual event, predicted between 2040 and 2045.[5] Note that past studies have shown it takes decades to recover severely depleted populations of coral reef fishes, including in Hawai‘i.[16] Fortunately, O‘ahu’s coral reefs have high recovery potential.[17] **Unfortunately, if we do not act soon, we believe that O‘ahu will lose most of our living-coral reefs in the coming decades.**

---

[1] https://dlnr.hawaii.gov/dar/habitat/coral-reefs/

[2] Hawai‘i Coral Reef Initiative Research Program. 2004. Economic value of Hawai‘i’s nearshore reefs. https://www.hawaii.edu/ssri/cron/files/econ_brochure.pdf

[3] Bishop, R.C., D.J. Chapman, B.J. Kanninen, J.A. Krosnick, B. Leeworthy, and N. F. Meade. 2011. Total economic value for protecting and restoring Hawaiian coral reef ecosystems: final report. NOAA Office of National Marine Sanctuaries, Office of Response and Restoration, and Coral Reef Conservation. Silver Spring, MD. Program. NOAA Technical Memorandum CRCP 16. 406 pp. https://repository.library.noaa.gov/view/noaa/684

[4] Friedlander, A.M., G. Aeby, E. Brown, A. Clark, S. Coles, S. Dollar, C. Hunter, P. Jokiel, J. Smith, B. Walsh, I. Williams, and W. Wiltse. 2005. The State of Coral Reef Ecosystems of the Main Hawaiian Islands. pp. 222-269. In: J. Waddell (ed.), The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2005. NOAA Technical Memorandum NOS NCCOS 11. NOAA/NCCOS Center for Coastal

Monitoring and Assessment's Biogeography Team. Silver Spring, MD. 522 pp. https://library.oarcloud.noaa.gov/noaa_documents.lib/NOS/NCCOS/TM_NOS_NCCOS/nos_nccos_11.pdf

[5] van Hooidonk, R., J. Maynard, J. Tamelander, J. Gove, G. Ahmadia, L. Raymundo, G. Williams, S.F. Heron, and S. Planes. 2016. Local-scale projections of coral reef futures and implications of the Paris Agreement. Scientific Reports 6:39666. DOI 10.1038/srep39666. Supplemental material details projected bleaching in Hawai'i.

[6] Review by Hixon, M.A. 2015. Reef fishes, seaweeds, and corals: a complex triangle. Pages 195-215 in C. Birkeland, editor. Coral reefs in the Anthropocene. Springer, Dordrecht, Netherlands. Hawai'i case study: Gove, J.M., G J. Williams, J. Lecky, E. Brown, E. Conklin, C. Counsell, G. Davis, M.K. Donovan, K. Falinski, L. Kramer, K. Kozar, N. Li, J.A. Maynard, A. McCutcheon, S.A. McKenna, B.J. Neilson, A. Safaie, C. Teague, R. Whittier, and G.P. Asner. 2023. Coral reefs benefit from reduced land-sea impacts under ocean warming. Nature 621:536-542. See also https://dlnr.hawaii.gov/holomua/files/2021/11/Sustainable-Herbivore-Management-Plan-2021.pdf

[7] Randall, J.E. 2007. Reef and shore fishes of the Hawaiian Islands. Sea Grant College Program, University of Hawai'i. 546 pp

[8] Studies in Hawai'i: Edwards, C.B., A.M. Friedlander, A.G. Green, M.J. Hardt, E. Sala, H.P. Sweatman, I.D. Williams, B. Zgliczynski, S.A. Sandin, and J.E. Smith. 2014. Global assessment of the status of coral reef herbivorous fishes: evidence for fishing effects. Proceedings of the Royal Society B 281:20131835. Nadon, M.O. 2017. Stock assessment of the coral reef fishes of Hawai'i, 2016. NOAA Technical Memorandum NMFS-PIFSC 60. Friedlander, A.M., M.K. Donovan, K.A. Stamoulis, I.D. Williams, E.K. Brown, E.J. Conklin, E E. DeMartini, K.S. Rodgers, R.T. Sparks, and W.J. Walsh. 2018. Human induced gradients of reef fish declines in the Hawaiian Archipelago viewed through the lens of traditional management boundaries. Aquatic Conservation: Marine and Freshwater Ecosystems 28:146-157. Gorospe, K.D., M.J. Donahue, A. Heenan, J.M. Gove, I.D. Williams, and R.E. Brainard. 2018. Local biomass baselines and the recovery potential for Hawaiian coral reef fish communities. Frontiers in Marine Science 5:DOI 10.3389/fmars.2018.00162. Stamoulis, K.A., J.M.S. Delevaux, I.D. Williams, M. Poti, J. Lecky, B. Costa, M.S. Kendall, S.J. Pittman, M.K. Donovan, L.M. Wedding, and A.M. Friedlander. 2018. Seascape models reveal places to focus coastal fisheries management. Ecological Applications 28:910-925.

[9] Donovan, M.K., C.W.W. Counsell, M.J. Donahue, J. Lecky, L. Gajdzik, S.D. Marcoux, R. Sparks, and C. Teague. 2023. Evidence for managing herbivores for reef resilience. Proceedings of the Royal Society B 290:20232101.

[10] https://dlnr.hawaii.gov/holomua/files/2021/11/Sustainable-Herbivore-Management-Plan-2021.pdf

[11] Review by Williams, I.D., T.L. Kindinger, C.S. Couch, W.J. Walsh, D. Minton, and T.A. Oliver. 2019. Can herbivore management increase the persistence of Indo-Pacific coral reefs? Frontiers in Marine Science 6:doi 10.3389/fmars.2019.00557. Supplemental material focuses on Hawai'i.

