

HB-102

Submitted on: 2/3/2021 1:55:35 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Debra	Individual	Support	No

Comments:

Please protect our reefs by supporting this ban on harmful toxic sunscreens. There are plenty of other options for folks to use.

HB-102

Submitted on: 2/3/2021 6:33:08 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Joan Gannon	Individual	Support	No

Comments:

I am Joan Gannon of West Hawaii asking you to please vote for HB102. Keep avobenzone and octocrylene out of sun screen starting 2023. Our land and seas need our protection from polution.

Thank you

HB-102

Submitted on: 2/4/2021 10:22:53 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Clair Mason	YPDA Hawai'i Island	Support	No

Comments:

Aloha e Chair, Vice Chair, Committee Members,

On behalf of Young Progressives Demanding Action Hawai'i Island Hub, I strongly support House Bill 102. HB102 strengthens our current sunscreen chemical laws, so it is only appropriate that we listen to science and continue to strengthen the laws we have already mandated.

HB102 would create a great positive impact in our community. The ocean is a central part of our lives in Hawaii. Thus, banning the sale of sunscreen that contains avobenzone or octocrylene will help protect our oceans, marine life, and livelihood. The sooner this ban is in place the better for our wildlife and local residents. We hope to actually see that this bill be mandated even sooner, with an amended start date of 01/01/2022.

Mahalo nui loa for the opportunity,

Clair Mason - Hub Coordinator of YPDA Hawai'i Island



1050 Bishop St. PMB 235 | Honolulu, HI 96813
P: 808-533-1292 | e: info@hawaiiifood.com

Executive Officers

Joe Carter, Coca-Cola Bottling of Hawaii, *Chair*
Charlie Gustafson, Tamura Super Market, *Vice Chair*
Eddie Asato, The Pint Size Corp., *Secretary/Treas.*
Lauren Zirbel, HFIA, *Executive Director*
John Schlif, Rainbow Sales and Marketing, *Advisor*
Stan Brown, Acosta Sales & Marketing, *Advisor*
Paul Kosasa, ABC Stores, *Advisor*
Derek Kurisu, KTA Superstores, *Advisor*
Beau Oshiro, C&S Wholesale Grocers, *Advisor*
Toby Taniguchi, KTA Superstores, *Advisor*

TO:

Committee on Energy and Environmental Protection and Committee on Water & Land
Rep. Nicole E. Lowen and Rep. David A. Tarnas, Chairs
Rep. Lisa Marten and Rep. Patrick Pihana Branco, Vice Chairs

FROM: HAWAII FOOD INDUSTRY ASSOCIATION

Lauren Zirbel, Executive Director

DATE: February 11, 2021
TIME: 9am
PLACE: Via Videoconference

RE: HB102 Relating to Sunscreens

Position: Oppose

The Hawaii Food Industry Association is comprised of two hundred member companies representing retailers, suppliers, producers, and distributors of food and beverage related products in the State of Hawaii.

The HFIA proposes that since this bill would ban many products that are used to prevent skin cancer, that a higher standard of review should be conducted to ensure that taking this action would indeed improve outcomes for reefs. The primary causes of damage to reefs are increased water temperatures, run-off, sewage, and overfishing.

It's important to understand that it's nearly impossible to enforce a State specific ban of products that can be bought online, including skin protecting moisturizers and sunscreens. Functionally this law will just make it harder for Hawaii consumers to buy products they use to prevent skin cancer, and force them to buy from online sellers rather than local stores.

In Hawaii where skin cancer is a major health concern¹ we believe it's important for people to have access to products that have been proven to offer effective sun protection for daily use. Many products that have sun protection factor, such as lotions, tinted moisturizers, and anti-aging products are intended for daily use in small amounts. These products are not used in

¹ <http://www.staradvertiser.com/2018/02/28/editorial/island-voices/heathy-people-healthy-places-include-sunscreen/>

large quantities anywhere near the ocean. However, all of these products would be unnecessarily banned under this bill, as would other federally approved and regulated healthcare products.

Given that this ban would not do anything to alleviate the known primary causes of coral bleaching, and that it would try to deprive people of products they use to prevent possibly life threatening skin cancers, we do not think the potential benefit is worth the risk and we ask that this measure be held.

Thank you for the opportunity to testify.



GREG K. SAKAMOTO, M.D.
DERMATOLOGY

QUEENS PHYSICIANS OFFICE BLDG III
550 N BERETANIA ST, STE 603
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WWW.SAKAMOTODERMATOLOGY.COM

February 4, 2021

To Whom It May Concern:

I am writing in opposition of House Bill 102. As dermatologists, we know that 80% of skin cancer can be prevented by following sun safe practices, yet we see patients with skin cancer on a daily basis. Many of these patients present with multiple skin cancers, with a vast majority of cases related to excessive sun exposure. This proposed ban on more sunscreen ingredients could potentially eliminate about 64% of the sunscreens currently on the shelf. The only sunscreens that will be left are the ones that cause a white cast and feel sticky on the skin, which will deter people from using sunscreen altogether. This bill will severely limit consumer choice. Sun damage is real and it can affect anyone, and is even more critical here in Hawaii where we have one of the highest average UV indexes in the nation. The benefits of sunscreen for reducing skin damage and preventing skin cancer have been well documented and has been proven to reduce your risk of developing melanoma by up to 50%. We know that sunscreen saves lives.

I understand the intention behind this bill is to protect our coral reefs and I believe that is a worthy cause. However, I am not a reef expert, but according to [NOAA's website](#) about sunscreen and coral damage, it did **not** list avobenzone, octocrylene, homosalate or octislate as being harmful to marine life. Before banning any sunscreen that could potentially save lives, there should be solid, overwhelming evidence that it does in fact harm marine life in the ocean. Think about all the other ingredients that enter the ocean, including insecticides, cleaning chemicals, gasoline, oils, etc. Are we planning to ban them as well?

Please consider the public health impacts that such a sweeping ban on sunscreens will have on the people of Hawaii.

If you have any questions, please feel free to call me.

Sincerely,



GREG K. SAKAMOTO, M.D.
DERMATOLOGY

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Greg K. Sakamoto M.D., Dermatologist

HB-102

Submitted on: 2/4/2021 4:39:24 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Zara Nicholson	Individual	Support	No

Comments:

Aloha e Chair, Vice Chair, Members of the Committee,

On behalf of Young Progressives Demanding Action Hawai'i Island Hub, I strongly support House Bill 102. HB102 strengthens our current sunscreen chemical laws, so it is only appropriate that we listen to science and continue to strengthen the laws we have already mandated.