[12] Recent examples: https://dlnr.hawaii.gov/blog/2023/11/08/nr23-192/, https://dlnr.hawaii.gov/blog/2023/05/16/nr23-91/, https://dlnr.hawaii.gov/blog/2022/10/10/nr22-150/, https://dlnr.hawaii.gov/blog/2021/10/24/nr21-188/, https://dlnr.hawaii.gov/blog/2020/09/18/nr20-144/, https://dlnr.hawaii.gov/blog/2020/08/18/nr20-121/, https://dlnr.hawaii.gov/blog/2024/03/06/nr24-23/

[13] WESPAC. 2008. Biology of parrotfish in Hawai'i. https://www.wpcouncil.org/coralreef/Hawaii%20Parrotfish_Jan%202008%20Final%20Report.pdf

[14] https://dlnr.hawaii.gov/wp-content/uploads/2022/12/F-5.pdf

[15] https://dlnr.hawaii.gov/wp-content/uploads/2023/12/F-5.pdf

[16] MacNeil, M. A., N. A. J. Graham, J. E. Cinner, S. K.Wilson, I. D.Williams, J. Maina, S. Newman, A. M. Friedlander, S. Jupiter, N. V. C. Polunin, and T. R. McClanahan. 2015. Recovery potential of the world's coral reef fishes. Nature 520:341-347. See also: Gorospe, K.D., M.J. Donahue, A. Heenan, J.M. Gove, I.D. Williams, and R.E. Brainard. 2018. Local biomass baselines and the recovery potential for Hawaiian coral reef fish communities. Frontiers in Marine Science 5:DOI 10.3389/fmars.2018.00162.

[17] Gorospe, K.D., M.J. Donahue, A. Heenan, J.M. Gove, I.D. Williams, and R.E. Brainard. 2018. Local biomass baselines and the recovery potential for Hawaiian coral reef fish communities. Frontiers in Marine Science 5:DOI 10.3389/fmars.2018.00162.

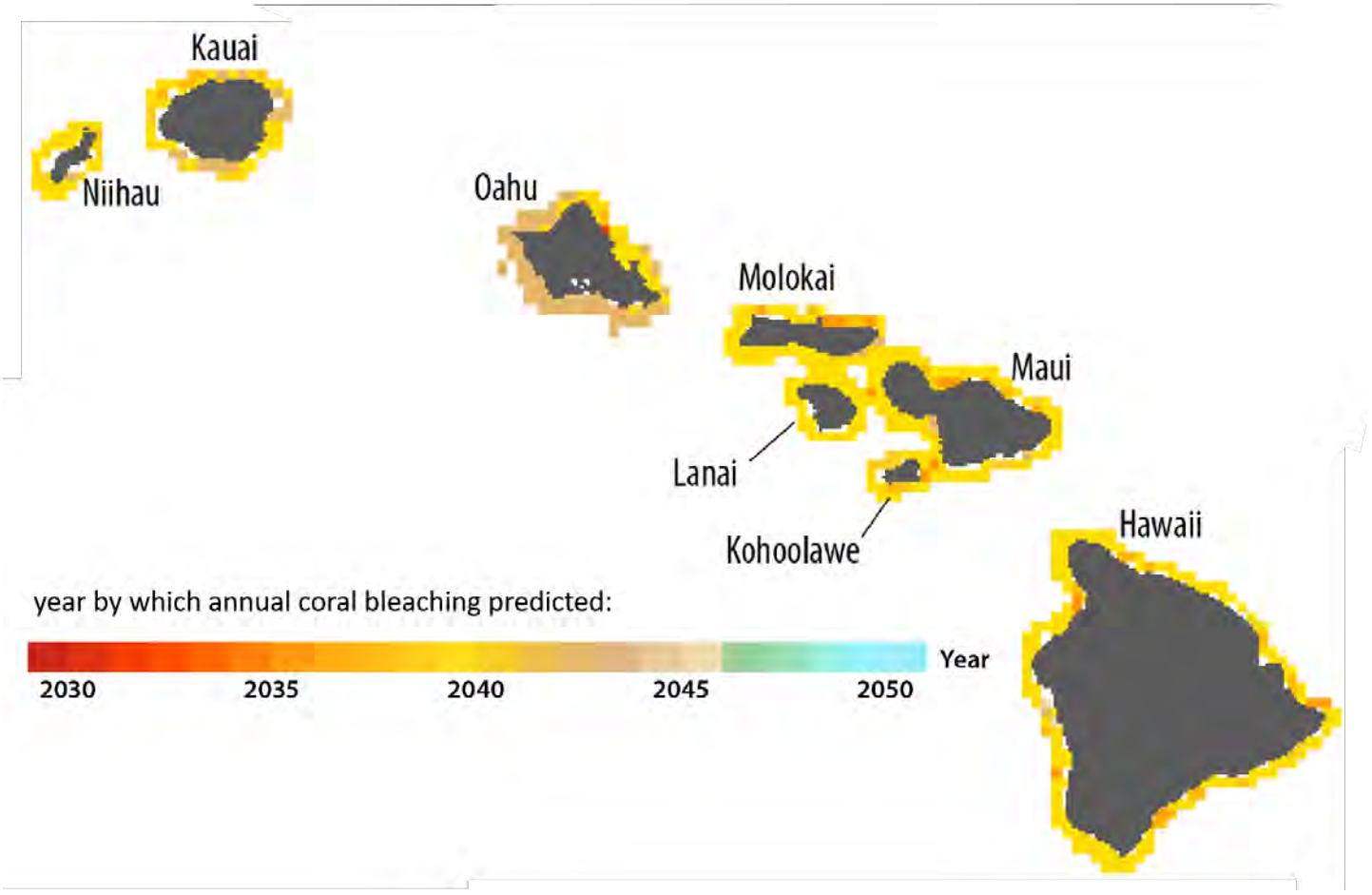

Fig. 1. Predicted year, ranging between 2040 and 2045, by which coral bleaching and death will become an annual event around the Main Hawaiian Islands because of intensifying ocean warming. Figure from van Hooidonk et al. (2016) Supplementary Information.[5]

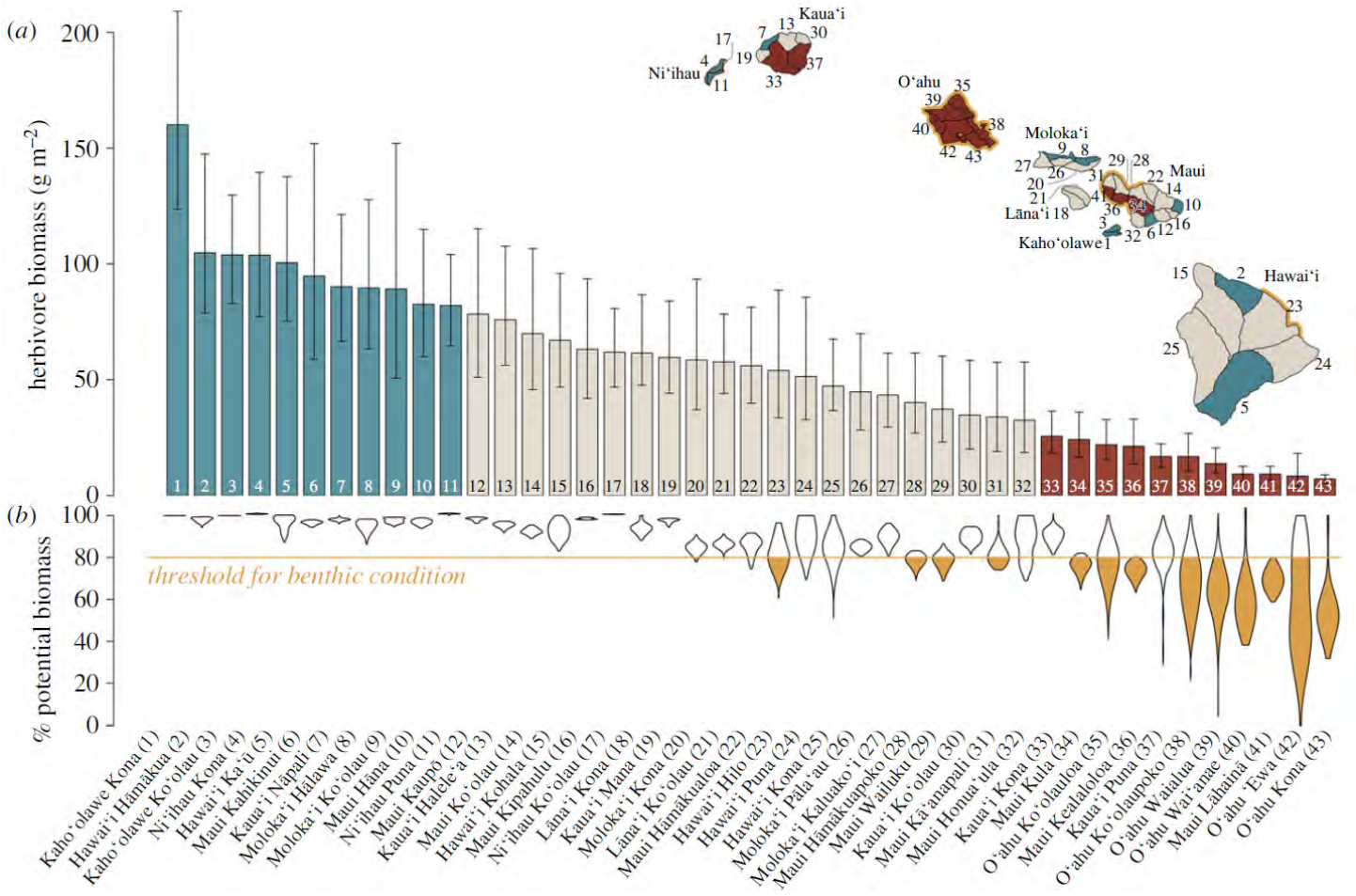

Fig. 2. (a) Estimated abundance of herbivorous fishes moku-by-moku in the Main Hawaiian Islands. Using Kahoʻolawe as a relatively unfished baseline (far left blue bar), it is obvious that Oʻahu is severely depleted (far right red bars), and most of Hawaiʻi is moderately depleted (gray bars). Numbers link moku identity (bottom of b) with bars and inset map. (b) Distribution of herbivore abundance in each moku, where biomass below 80% of its potential results in coral reef degradation. Note that Oʻahu has the most degraded reefs in Hawaiʻi. Figure from Donovan et al. (2023).[9]

Fig.3. Example of overexploitation of sleeping parrotfish (large red and blue fish) from a single night spearfishing. Photo courtesy of DAR.

SCR-122-SD-1
Submitted on: 4/9/2024 1:25:27 PM
Testimony for WAL on 4/11/2024 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Cathy Goeggel	Animal Rights Hawai'i	Support	Written Testimony Only

Comments:

The health of the oceans rely upon the corals, and they need healthy numbers of herbivorous fishes. We strongly support SCR122.

The Nature Conservancy
Hawai'i and Palmyra

The Nature Conservancy, Hawai'i and Palmyra
923 Nu'uanu Avenue
Honolulu, HI 96817

Tel (808) 537-4508
Fax (808) 545-2019
nature.org/HawaiiPalmyra

Testimony of The Nature Conservancy
Support for SCR 122 SD1
Committee on Water and Land
April 11, 2024, 9:00 a.m.
Conference Room 430 & Videoconference

Aloha Chair Ichiyama, Vice Chair Poepoe, and Members of the Committee:

The Nature Conservancy (TNC) **supports** SCR 122 SD1, requesting the Department of Land and Natural Resources to work with the National Oceanic and Atmospheric Administration and other experts to conduct a study on the population status of coral reef herbivores around the island of O'ahu and develop effective policies for substantially increasing those populations within the decade.