HB102 would create a great positive impact in our community. The ocean is a central part of our lives in Hawaii. Thus, banning the sale of sunscreen that contains avobenzone or octocrylene will help protect our oceans, marine life, and livelihood. The sooner this ban is in place the better for our wildlife and local residents. We hope to actually see that this bill be mandated even sooner, with an amended start date of 01/01/2022.

Mahalo nui loa for the opportunity,

Zara Nicholson, CPA

HB-102

Submitted on: 2/5/2021 9:45:26 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Penelope Hazzard	Individual	Support	No

Comments:

I support this bill as I commend the representatives for forward thinking to protect our environment.

HB-102

Submitted on: 2/5/2021 1:45:12 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lisa Diaz	Individual	Support	No

Comments:

To: Representative Nicole Lowen

2/5/21

Chair of Energy and Environment Committee.

Hawaii State Legislature

RE: HB102

Aloha Chair /Rep. Lowen:

I strongly support HB102 to ban the sale of sunscreens in Hawaii containing two chemicals that studies show are harmful to coral reefs, other aquatic life, and even human health. The chemicals are called avobenzene and octocrylene. These bills if passed would add to the ban passed in 2018 and now in effect for sunscreens containing two other harmful chemicals, oxybenzone and octinoxate.

Mahalo, Chair Rep. Lowen, for your commitment to protecting our marine environment, which is critically important to our economy, and health.

Malama i ka kai,

Lisa Diaz

76-223 Haoa st.

Kailua Kona, HI 96740

HB-102

Submitted on: 2/5/2021 2:12:08 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Randy Fernley	Individual	Support	No

Comments:

The Oahu Aquarium Fishery strongly supports this bill

In Favor of HB102/SB366 Banning the sale, offer of sale, or distribution in Hawaii of sunscreen products that contain Avobenzone and/or Octocrylene. Joe DiNardo (Toxicologist/Hawaiian tourist).

Dear Senators and Representatives, based on Hawaii's lead in the environmental impact of oxybenzone and octinoxate the world has turned its eyes to evaluating the impact of other organic sunscreen actives that impact the environment and human health. Although the coronavirus has slowed us all down, scientists for all over the world continue to conduct research on these chemicals. With that said, below are a dozen scientific references, recently published, relating to the negative impact to the aquatic environment focusing solely on avobenzone and octocrylene (Note: other chemicals of concern may have also been tested concurrently in the papers referenced below).

- 1) Irrigation with water containing avobenzone and octocrylene significantly inhibit the aboveground growth of cucumber plants by interfering with photosynthesis. (Zhong et al Sci Total Environ. **2020 Apr 20**;714:136879). These findings should cause great concern since aquatic plants (currently growing in sunscreen contaminated waters) also use photosynthesis to grow that feed a variety of aquatic species.
- 2) Octocrylene was the most toxic UV filter tested in brine shrimp followed by avobenzone (Thorel et al Toxics. **2020 Apr 10**;8(2):29).
- 3) Octocrylene was considered to be a great threat to Japanese medaka (*Oryzias latipes*) based on its reproductive toxicity (Yan Environ Pollut. **2020 Jun**;261:114104)
- 4) Both avobenzone and octocrylene induced behavioral and physiological disruption at environmentally realistic concentrations in *Daphnia magna* (Boyd et al Sci Total Environ. **2021 Jan 1**;750:141707).
- 5) Long-term exposure to avobenzone and octocrylene was lethal for some organisms living in freshwater environments and were considered dangerous for freshwater ecosystems (University of Alberta – **Sept 1, 2020** <https://www.ualberta.ca/folio/2020/09/common-sunscreen-ingredients-dangerous-for-freshwater-ecosystems-study.html>)
- 6) Octocrylene was reported to alter in a negative manner mitochondrial function of hexacoral *Pocillopora damicornis* (Stien et al Sci Rep. **2020 Jun 15**;10(1):9601).
- 7) Octocrylene accumulates in *Pocillopora damicornis* tissues as fatty acid conjugates and triggers coral cell mitochondrial dysfunction (Stien et al Anal Chem. **2019 Jan 2**;91(1):990-995).
- 8) Octocrylene and avobenzone were found in multiple species of fish from markets in the Canary Islands and Catalonia (Spain) with *Thunnus thynnus* being the most heavily polluted species (Gimeno-Monforte et al Foods. **2020 Dec 9**;9(12):1827). This finding continues to demonstrate the growing concern of bioaccumulation/biomagnification of organic sunscreen actives in the contamination of our food chain.
- 9) Octocrylene may pose high risk to aquatic organisms in the riverine and estuarine environment in Thailand (Juksu et al Ecotoxicol Environ Saf. **2020 Nov**;204:110952).
- 10) In the Enoggera Reservoir (Australia), seven UV filters were detected, of which the most prevalent were octocrylene and avobenzone (O'Malley et al Sci Total Environ. **2021 Feb 1**;754:142373).
- 11) Octocrylene was one of three chemicals mixed together that modified genes related to the endocrine system, detoxification mechanisms, and the stress response in *Chironomus riparius* (Muñiz-González Ecotoxicol Environ Saf. **2020 Dec 15**;206:111199).
- 12) Over 60 disinfection by-products were identified as transformation products of avobenzone in different disinfection reactions of chlorination and bromination of fresh or seawater ... increasing its toxicity (Lebedev et al Environment International Volume 137, **April 2020**, 105495).

Lastly, the toxicity associated with organic sunscreens and the role that these chemicals are thought to play in preventing skin cancer is of concern, therefore, I will let the researchers and medical professional who have evaluated this perspective over the last 6 decades answer this question using their own statements:

Published Research Reviewing the Skin Cancer Prevention of Sunscreens

Statement	Citation
<p>“The preparations are all designed to protect against the acute effects of ultraviolet, namely sunburn. Because of their effectiveness in this regard, they are often assumed to protect against ultraviolet carcinogenesis. In most cases, however, there is little or no published evidence that they do so and the relationship is inferential.”</p>	<p>Emmett. Ultraviolet radiation as a cause of skin tumors. <i>CRC Crit Rev Toxicol.</i> 1973;2(2):211-55.</p>
<p>“In summary, the results of this study indicate that inflammation and enhanced melanoma growth are different effects of UV radiation involving different mechanisms and have different sensitivities for sunscreen protection. Furthermore, protection against sunburn does not necessarily imply prevention of other possible UV radiation effects, such as enhanced melanoma growth. In fact, sunscreen protection against UV radiation-induced inflammation may actually encourage prolonged exposure to UV radiation and thereby increase the risk of development of cutaneous melanoma.”</p>	<p>Wolf et al. Effect of sunscreens on UV radiation-induced enhancement of melanoma growth in mice. <i>J Natl Cancer Inst.</i> 1994;86(2):99-105.</p>
<p>“... the topical use of sunscreens reduces the risk of sunburn in humans and that sunscreens probably prevent squamous-cell carcinoma of the skin when used mainly during unintentional sun exposure. No conclusion can be drawn about the cancer-preventive activity of topical use of sunscreens against basal-cell carcinoma and cutaneous melanoma</p>	<p>World Health Organization - Vainio et al. An international evaluation of the cancer-preventive potential of sunscreens. <i>Int J Cancer.</i> 2000;88(5):838-42.</p>
<p>“Although a sunscreen with an SPF of 15 or higher offers protection from sunburn, it does not block all of the sun’s damaging rays. In fact, there is no evidence that sunscreens protect you from malignant melanoma, the deadliest form of skin cancer, even though sunburns have been linked with the development of melanoma.”</p>	<p>Environmental Protection Agency: Sunscreen the burning facts 2006. Is sunscreen fail-safe (pg6). www.epa.gov</p>
<p>“Despite the availability and promotion of sunscreen for decades, the incidence of CMM (cutaneous malignant melanoma) continues to increase in the U.S. at a rate of 3% per year. There currently is little evidence that sunscreens are protective against CMM.”</p>	<p>Planta. Sunscreen and melanoma: is our prevention message correct? <i>J Am Board Fam Med.</i> 2011;24(6):735-9.</p>
<p>“The strength of the association between risk of skin cancer and sunscreen use has constantly decreased since the early 1980s, and the association was no longer statistically significant from the early 1990s. While the current evidence suggests no increased risk of skin cancer related to sunscreen use, this systematic review does not confirm the expected protective benefits of sunscreen against skin cancer in the general population.”</p>	<p>Saes da Silva et al. Use of sunscreen and risk of melanoma and non-melanoma skin cancer: a systematic review and meta-analysis. <i>Eur J Dermatol.</i> 2018;28:186–201.</p>
<p>“Could it be that the nearly universal recommendation of dermatologists and professional societies to use sunscreen to prevent skin cancer is unfounded?”</p>	<p>Waldman et al. The role of sunscreen in the prevention of cutaneous melanoma and nonmelanoma skin cancer. <i>J Am Acad Dermatol.</i> 2019 Feb;80(2):574-576.</p>

Note: Everyone should practice sun avoidance measure when possible, especially during peak hours of UV exposure (10 AM – 2 PM); wear protective clothing include a broad-brimmed hat and sunglasses and/or use

a beach umbrella/cabana when at the beach or pool; if sunscreen is desired, use a mineral based zinc oxide or titanium dioxide sunscreen - which are considered safe and effective for human use according to the FDA.

HB-102

Submitted on: 2/5/2021 4:05:48 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jenny Yagodich	Individual	Support	No

Comments:

Aloha,

I fully support HB102. I only wish it could take effect sooner than 2023. Mahalo for helping to protect our fragile marine environment.

HB-102

Submitted on: 2/6/2021 6:14:37 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Montague	Individual	Support	No

Comments:

Please vote to ban chemical sunscreens in order to protect our coral reefs from their toxic effects. There are viable substitutes that are far better for the environment. Thank you.

HB-102

Submitted on: 2/6/2021 12:29:54 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Rick Gaffney	Hawaii Fishing & Boating Association	Support	No

Comments:

The Hawaii Fishing & Boating Association strongly supports HB102. This bill is the logical next step in protecting Hawaii's marine ecosystem from noxious chemicals in sunscreens, chemicals proven harmful to many marine alga, coral and fish. The first bill of this kind, passed in 2018, has barely gone into effect, and in the interrim since its passage we have learned that the chemicals named in this bill are also harmful and should also be kept out of our marine environment.

There are an increasing number of alternatives to sunscreens containing harmful ingredients so this bill will not prevent us from protecting ourselves from the sun, moreover, many of the reef safe products that can replace harmful sunscreens are locally made, so this bill will also boost our economy as residents and visitors purchase better, equally effective products to replace those that damage our reefs.

Please pass this bill this session, and be prepared to pass similar legislation in future sessions of the legislature, as sunscreen manufacturers continue to alter chemicals structure, and find new ingredients, that unfortunately prove to harm our nearshore environment.

Mahalo

HB-102

Submitted on: 2/6/2021 4:36:43 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ruta Jordans	Individual	Support	No

Comments:

The less harmful chemicals we put in our ocean, the better. Please support!

HB-102

Submitted on: 2/7/2021 7:09:21 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Deborah Wallace	Individual	Support	No

Comments:

It is to the benefit of the state of Hawaii and it's citizens to ban the sale of sunscreens with toxic ingredients that can damage our very important coral reefs. There are simple alternatives such as zinc and titanium oxide which provide excellent sun protection without harming our coral reefs.

HB-102

Submitted on: 2/7/2021 11:42:30 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lisa Diaz	Individual	Support	No

Comments:

2/07/21

Aloha Rep. Nicole Lowen

Committee Chair Energy & Environmental Protection

AND EEP Committee Members

RE HB803 - Enforcement of EV Charger Installation and Parking Rules:

I STRONGLY SUPPORT HB803 and urge the EEP CPC, and FIN Committees to pass this bill without delay, so that Hawaii can meet our renewable energy goals, reduce emissions and mitigate climate change.

HB803 is important for our state to achieve renewable energy goals, reduce emissions and mitigate climate change by allowing counties to adopt laws to enforce charger installation and maintenance. If passed, this will strengthen law mandating installation of EV parking with charger installation in large parking areas/structures, plus requires charging stations to be maintained and meet standards and addresses enforcement of EV-only parking violations.

Mahalo to all of you for your leadership in supporting Hawaii's 2045 goal of meeting 100% Renewable Energy.

Lisa Diaz

76-223 Haoa St.