Ensuring that reefs have healthy herbivore populations, including uhu populations, is one of the most important and effective actions we can take to make reefs as resilient as possible in a changing world. Many stressors can kill corals and lead to the loss of the habitat they create, and the ability of reefs to recover from damage depends on the presence of an abundant, diverse population of herbivores that can keep seaweed populations in check, keeping reef area clear for new corals to settle and grow. Studies from around the world have demonstrated that resilience and recovery is enhanced by healthy herbivore populations. Recent research in Hawai'i has reinforced this finding, with a statewide analysis showing that reefs in West Hawai'i that had abundant herbivores recovering more quickly from the impacts of the 2015 mass coral bleaching.

There is very strong evidence, however, that herbivore populations in Hawai'i are depleted. Communities across the state have voiced concerns that many species of herbivores are not as abundant as they used to be, and in-water surveys conducted by many organizations across the state show that herbivore populations in many areas are far below what could and should be present on those reefs. A just-released statewide analysis revealed that in many places, especially where herbivore abundance is low, fishing-driven reductions in herbivore populations have led to less healthy reefs. A stock assessment conducted by fisheries scientists from the National Oceanic and Atmospheric Administration found that both the surgeonfish kala and **parrotfish uhu palukaluka**, are experiencing overfishing (i.e., fish are being removed faster than they are replenished).

All herbivores are important for the health of the reef, but **uhu palukaluka is the single most important species in Hawai'i** for scraping the reef free of all algae and other coral-competitors so that new corals can settle and grow to repair reefs.

For over 40 years, TNC has actively managed nature preserves throughout Hawai‘i. We currently manage 40,000 acres in preserves on Hawai‘i Island, Maui, Moloka‘i, Lāna‘i, and Kaua‘i. We also work with over 30 coastal communities through networks and partnerships to help protect and restore the nearshore reefs and fisheries of the main Hawaiian Islands. Over our decades of experience of forest management and marine conservation, TNC has implemented many conservation actions that promote biodiversity and it is these experiences which underpin our support for this measure.

We look forward to continuing to support efforts to collectively raising awareness about the importance of our State’s natural resources.

Mahalo for the opportunity to testify in support of SCR 122 SD1.

SCR122 SD1

Aloha Honorable Members of the Committee,

We strongly urge you to protect the future of O'ahu's herbivorous fishes and support SCR122 SD1.
O'ahu's fragile reef ecosystems are already plagued with invasive species, poor land management practices, warmer waters, and increased acidity. Recent scientific research has shown that the abundance of herbivorous fishes around the island of O'ahu is less than 5% its potential (Donahue et al. 2023 Transactions of the Royal Society B). The reefs need these herbivorous species to play their critical ecological role more than ever and we hope you will SUPPORT this resolution.

Natalie Parra
Co-Founder at Keiko Conservation
Campaign Director at Oceanic Preservation Society

SCR-122-SD-1
Submitted on: 4/9/2024 9:37:53 AM
Testimony for WAL on 4/11/2024 9:00:00 AM

Submitted By	Organization	Testifier Position	Testify
Regina Gregory	Individual	Support	Written Testimony Only

Comments:

support

April 9, 2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai‘i State Legislature

Aloha Legislators,

I **strongly support SCR122 SD1** for desperately needed assistance in replenishing herbivorous fishes on O‘ahu’s coral reefs. The herbivorous fishes on the reefs of O‘ahu, as on reefs of the other Hawaiian Islands, are mostly parrotfishes (*uhu*), surgeonfishes (like *kala*, *kole*, *manini*), and chubs (*nenue*). These fishes clean reef surfaces, preventing seaweeds from smothering corals. Although fished-down throughout our islands, they are most depleted on O‘ahu. Recent scientific research has shown that the abundance of these fishes around the island of O‘ahu is less than 5% its potential (Donovan et al. 2023 *Transactions of the Royal Society B*). Many reefs around O‘ahu are already degraded from poor land management practices, coral bleaching from warm water episodes in recent years, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 *Scientific Reports*). Measures of herbivore protection are desperately needed on O‘ahu. Please pass these resolution so that Hawai‘i can take steps to replenish these essential, natural lawnmowers of the reef before we exceed the tipping point for corals on our O‘ahu reefs.

Mahalo,

Edward E. DeMartini, Ph.D.
Kaneohe, Hawai‘i
Retired Fisheries Research Biologist, NOAA, NMFS (1990-2016) and
Adjunct Professor, HIMB, SOEST, University of Hawaii Manoa (2006-present)

April 9, 2024

Aloha Legislators,

I **strongly support SCR122 SD1** to help save the saviors of O‘ahu’s coral reefs: herbivorous fishes. Parrotfishes (*uhu*), surgeonfishes (*kala*, *kole*, *manini*, etc.), chubs (*nenue*) and other fishes clean reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of O‘ahu is less than 5% its potential (Donavan et al. 2023 *Transactions of the Royal Society B*). Many reefs around O‘ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 *Scientific Reports*). Please pass these resolutions so that Hawai‘i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,
Daniela Escontrela Dieguez
Honolulu, Hawai‘i

April 9, 2024

Aloha Legislators,

I was born and raised on Oahu and have lived in Hawai'i for all of my 76 years. I am a fisherman, ocean swimmer and a diver, and in my lifetime I have witnessed a clear decline in the number of uhu on Oahu reefs. Therefore I strongly support SCR122 SD1.

I testified in support HB 1689 to protect uhu, and thereby save our coral reef saviors from further severe overexploitation. Parrotfishes (uhu) are a key species that keep our reef surfaces clean so new coral can flourish. Unfortunately, uhu are severely depleted and the new herbivore fishing rules approved by the Board of Land and Natural Resources are insufficient to replenish these reef saviors.