Kailua- Kona, HI 96740

HB-102

Submitted on: 2/8/2021 9:41:38 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Christine Roberson	Surfrider Foundation Maui Chapter	Support	No

Comments:

Considering growing evidence showing that these chemical sunscreens are detrimental to coral health and reproduction we support the addition of avobenzone and octocrylene to the list of banned sunscreen ingredients.

RICHARD W. VARLEY
511 Hahaione Street, Apt. 18-A
Honolulu, HI 96825
(808) 265-3610 | rvarley@hawaii.edu

February 8, 2021

Dear Chair Tarnas and Chair Lowen,

As a skin cancer survivor and avid outdoorsman, I oppose HB 102 that would ban more sunscreen ingredients from being sold in Hawaii.

Now that oxybenzone and octinoxate are banned, sunscreens have to be formulated with alternatives ingredients such, as avobenzone and octocrylene, but my understanding is that this bill is trying to remove these alternatives. If we remove these alternative ingredients, it could potentially take off about 64% of the sunscreens currently on the shelf in Hawaii, basically making mineral sunscreens some of the only ones available for purchase.

Mineral sunscreens are great for use in the ocean, but sunscreen isn't only for the beach – sunscreen should be used anytime you are outside. I use it when I'm running, cycling, hiking, golfing, or just working outside. My dermatologist has told me over and over again that I need to use sunscreen as part of my daily routine and limiting sunscreens to only those that are reef-safe doesn't take into account that there are many other situations that require sun protection. I'm sure the thick, white haze of mineral sunscreens have will discourage a lot people from using them on a daily basis and that puts a lot of people at risk for sun damage – especially in a place like Hawaii that has year-round sunny weather.

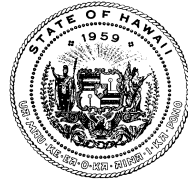
For those of us who have survived skin cancer, it seems completely insane to take away sunscreens that have decades of proven evidence to prevent skin cancer, for something that is just beginning to be studied. I've seen articles that have raised skepticism on the insufficient evidence that sunscreen is a major cause for coral damage (<https://theconversation.com/theres-insufficient-evidence-your-sunscreen-harms-coral-reefs-109567>).

We all know that sunscreen is a vital part of sun safety and skin cancer prevention. Please wait until there is more peer-reviewed scientific evidence on the environmental and human impacts of sunscreen before banning any more sunscreens.

Thank you for the opportunity to submit testimony.

Respectfully,

Richard Varley
Triathlete & skin cancer survivor



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. Box 3378
Honolulu, HI 96801-3378
doh.testimony@doh.hawaii.gov

**Testimony COMMENTING on HB0102
RELATING TO SUNSCREENS**

REPRESENTATIVE NICOLE LOWEN, CHAIR
REPRESENTATIVE LISA MARTEN, VICE CHAIR
HOUSE COMMITTEE ON ENERGY & ENVIRONMENTAL PROTECTION

REPRESENTATIVE DAVID TARNAS, CHAIR
REPRESENTATIVE PATRICK PIHANA BRANCO, VICE CHAIR
HOUSE COMMITTEE ON WATER & LAND

Hearing Date: 2/11/2021

Room Number: Via Videoconference

1 **Fiscal Implications:** This measure may impact the priorities identified in the Governor's
2 Executive Budget Request for the Department of Health's (Department) appropriations and
3 personnel priorities.

4 **Department Testimony:** HB0102 seeks to add avobenzone and octocrylene to the list of active
5 ingredients restricted from sale or distribution in Hawaii in non-prescription sunscreens. The
6 Department has the following comments.

7 The Department recognizes the benefits of the 2018 Act 104 prohibiting the sale of
8 oxybenzone and octinoxate containing sunscreen products in Hawaii. It is heartening to see the
9 dramatic increase in availability, variety and consumer acceptance of oxybenzone and
10 octinoxate-free options and mineral sunscreen products that have entered the consumer market in
11 the past few years. Use of these products meets standards for public health protection and offers
12 the public a concrete choice to help protect Hawaii's coral reefs and marine environment when
13 enjoying our beaches. However, the risk of skin cancer from sun exposure remains a hazard for

1 the people of Hawaii and visitors and it is imperative to consider the potential public health
2 consequences of additional prohibition on sunscreen ingredients.

3 The Department strongly supports public education efforts and outreach strategies to
4 inform Hawaii beachgoers about steps they can take to reduce the unintended impacts of
5 sunscreen use while safely enjoying our tropical marine waters and sunny beaches. The
6 Department also supports academic and applied research efforts further investigating the fate and
7 environmental effects of avobenzone, octocrylene and other sunscreen compounds in the
8 nearshore marine environment.

9 **Offered Amendments:** None

10 Thank you for the opportunity to testify on this measure.

HB-102

Submitted on: 2/8/2021 3:17:40 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Tom Wallace	Individual	Support	No

Comments:

I would like to register strong support for the anti-sunscreen bill

HB-102

Submitted on: 2/8/2021 3:58:12 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kathi Saks	Individual	Support	No

Comments:

Please pass Bill 102 and move forward to sustain our local corals, fishes and coastlines. Time is running out on our oceans health and therefore it's ability to produce oxygen for our planet. These sunscreen ingredients can be easily replaced by other much less toxic ingredients. This is an easy step forward for our State's Health and Industries.

Mahalo

HB-102

Submitted on: 2/8/2021 5:45:20 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Herring	Individual	Support	No

Comments:

I would like to submit testimony in favor of HB102, the bill aimed at banning the sale and distribution of sunscreens containing avobenzone and/or octocrylene. I find it appalling that Hawaii allows the sale of sunscreens that are harmful to coral reefs, which are such an important part of the ecosystem of the islands. Not only are coral reefs vital for the health of the fish and oceans that surround our islands but these natural wonders are also a huge draw for tourists. This last year of the COVID pandemic has highlighted the importance of tourism on the Hawaii's economy. Why then would we not do everything in our power to help maintain the health of our oceans and coral reefs, which help to bring hundreds of thousands of tourists to the islands each year? In talking with both local residents and numerous out-of-state tourists over the last year or two it is apparent that most people try their best to use sunscreens that will not harm the coral reefs and fish which are dependent on them. Unfortunately the misleading if not outright false labeling of many sunscreens as "reef friendly" greatly impeded these efforts. Many out of state tourists that I have talked to specifically waited until they got to Hawaii to buy sunscreen as they assume that whatever they bought here would have to be safe for the reefs. It is very embarrassing to have to tell them that unfortunately this is not true. Clearly this kind of attitude displayed by the tourists should alleviate fears of lost sales due to banning harmful chemicals from sunscreens, as the visitors will buy whatever sunscreens are available in the local stores. So if local stores stock only true 'reef friendly' sunscreens they should have no trouble selling them.

HB-102

Submitted on: 2/8/2021 10:41:38 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Fern Anuenue Holland	Individual	Support	No

Comments:

My 'ohana and I strongly support this bill. Mahalo Representatives!

HB-102

Submitted on: 2/8/2021 11:32:06 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Daniel Amato	Individual	Support	No

Comments:

I am writing in support of Bill **HB102**. As a scientist, surfer, and resident of Oahu, I am in support of any legislation that has a chance of increasing ocean and reef health. The science clearly shows that avobenzene and octocrylene can negatively impact coral organisms. Please vote for legislation that prioritizes ocean health instead of the interests of corporations and their lobbyists. Our reefs provide us countless services that are required for life and our reef based economy to continue in Hawaii. Please vote for legislation that ocean health instead of the interests of corporations and their lobbyists. Thank you. -Daniel Amato



2/9/2021

EEP/WAL Committee
Hawai'i State Capitol
Honolulu, Hawai'i 96813

Dear Chairs Lowen and Tarnas, and Members of the Energy and Environmental Protection and Water and Land Committees,

The Surfrider Foundation would like to offer this testimony in support of HB102.

The Surfrider Foundation is a national nonprofit organization dedicated to the protection and enjoyment of our ocean, waves, and beaches. Surfrider maintains a network of over 150 chapters and academic clubs nationwide, including 4 chapters in the Hawaiian Islands. The Surfrider Foundation focuses on many aspects of the environment such as coastal protection, plastic pollution, and water quality.

Already in this state we have banned the chemicals oxybenzone and octinoxate from legal sale in sunscreens. This is a huge step in protecting not only our coral reef areas but also the people who use these products, as they are shown to be harmful to both (Downs et al. 2016, DiNardo and Downs 2017, and Siller et al. 2018). This bill would add avobenzone and octocrylene to this list of banned sunscreen additives. These chemicals are among those that are readily absorbed into the skin (Matta et al. 2019) and have shown toxic hormonal effects in some vertebrates (Zhang et al. 2016).

Because of our inefficient wastewater treatment systems and large number of cesspools around the islands, these chemicals are being transported through the groundwater back out to the coasts and to our agriculture; similar to Australia, where UV filter loads were seen in plants consumed by 48% of the continent, and at levels up to 3.4mg/person/day (O'Malley et al. 2019). Passing this bill would help Hawai'i stop this pollution at the source and move towards cleaner water and a healthier populace.

The Surfrider Foundation works with many companies already striving to make a suitable alternative, and there are many zinc based sunscreens on the market that are hugely popular and easily accessible. Making these the norm would help drive down costs as well, further increasing accessibility to lower income sectors of Hawai'i. And from personal experience, they just feel better on your skin!

Thank you for your consideration of this testimony in support of HB102, submitted on the behalf of the Surfrider Foundation's 4 Chapters in Hawai'i and all of our members who live in the state and visit to enjoy the many coastal recreational opportunities offered by all of the islands' coastlines.

Sincerely,

Kaitlyn Jacobs
Volunteer Policy Coordinator
Surfrider Foundation, O'ahu Chapter

HB-102

Submitted on: 2/9/2021 2:23:15 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Cara Oba	Individual	Support	No

Comments:

Hi,

Just want to comment that as an individual, the most difficult thing about switching to reef-safe sunscreens was it's low availability at the time. Friends and family had experienced reactions and have developed allergies to other types of chemical sunscreens and I helped to find them alternatives as they similarly had difficulties finding them at that time. I realize that options are more available now but a ban would likely increase reef-safe options in the market in general and would be better for both people's health as well as the health of our environment. I appreciate that this change still allows people to have other options based on prescription as we do not understand all possible individual circumstances and would want to be sensitive to special needs. However, this effectively changes the default to one of known greatest safety for both our community and environment that brings awareness to the broader meaning of sustainable health and wellness. It is an example of a win-win condition.

I am in strong support of HB102.

Thank you for your time!

Cara



To: The House Committees on Energy and Environmental Protection (EEP) and Water and Land (WAL)

Re: HB102 RELATING TO SUNSCREENS

Position: STRONG SUPPORT

Hearing Date: Thursday, February 11, 2021, 10:45 am, videoconference

Aloha Chair Lowen, Vice Chair Marten, and Energy and Environmental Protection Committee members; Chair Tarnas, Vice Chair Branco, and Water and Land Committee members:

Coral reefs are intrinsic to Hawaiian culture and provide critical natural protection against coastal erosion and sea level rise. Further our coral reefs underpin our vibrant tourism industry, Hawai'i's primary and vital economic engine. Currently, these reefs we depend on are at risk. Where people use marine environments as recreational resources, there is sunscreen pollution. Swimmers put on sunscreen products before they get into the water and over a period of an hour much of that sunscreen will slough off, potentially contaminating the surrounding water. This is a grave concern because it has been reported in the scientific literature that specific chemicals in sunscreen can have irreversibly detrimental effects on marine life, including changes in fish behavior, damage to coral DNA and larvae, and the health of algae, fish, shellfish, urchins, and marine mammals.

The National Oceanic and Atmospheric Administration has already recognized this existential threat to our coral reefs (See: <https://oceanservice.noaa.gov/news/sunscreen-corals.html>)

SUNSCREEN CHEMICALS AND MARINE LIFE
How sunscreen chemicals enter our environment:

The sunscreen you apply may not stay on your skin.

When we swim or shower, sunscreen may wash off and enter our waterways.

How sunscreen chemicals can affect marine life:

Chemicals in sunscreens that can harm marine life:
Oxybenzone, Octinoxate, Octocrylene, Benzophenone-1, Benzophenone-8, OD-PABA, 4-Methylbenzylidene camphor, 3-Benzylidene camphor, nano-Titanium dioxide, nano-Zinc oxide

GREEN ALGAE: Can impair growth and photosynthesis.

CORAL: Accumulates in tissues. Can induce bleaching, damage DNA, deform young and even kill.

MUSSELS: Can induce defects in young.

SEA URCHINS: Can damage immune and reproductive systems, and deform young.