Importantly, protecting uhu is about much more than fishing and feeding people. They are the natural resilience mechanism needed for our reefs to recover and thrive. As saviors of our reefs, they are far more valuable to all the people of Hawai'i alive than as food. Healthy coral reefs protect our coasts from erosion, provide fisheries for many species (not just herbivores), and are valuable sources of recreation, tourism, and spiritual connection.

Our reefs are seriously threatened by poor water quality and increasingly severe coral bleaching. Without abundant and diverse populations of uhu, many of Oahu's reefs are now covered in seaweeds, which quickly smother corals unless they are removed by these natural lawnmowers.

Uhu replenishment is about the long-term perspective of those who care about the future of our valuable coral reefs vs. the short-term perspective of those who would continue to allow the depletion of our reef saviors. Ultimately, by helping to replenish uhu populations now, SCR122 SD1 will help sustain our fisheries and other benefits provided by our coral reefs, far into the future.

Mahalo,
Rick Gaffney
Kailua Kona, Hawai'i

Global March for Elephants and Rhinos

824 North Wilson Avenue, Pasadena, CA 91104. USA | +1 626 808 4107 | EIN: 81-1276522

gmfer@gmfer.org | march4elesandrhinos@gmail.com | www.gmfer.org

Gold Transparency 2024 Candid.

Rosemary Alles
Honokaa HI
April 9th, 2024.

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai'i State Legislature

Aloha Legislators,

Re: Support for Resolution SCR122 SD1

My name is Rosemary Alles, I am a long-time resident of the Big Island and am keenly interested in the protection of earth's remaining fauna and flora. I am also the president of the Global March for Elephants and Rhinos (GMFER); our work underlines the grave reality of the 6th mass extinction. Unlike previous mass extinctions, the 6th is driven by human activity. Every unique biosphere on earth -even Antarctica- is experiencing the impact of anthropogenic stresses.

Humans stand at a unique crossroads, one that calls on us to engage in right-action, pono-action. The once vibrant rainbow that mirrored the historic abundance of Hawai'i's jeweled species is no more, still, what remains of that rainbow must be protected.

I, along with GMFER's board and its members call on those who have capacity and the power, Hawai'i's Legislature, to ***act today*** to protect our island home's remaining coral reefs.

I strongly support SCR122 SD1 to help save the saviors of O'ahu's coral reefs: herbivorous fishes. Parrotfishes (uhu), surgeonfishes (kala, kole, manini, etc.), chubs (nenue) and other fishes clean reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of O'ahu is less than 5% its potential (Donovan et al. 2023 Transactions of the Royal Society B). Many reefs around O'ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 Scientific Reports). Please pass these resolutions so that Hawai'i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo nui

Rosemary Alles,
Honokaa, HI.

The mission of the Global March for Elephants and Rhinos (#GMFER) is to #MarchAgainstExtinction and work with indigenous communities to influence governments and world leaders to STOP the poaching of elephants and rhinos. GMFER visions a livable earth for all living things by building human communities that see non-human communities as deserving of justice.

April 9, 2024

House Speaker Saiki, Senate President Kouchi, and
Members of the Hawaii State Legislature

Aloha Legislators,

I strongly support SCR122 SD1 to help save the saviors of O'ahu's coral reefs: herbivorous fishes. Parrotfishes (uhu), surgeonfishes (kala, kole, manini, etc.), chubs (nenue) and other fishes clean reef surfaces, preventing seaweeds from smothering corals.

Global research and precedents of protecting herbivorous fishes like parrotfish have long shown their critical importance to our reef ecosystems. And now, recent scientific research has shown that the abundance of these fishes around the island of O'ahu is less than 5% its potential (Donovan et al. 2023 Transactions of the Royal Society B). Many reefs around O'ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 Scientific Reports). Please pass these resolutions so that Hawaii can take steps to replenish our natural lawnmowers of the reef before it is too late.

What would our reefs be with no fish and coral?

Mahalo,

Chloe Hartwell
Wailupe, Oahu, Hawaii

Melissa Pavlicek
1099 Alakea Street, Suite 2530
Honolulu, Hawaii 96813

April 9, 2024

SCR122 SD1:

REQUESTING THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO WORK WITH THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AND OTHER EXPERTS TO CONDUCT A STUDY ON THE POPULATION STATUS OF CORAL REEF HERBIVORES AROUND THE ISLAND OF OAHU AND DEVELOP EFFECTIVE POLICIES FOR SUBSTANTIALLY INCREASING THOSE POPULATIONS WITHIN A DECADE.

Aloha kākou:

My name is Melissa Pavlicek and I serve as an attorney and small business owner based in Honolulu. I am also a parent who is personally concerned about the population status of coral reef herbivores. I care about the future of our oceans for my children, my community, and all of our future generations.

I understand that studies have indicated that herbivores which are necessary for reef health around the island of O‘ahu may comprise less than 5% of their potential. Through my work as an advocate at the state capitol, I have had the opportunity to learn about this important issue from Dr. Mark Hixon from the University of Hawaii who refers to herbivores as nature’s “lawnmowers.” I am especially concerned that a major contributor to reef herbivore depletion is illegal/unethical spearing of these fish at night.

The introduction of these resolutions could not be timelier. Pilina Kanaloa – Ocean Day at the State Capitol – will be held during the month of March to raise awareness about significant ocean policy issues, environmental sustainability, and natural resource protection and restoration.

Please support these measures.

April 9, 2024

RE: SCR122 SD1

To whom it may concern:

Please support SCR122 SD1. This is a very important resolution. Our nearshore Natural Resources are sadly diminished for many reasons. It is time to protect the herbivores that help maintain an appropriate natural balance.

Mahalo for your support, Bob Leinau

Global March for Elephants and Rhinos

824 North Wilson Avenue, Pasadena, CA 91104. USA | +1 626 808 4107 | EIN: 81-1276522

gmfer@gmfer.org | march4elesandrhinos@gmail.com | www.gmfer.org

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai'i State Legislature

Hale Anderson
Honokaa ,HI

April 9th, 2024.