FISH: Can decrease fertility and reproduction, and cause female characteristics in male fish.

DOLPHINS: Can accumulate in tissues and be transferred to young.

How we can protect ourselves and marine life:
Seek shade between 10 am & 2 pm, use Ultraviolet Protection Factor (UPF) sunwear, and choose sunscreens with chemicals that don't harm marine life.

Seek shade: 10am to 2pm | Umbrella | Sun hat | UV Sun glasses | Sun shirt | Leggings

oceanservice.noaa.gov/sunscreen

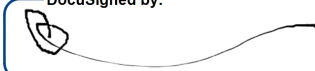
EDUCATION. ENVIRONMENT. EMPOWERMENT.

The Kohala Center is an equal opportunity provider, employer, and lender.

On February 26, 2019, the FDA removed all but two sunscreen ingredients from their GRASE (Generally Recognized As Safe and Effective) Category 1 list. Those two ingredients remaining on the category 1 list are Zinc Oxide and Titanium Dioxide. All other chemical sunscreen ingredients have been placed on the GRASE category 3 “insufficient data for use in sunscreens” list. Included among those chemical ingredients on the category 3 list are oxybenzone, octinoxate, octisalate, octocrylene and avobenzone. (See <https://www.fda.gov/media/124655/download>).

We ask your support for HB 102 and SB366 restricting the use of sunscreen chemicals that have questionable effects on the health of humans and marine life in alignment with the precautionary principle, affording us the opportunity to protect our environment and communities for future generations.

Sincerely,

DocuSigned by:


500FC35049284D3
Cynthia Punihaole Kennedy, Director
Kahalu'u Bay Education Center
a program of The Kohala Center



TO:

Committee on Energy & Environmental Protection, and Committee on Water & Land
Rep. Nicole E. Lowen and Rep. David A. Tarnas, Chairs
Rep. Lisa Marten and Rep. Patrick P. Branco, Vice Chairs

FROM:

Lynn Miyahira representing Public Access to SunScreens (PASS) Coalition

DATE: Thursday, February 11, 2021

TIME: 10:45 AM

PLACE: Via Videoconference

Re: HB102 Relating to Sunscreens

Position: Opposed

The [Public Access to SunScreens](#) (PASS) Coalition is a multi-stakeholder coalition composed of public health groups, dermatologists, sunscreen manufacturers, and leading advocates for skin cancer patients. The PASS Coalition opposes this measure as it will create additional barriers for consumers to access their choice of safe, effective and FDA-approved sunscreens as a skin cancer prevention tool.

We ask that the legislature hold off on passing HB 102, or any other legislation on sunscreen ingredients, until more data on environmental and public health impacts are available.

The use of sunscreen is an important evidence-based sun-safe practice. It is well known that utilizing comprehensive sun-safe practices is one of the most effective ways to reduce the risk of skin cancer, including the regular use of sunscreen, wearing sun protective clothing, hats and sunglasses, and seeking shade. Skin cancer prevention tools, such as broad-spectrum sunscreens that protect against both UVA and UVB rays, must be combined with comprehensive educational tools to ensure consumer awareness of the risks of skin cancer due to excessive sun exposure.

Hawaii Residents Are at Higher Risk for Skin Cancer

Some notable skin cancer and sun safety behavioral statistics include:

- Native Hawaiians and other Pacific Islanders suffer from double the melanoma mortality rate than the State averageⁱ

- In 2018, more than one in three Hawaii residents surveyed reported having a sunburn in the last 12 months, nearly double from the previous yearⁱⁱ – and having just five or more sunburns in your lifetime is known to double your risk for melanomaⁱⁱⁱ
- Researchers have found that just *one* blistering sunburn in childhood or adolescence more than doubles a person’s chance of developing melanoma later in life^{iv}
- Hawaii has one of the highest daily UV index averages in the nation^v making protecting residents from sun exposure a crucial public health issue

Science Touted by Sunscreen Ban Advocates Is Flawed

Despite the known risk of skin cancer, Hawaii and a handful of other jurisdictions have placed restrictions on the sale of sunscreens based on limited laboratory testing that led policymakers to believe banning sunscreen would improve coral reef health. The early studies, however, did not fully consider the complexity of a coral reef system and had scientific limitations. Importantly, findings from a 2019 study by Dr. Carys Mitchelmore of the University of Maryland contradicts an earlier study by Dr. Craig Downs that has been widely promoted by advocates of the sunscreen ban. Dr. Mitchelmore’s study uses rigorous methodology and shows actual levels of oxybenzone sampled from sea water in Hawaii to be 141 times lower than previously stated by Dr. Downs, and 1,020 times below levels considered toxic to coral.^{vi}

The limited studies that purported to show a link between sunscreen exposure and coral toxicity are methodologically flawed and should not be used for evidence-based policy making based on EPA data reliability standards. Subsequent follow-up studies with more rigorous analyses have not replicated the work by Dr. Downs, and do not support the conclusions.

Congress Has Directed the National Academy of Sciences to Conduct a Comprehensive Study

For that reason, banning sunscreen will make little impact for protecting coral reefs. The overwhelming consensus amongst the scientific community is that coral decline is primarily caused by rising ocean temperature, prolonged warming periods, ocean acidification, water quality issues due to poor wastewater management and other environmental causes. As a result, the United States Congress directed the National Academy of Sciences (NAS) to evaluate the latest science available on the correlation between coral reefs and sunscreens and the potential public health impact of limiting access to sunscreen.

This NAS study, titled “[Environmental Impact of Currently Marketed Sunscreens and Potential Human Impact of Changes in Sunscreen Usage](#),” will conduct an objective review of these issues by leading scientific experts. The project description is as follows:

“Concerns have been raised about the potential toxicity of sunscreens to a variety of marine and freshwater aquatic organisms, particularly corals. At the same time, there are concerns that people will use less sunscreen rather than substituting sunscreens with UV filters that are considered environmentally safe. This study will review the state of science on use of currently marketed sunscreen ingredients, their fate and effects in aquatic environments, and the potential public health implications associated with changes in sunscreen usage.”^{vii}

This study, sponsored by the U.S. Environmental Protection Agency, will examine research concerning both the environmental and human health impacts of access to sunscreen. This independent study will evaluate the scientific merit of current science and identify gaps in our current understanding of coral reef environmental health and human health risks of skin cancer. All NAS studies involve multiple strategies to reduce bias and to synthesize the best available science.