Aloha Legislators,
Re: Support for Resolution SCR122 SD1

I am keenly interested in the protection of earth's remaining fauna and flora. I am also the Vice president of the Global March for Elephants and Rhinos (GMFER); our work underlines the grave reality of the 6th mass extinction. Unlike previous mass extinctions, the 6th is driven by human activity. Every unique biosphere on earth -even Antarctica- is experiencing the impact of anthropogenic stresses.

Humans stand at a unique crossroads, one that calls on us to engage in right-action, pono-action. The once vibrant rainbow that mirrored the historic abundance of Hawai'i's jeweled species is no more, still, what remains of that rainbow must be protected.

I, along with GMFER's board and its members call on those who have capacity and the power, Hawai'i's Legislature, to act today to protect our island home's remaining coral reefs.

I strongly support resolutions SCR122 SD1 to help save the saviors of O'ahu's coral reefs: herbivorous fishes. Parrotfishes (uhu), surgeonfishes (kala, kole, manini, etc.), chubs (nenue) and other fishes clean reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of O'ahu is less than 5% its potential (Donovan et al. 2023 Transactions of the Royal Society B). Many reefs around O'ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 Scientific Reports). Please pass these resolutions so that Hawai'i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo nui
Hale Anderson
Honokaa, HI

The mission of the Global March for Elephants and Rhinos (#GMFER) is to #MarchAgainstExtinction and work with indigenous communities to influence governments and world leaders to STOP the poaching of elephants and rhinos. GMFER visions a livable earth for all living things by building human communities that see non-human communities as deserving of justice.

SCR122 SD1

We strongly urge you to protect the future of O'ahu's herbivorous fishes and **support** SCR122 SD1.

O'ahu's fragile reef ecosystems are already plagued with invasive species, poor land management practices, warmer waters, and increased acidity. Recent scientific research has shown that the abundance of herbivorous fishes around the island of O'ahu is less than 5% its potential (Donovan et al. 2023 Transactions of the Royal Society B). The reefs need these herbivorous species to play their critical ecological role more than ever and we hope you will **SUPPORT** these resolutions.

Natalie Parra
Miloli'i HI
Co-Founder at Keiko Conservation
Campaign Director at Oceanic Preservation Society

April 9, 2024

Aloha,

I support the passage of SCR122 SD1, because herbivore fish in general, and uhu (parrotfish) in particular, are so important to the long-term sustainability of both (i) our reefs, and (ii) our white sandy beaches. And parrotfish (along with other herbivores) are being overfished, and depleted, in the ocean around Oahu in a way that is simply not sustainable.

The Critical Importance of Uhu (Parrotfish)

According to scientists at the University of Hawaii, approximately 70% of the white sand in Hawaii comes from uhu (parrotfish). Parrotfish feed on the algae that grow on the surface of many reefs. In this process of eating, the parrotfish teeth also chew off a small bit of the coral, which is ground up further by special grinding teeth, and eventually expelled (pooped out) as white sand. A single large parrotfish can produce 1,000 to 2,000 pounds of white sand, or more, per year!

In addition to parrotfish helping us preserve our beaches by producing about 70% of all the white sand in Hawaii, scientists also tell us that parrotfish are good for the health of our coral reefs. In addition to removing the algae that sometimes smoother and kill our coral reefs, the small bite marks on the coral made by uhu (parrotfish) actually stimulate new coral growth, which helps corals be more resilient against warming ocean water and pollution.

The Remaining Uhu (Parrotfish) Stocks are Being Rapidly Depleted

Uhu (parrotfish) are already listed as a "depleted" species by the National Marine Fisheries Service. They have been overfished in Hawaii (and particularly near Oahu) in a way that is not sustainable on a long-term basis.

The scientific evidence is also consistent with my personal observations, and the observations of my friends who spearfish and surf. On both the North Shore and the South Shore of Oahu, we used to see many parrotfish, now we see very few.

SCR122 SD1 will Help Support Numerous Strategies to Help Protect Uhu (Parrotfish) and other Herbivore Fish

Parrot fish tend to be wary of humans in the daytime. At night, however, parrotfish are typically in a "sleep-like" state, and frequently sleeping under rock overhangs or in cervices, and particularly vulnerable to spearfishing at night. When an underwater hunter finds a sleeping

parrotfish and shines a light on it at night, it typically does not swim away, which makes it an easy target, just swim up to it and spear it.

Many South Pacific islands have similar species and sub-species of parrotfish, to those found in Hawaii. And on many of those South Pacific islands, parrotfish have been absolutely decimated by excessive spearfishing at night. On Guam, at least one sub-species of parrotfish is now extinct.

Here in Hawaii, all too often, especially on Oahu, large groups of people will spearfish for uhu (parrotfish) at night, with lights, and collectively kill dozens and dozens of parrotfish, and more or less "sweep an area clean" of all the parrotfish. In order to help protect this depleted, but critically important, species of fish, there really should be a limitation that spearfishing for uhu (parrotfish) can be done only during daylight hours.

When the Board of Land and Natural Resources ("BLNR" or the "Board") approved (on December 15, 2023) the recent new rules to help protect herbivore fish (that had been proposed by the DLNR staff), the Board did not have the power to add any additional rules at the same time it was approving the DLNR staff's proposed new rules. However, a clear majority of the Board members present made strong statements that they were also in favor of prohibiting the nighttime spearfishing of uhu (parrotfish), and they strongly requested that the DLNR staff move forward with that and some other new rules. Passage of SCR122 SD1 will help support and encourage those efforts by the Board of Land and Natural Resources.

Mahalo for considering the ideas in this testimony,
Ken Martyn, Waialua, Hawaii.

References supporting the scientific statements made in this testimony, are listed below:

https://manoa.hawaii.edu/exploringourfluidearth/physical/coastal-interactions/beaches-and-sand/weird-science-parrotfish-and-sand

https://ocean.si.edu/ocean-life/fish/tough-teeth-and-parrotfish-poop

https://www.nature.org/en-us/get-involved/how-to-help/animals-we-protect/parrotfish/#:~:text=Parrotfish%20live%20in%20reefs%20all,in%20the%20coral%E2%80%94at%20night.

https://fishpono.org/

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai'i State Legislature

April 9, 2024

Aloha Legislators,

I **strongly support Resolution SCR122 SD1** to help save the sea gardeners of O'ahualua coral reefs. Uhu and other herbivores such as kala, kole, manini, and nenue, clean our coral reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of O'ahu is less than 5% its potential (Donovan et al. 2023 *Transactions of the Royal Society B*). Many reefs around O'ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 *Scientific Reports*). Please pass these resolutions so that Hawai'i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,
U'ilani Naipo
Miloli'i Community-Based Subsistence Fishing Area Administrator
Miloli'i, Kapalilua, Hawai'i

April 9, 2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai‘i Legislature

Re: **SCR122 SD1**

Dear Legislators,

I moved to Maui from Oahu in 1987 but returned in 2018 – 2020 to study marine biology at Mānoa. It was shocking to see the condition of the Oahu nearshore at that time. The reefs off Waikiki were so eroded they looked like Swiss cheese and had only a few fishes. Even off Lanikai where there were some fishes, they were all very small. Maui reefs are also degraded from pollution and overfishing, but do not approach the devastation of Oahu.

We know we cannot avoid the threats from climate change: extreme weather events, warming seas, and ocean acidification. However, there are local harms that we can mitigate. Controlling non-point source pollution and curbing irresponsible fishing practices, such as night scuba fishing, would give the reefs a measure of resilience to meet global threats. More protected areas would give the reefs a chance to repopulate adjacent nearshore.

I urge you to take seriously the declining reefs of the main Hawai‘i islands and **support these resolutions** to protect them.

Diane E Shepherd, DVM
3329 Kehala Dr
Kihei, HI 96753
808-283-2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai‘i State Legislature

Aloha Legislators,

I strongly support SCR122 SD1 to protect herbivorous fishes of O’ahu’s coral reefs, including parrotfishes (uhu), surgeonfishes (kala, kole, manini), chubs (nenue). These **fishes keep our reefs alive and healthy** by feeding on the seaweeds and algae that smother corals if left to grow unchecked.

Corals are living animals. They create the structures of reefs. Healthy coral reefs sustain Hawai‘i by protecting coastlines from storms and erosion, providing jobs for our communities, offering tourism and recreational activity, and are sources of food and medicine for treating cancer. Our people depend on reefs for food, income, and protection. The reef ecosystems are culturally important to us.

But our reefs are severely threatened by human activity. Pollution. Poor waste management practices in costal zones. Sedimentation. Unsustainable fishing practices. Climate change that warms ocean temperatures and leads to ocean acidification. All these threats can stress corals and lead to coral bleaching and possible coral death. And coral bleaching and death are predicted to increase and occur every year by 2040 (van Hooidonk et al. 2016 Scientific Reports).

Sometimes coral damage is permanent. But **corals can recover from bleaching events and other stressors if conditions improve before they die. We can help our reefs survive by protecting the fish that protect the reefs.** It takes many years for these ecosystems to fully heal, so **we need to start now.**

Scientific research has shown that the abundance of herbivorous fishes around the island of O‘ahu is less than 5% its potential (Donovan et al. 2023 Transactions of the Royal Society B). **It can take up to a decade to recover depleted fish stock, so we need to start now.**

Please pass these resolutions so that Hawai‘i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,
Sarita Rich
Honolulu, Hawai‘i

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai‘i State Legislature

Aloha Legislators,

I strongly support SCR122 SD1 to protect the herbivores of coral reefs. Please save the parrotfishes (uhu), surgeonfishes (kala, kole, manini), chubs (nenue) because they keep our reefs healthy.

My name is Stella Rich and I'm a 3rd grader at Voyager Public Charter School. Today, I would like to speak up for the herbivores.

Herbivores keep our reefs healthy by eating algae that suffocate coral if left to grow out of control. Uhu also chomp dead coral with their beaks and teeth and then excrete clean sand. Some kinds of uhu produce up to 2000 pounds of sand individually, *every* year. Hawaii needs all of this sand.

I moved to Hawaii 5 years ago. Before I lived here I didn't know about herivores like parrotfish. I discovered them while doing research for a local art contest about acts of kindness. I found out how amazing parrotfish are and what they do for the environment and wanted to paint them because **fish deserve kindness too.**

Voting to save the herbivores is an important way to "malama ka aina." When your grandchildren ask if you took the chance to save the coral reefs by saving the fishes, that you will be able to say YES! Please say yes to choices that preserve both the land and our people so that keiki like me can grow up in a healthy Hawai‘i.

Mahalo,
Stella Rich
Honolulu, Hawai‘i

April 9, 2024

Aloha Legislators,

I **strongly support SCR122 SD1** to help save the saviors of O‘ahu’s coral reefs: herbivorous fishes. Parrotfishes (*uhu*), surgeonfishes (*kala*, *kole*, *manini*, etc.), chubs (*nenue*) and other fishes clean reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of O‘ahu is less than 5% its potential (Donahue et al. 2023 *Transactions of the Royal Society B*). Many reefs around O‘ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 *Scientific Reports*). Please pass these resolutions so that Hawai‘i can take steps to replenish our natural "cleaners of our reef" before its too late,

Mahalo,

Roxanne RIvero

238 Kaimanawai Pl

Honolulu, Hawaii 96816

April 9, 2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawaiʻi State Legislature