NAS Study Should be Completed Before Legislators Make Further Decisions on Consumer Sunscreen Choice

The conclusion of this NAS study – expected in 2022 – will inform future decisions of policymakers to ensure access to sunscreens while also protecting the coral reefs. Until this study is completed, legislation like HB 102 should be suspended as there are currently insufficient data to inform a risk/benefit analysis between protecting the marine environment and protecting the public’s health. The legislative process encourages advocacy above science, and it is important to wait for unbiased scientific analysis and consensus.

FDA Advises Continued Use of Sunscreens

In addition to the lack of peer-reviewed evidence on the environmental impact of sunscreens, the impact on human health is also still being researched. The Food and Drug Administration (FDA), which regulates sunscreens as over-the-counter (OTC) drugs for the prevention of sunburn and skin cancer, recently posted an article titled, “[Shedding More Light on Sunscreen Absorption](#)” that explained that while the FDA is continuing to seek more information on the absorption levels of sunscreen ingredients, including avobenzone, oxybenzone, octocrylene, homosalate, octisalate, and octinoxate, it still advises their continued use. The FDA clearly stated, “Absorption does NOT equal risk – the FDA advises continued use of sunscreens” and noted that:

“The findings in these studies do not mean that the FDA has concluded that any of the ingredients tested are unsafe for use in sunscreens, nor does the FDA seeking further information indicate such. The agency’s proposed rule requested additional safety studies to fill in the current data gaps for these ingredients. The rule also proposed that two active ingredients (zinc oxide and titanium dioxide) are generally recognized as safe and effective for use in sunscreens, and additional data was not requested for them.

Given the recognized public health benefits of sunscreen use, the FDA strongly advises all Americans to continue to use sunscreens in conjunction with other sun protective measures (such as protective clothing) as this important rulemaking effort moves forward.”^{viii}

The Hawaii state law signed in July 2018 already eliminated the OTC sale of the ingredients oxybenzone and octinoxate. **HB 102 would expand this ban to include the most utilized alternative sunscreen ingredients and could potentially remove approximately 64% of the sunscreens currently available in the United States from being sold in Hawaii.**

The proposed legislation could significantly reduce consumer choice of and access to sunscreen in Hawaii where sunscreen is often used not only in the ocean, but whenever people are outdoors doing activities such as hiking, golfing, walking, running, cycling or working outside. This puts Hawaii residents at greater risk for skin cancer with only limited peer-reviewed scientific evidence on sunscreen ingredients and its impact on environmental and human health.

Again, we ask that the legislature hold off on passing HB 102, or any other legislation on sunscreen ingredients, until more data on environmental and public health impacts are available.

If you have any questions about the PASS Coalition or the content of this testimony, please feel free to contact me at lmiyahira@iq360inc.com.

Mahalo you for the opportunity to testify.

Sincerely,



Lynn Miyahira
Public Access to SunScreens (PASS) Coalition

ⁱ <http://www.hawaiihealthmatters.org/indicators/index/view?indicatorId=2389&localeId=14&localeChartIdxs=1%7C2%7C4>

ⁱⁱ <http://www.hawaiihealthmatters.org/indicators/index/view?indicatorId=3029&localeId=14>

ⁱⁱⁱ <https://www.skincancer.org/skin-cancer-information/skin-cancer-facts/>

^{iv} <https://www.skincancer.org/skin-cancer-information/skin-cancer-facts/>

^v <https://www.epa.gov/sunsafety/sun-safety-monthly-average-uv-index>

^{vi} <https://www.sciencedirect.com/science/article/pii/S0048969719310125?via%3Dihub>

^{vii} <https://www.nationalacademies.org/our-work/environmental-impact-of-currently-marketed-sunscreens-and-potential-human-impacts-of-changes-in-sunscreen-usage>

^{viii} <https://www.fda.gov/news-events/fda-voices/shedding-more-light-sunscreen-absorption>

HB-102

Submitted on: 2/9/2021 4:05:27 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Robyn Fukumoto	Lani & Kai	Support	No

Comments:

Every year 6,000 tons of chemical sunscreen wash into our reefs globally, with the highest concentrations coming from beach rich locations like Hawai'i. As a humble island chain, we hold 85% of coral reefs in the US, and at least half of it has been wiped out in the past 10 years due to fluctuating ocean temperatures and irresponsibility of our chemical usage.

A single drop of chemical sunscreen in 6.5 olympic swimming pools is enough to cause coral death. A single drop. While we've made great strides with our current ban of oxybenzone and octinoxate, that's only half of the problem. Avobenzone and octocrylene are two additional common sunscreen chemicals that are equally if not more harmful to coral and humans alike. With the amount of sunscreen locals and tourists consume here, you can only imagine the implications of continuous exposure.

As a state tirelessly focused on protecting our citizens and our precious resources, it behooves us to ensure that what we are permitting into our borders does no harm to our coral or our people. Please join us in our support of Bill HB102 and help us regulate AND enforce the full chemical sunscreen ban that we need for our islands to thrive.

HB-102

Submitted on: 2/9/2021 5:02:05 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Cynthia Urry	Individual	Support	No

Comments:

Please pass bill HB102. Those of us that live here need our coral reefs as the fish thrive in and among them . When we see tourists coming in our oceans covered in poisonous sunscreens, it makes this oily film on the water . This proceeds to kill our baby corals that are so fragile.

Mahalo Nui Loa !

Cyndy Urry

HB-102

Submitted on: 2/9/2021 5:06:41 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Adam Maire	Individual	Support	No

Comments:

I feel strongly that HB102 could help to preserve Hawaii's marine ecosystems. The banning of sunscreens with avobenzone and octocrylene will be an added advantage to letting the reefs and the marine creatures heal and thrive.

Thank you.

Adam Maire

HB-102

Submitted on: 2/9/2021 5:50:55 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Anna Blue	Individual	Support	No

Comments:

As someone who volunteers at a local beach park, I am often told by visitors that they bought "reef-safe" sunblock. However, those brands often contain additional damaging chemicals but the brands can still list their sunblock as reef-safe. It is SO misleading and difficult to explain to visitors why their sunblock is not reef-safe. We need to protect our reefs and this is an essential first step.