Aloha Legislators,

As a life-long resident here in Hawaii, I **strongly support** **SCR122 SD1** to help save the saviors of Oʻahuʼs coral reefs: herbivorous fishes. Parrotfishes (*uhu*), surgeonfishes (*kala*, *kole*, *manini*, etc.), chubs (*nenue*) and other fishes clean reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of Oʻahu is less than 5% its potential (Donovan et al. 2023 *Transactions of the Royal Society B*). Many reefs around Oʻahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 *Scientific Reports*). Please pass these resolutions so that Hawaiʻi can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,
Dennis Mahaffay
Honolulu, Hawaiʻi

April 9, 2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai‘i State Legislature

Aloha Legislators,

I **strongly support SCR122 SD1** to help save the saviors of O‘ahu’s coral reefs: herbivorous fishes. Parrotfishes (*uhu*), surgeonfishes (*kala*, *kole*, *manini*, etc.), chubs (*nenue*) and other fishes clean reef surfaces, preventing seaweeds from smothering corals. Recent scientific research has shown that the abundance of these fishes around the island of O‘ahu is less than 5% its potential (Donovan et al. 2023 *Transactions of the Royal Society B*).

Many reefs around O‘ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 *Scientific Reports*). Please pass these resolutions so that Hawai‘i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,

Sherri Rigg
Honolulu, Hawai‘i

April 9, 2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawaiʻi State Legislature
Aloha Legislators,

Writing as a member on behalf of the ‘Big Island Reef Keepers hui’, we support SCR122 SD1 to help save all herbivorous fishes, and especially our ‘Uhu’ (Parrotfish). And though we feel the science and data has already clearly shown the importance of the *ecologic services* provided by these animals on our reefs, we think additional studies will only lead to the same conclusions as advocates for HB 1689 have similarly presented.

It’s difficult to understand a system that doesn’t properly accord the important field work of scientists, nor take to heart the ample body of indigenous wisdom that plans for long term sustainability - throughout generations and not just election cycles!

Please pass these resolutions now so that Hawaiʻi can take the necessary steps to replenish our natural ‘tools’ for reef recovery before it is too late.

R A Culbertson
Member, on behalf of the Big Island Reef Keepers hui
Honokaa

Matthew Gurewitsch – 3415 Kuaua Place – Kihei HI 96753

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai'i State Legislature

Aloha Legislators,

Time is not on our side.

I write to express my whole-hearted support for HCR122 SD1 to save the herbivorous fish on O'ahu's coral reefs. These species—which include parrotfishes (*uhu*), surgeonfishes (*kala, kole, manini*, etc.), chubs (*nenue*) and more—are the indispensable safeguard for the health of the reefs. Their cleaning action prevents the buildup of seaweeds that otherwise smother the coral.

Mālama 'āina!

We pride ourselves in Hawaii on our stewardship of the environment. Yet poor land-management practices and a warming ocean have decimated the herbivorous fish stocks in the O'ahu water to just five percent (5%) of their potential (see Donahue et al. 2023 *Transactions of the Royal Society B*).

Five percent! This is as shameful as it is tragic. The situation demands our urgent atte ntion—and our action before we've lost everything. Let's push back with every means at our disposal. Passing these resolutions is the necessary first step. Help the reef flourish!

Mahalo,

Matthew Gurewitsch

April 9, 2024

House Speaker Saiki,
Senate President Kouchi, and
Members of the Hawai‘i State Legislature

Aloha Legislators,

I strongly support SCR122 SD1 to help conserve O‘ahu’s herbivorous fishes. Parrotfishes (*uhu*), surgeonfishes (*kala, kole, manini,* etc.), chubs (*nenue*) and other fishes clean reef surfaces, preventing invasive seaweeds from smothering corals. Our native *limu* are also being hurt by the invasive seaweeds and our herbivorous fishes are the answer to helping to bring our reefs back to their former abundance. Recent scientific research has shown that the abundance of these fishes around the island of O‘ahu is less than 5% its potential (Donovan et al. 2023 *Transactions of the Royal Society B*). Many reefs around O‘ahu are already degraded from poor land management practices, and the sedimentation and nutrient inputs that are flooding our reefs are helping the invasive algae grow prolifically. Please pass these resolutions so that Hawai‘i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,

James T. Fumo
Honolulu, Hawai‘i

College of Natural Sciences
School of Life Sciences

UNIVERSITY of HAWAI'I MĀNOA

April 9, 2024

House Speaker Saiki,

Senate President Kouchi, and Members of the Hawai'i State Legislature

Aloha Legislators,

I strongly support SCR122 SD1 to help save the saviors of O'ahu's coral reefs: herbivorous fishes. Parrotfishes (uhu), surgeonfishes (kala, kole, manini, etc.), chubs (nenue) and other fishes clean reef surfaces, preventing seaweeds from smothering corals.

Since 1977, I have spent thousands of hours underwater studying the behavior and habits of coral reef fishes in Hawai'i, including those on the Island of Oahu. At the beginning of that time, I personally observed very large parrotfishes feeding on bottom algae, reproducing on the reefs, and sleeping quietly in coral crevices at night along our north, west and south shores. Today it is a rare sight to see a large uhu or other herbivorous species, partially because they are the target of many spear and net fisher persons.

Recent scientific research has shown that the abundance of these fishes around the island of O'ahu is less than 5% its potential (Donovan et al. 2023 Transactions of the Royal Society B). Many reefs around O'ahu are already degraded from poor land management practices, and the ever-warming ocean is predicted to cause coral bleaching and death every year by 2040 (van Hooidonk et al. 2016 Scientific Reports). Please pass these resolutions so that Hawai'i can take steps to replenish our natural lawnmowers of the reef before it is too late.

Mahalo,

Timothy Tricas
Professor and Observer of these magnificent creatures

3190 Maile Way, St. John 101
Honolulu, Hawai'i 96822
Telephone: 808.956.8303
Fax: 808.956.4745
lifesci@hawaii.edu
https://lifesciences.manoa.hawaii.edu/