HB-102

Submitted on: 2/9/2021 5:55:58 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Rosanne Shank	Individual	Support	No

Comments:

I am in support of strengthening the sunscreen Bill. I would also like to see more information provided to visitors to the islands regarding sunscreen usage. So many people bring their own sunscreens with them and have no idea that we are trying to regulate what chemicals are going into the ocean but also household water. The other problem I see is that stores are continuing to sell sunscreens that are not abiding by the law and are not reef safe. Some sunscreen is being sold as reef safe when in reality it is not, due to miss labeling, sometimes by manufacturers and maybe by venders.

Thank you for your consideration of this bill.

Rosanne Shank

HB-102

Submitted on: 2/9/2021 6:57:38 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mama Kuleana Reef Safe Sunscreen Company	Mama Kuleana Reef Safe Sunscreen Company	Support	No

Comments:

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzone is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (chemical) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzone are safe for human use.

Coral reefs are fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including reef-toxic chemicals, to ensure our reefs can survive and thrive for future generations. We urge your support for HB102.

Warmest Mahalo,

Emily Babel/ Owner/Member Mama Kuleana Reef Safe Sunscreen Company

HB-102

Submitted on: 2/9/2021 7:35:01 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sarah	Individual	Support	No

Comments:

There is evidence showing that the chemicals avobenzone and octocrylene harm aquatic life. Please ban the sale of the products in Hawaii. Please do your part to protect the aquatic life.

HB-102

Submitted on: 2/9/2021 7:39:18 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Rachel Weinman	Individual	Support	No

Comments:

I support HB102 because we must protect our coral reefs, our community, and marine life. The world's coral reefs create almost 50% of the world's oxygen, while absorbing nearly 1/3 of all carbon dioxide omissions (from fossil fuels burned by humans). Scientists have found coral are dying all over the world at alarming rates.

A lot of this has to do with the chemicals in our sunscreens. Not only are these ingredients harmful to our bodies, they are also extremely harmful for coral reefs and our marine life. These chemicals include avobenzene, oxybenzone, octocrylene, octisalate, homosalate, octinoxate, and octyl salicylate.

In 2021 we were able to ban two (oxybenzone & octinoxate) of these ingredients from the sunscreen aisles in Hawaii. Unfortunately, the sunscreen companies simply switched the active ingredients to the other ingredients I've listed above. Continuing to harm the coral reefs and marine life that surround the Hawaiian Islands. Slapping "reef safe" stickers on the bottles to draw the tourists back. Not to mention these ingredients can also cause health issues for children and babies.

Please consider what our tourism-charged economy will look like if we continue to let tourists (and locals alike) use sunscreens that are killing our coral reefs and harming the marine ecosystem.

HB-102

Submitted on: 2/9/2021 7:47:56 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lorraine Garnier	Individual	Support	No

Comments:

Aloha Chair Lowen, Vice Chair Marten, and Energy and Environmental Protection Committee members; Chair Tarnas, Vice Chair Branco, and Water and Land Committee members,

First I would like to thank the Legislature for passing Act 104 in 2018 which provides for the ban on sale of sunscreens containing oxybenzone and octinoxate, two of the most problematic chemicals that interfere with the life-cycles of marine life. HB102 builds directly on Act 104 by adding two more harmful chemicals to the list: octocrylene and avobenzone. Evolving science clearly demonstrates that these pervasive reef toxins irreversibly interfere with the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

As an avid ocean snorkeler, swimmer and past educator, our smallest of sea life work so intricately together, to harm a few, harms them all. I whole heartedly support H102 and appreciate you hearing all you can on the science of these other harmful chemicals.

sincerely,

Lorraine Garnier

HB-102

Submitted on: 2/9/2021 8:22:33 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Victoria Anderson	Individual	Support	No

Comments:

Please pass this important bill! Avobenzone and octocrylene are toxic to our precious marine life (and potentially unsafe for humans, too!)

Many thanks,

Victoria Anderson

HB-102

Submitted on: 2/9/2021 8:43:16 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lisa Hinano Rey	Individual	Support	No

Comments:

This testimony is in support of HB102

Please vote in favor of advancing HB102. Healthy reefs are an essential component to a healthy marine ecosystem. These systems are already damaged as a result of pollution, sediment, ocean acidification and rising temperatures. We cannot afford to turn a blind eye to chemical pollutants in sunscreens contributing to their demise. Our marine ecosystems provide critical services which we must preserve for present and future generations. Please support HB102.

Mahalo,

Lisa Hinano Rey

HB-102

Submitted on: 2/9/2021 9:01:30 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Andrea Nandoskar	Individual	Support	No

Comments:

Aloha,

Please support this important bill!

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzone is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, after numerous studies, the U.S. FDA declared it does not have sufficient scientific evidence that any organic ("chemical") UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzone are safe for human use.

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability and the future of life on Earth. Please help to ensure our reefs can survive and thrive for future generations.

We urge your support for HB102 to help protect our reefs, marine life and human health, too!

HB-102

Submitted on: 2/9/2021 9:08:48 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
sam juraschka	Individual	Support	No

Comments:

Every year 6,000 tons of chemical sunscreen wash into our reefs globally, with the highest concentrations coming from beach rich locations like Hawai'i. As a humble island chain, we hold 85% of coral reefs in the US, and at least half of it has been wiped out in the past 10 years due to fluctuating ocean temperatures and irresponsibility of our chemical usage.

A single drop of chemical sunscreen in 6.5 olympic swimming pools is enough to cause coral death. A single drop. While we've made great strides with our current ban of oxybenzone and octinoxate, that's only half of the problem. Avobenzone and octocrylene are two additional common sunscreen chemicals that are equally if not more harmful to coral and humans alike. With the amount of sunscreen locals and tourists consume here, you can only imagine the implications of continuous exposure.

As a state tirelessly focused on protecting our citizens and our precious resources, it behooves us to ensure that what we are permitting into our borders does no harm to our coral or our people. Please join us in our support of Bill HB102 and help us regulate AND enforce the full chemical sunscreen ban that we need for our islands to thrive.

Here's @bantoxicsunscreen's:

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as "reef safe") have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

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In Feb 2019, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (chemical) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzone are safe for human use.

Coral reefs are fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It's vital we eliminate as many existential threats to our marine ecosystems as possible, including reef-toxic chemicals, to ensure our reefs can survive and thrive for future generations. We urge your support for HB102.

HB-102

Submitted on: 2/9/2021 9:18:01 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Julie Ziemelis	Individual	Support	No

Comments:

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

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Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

We urge your support for HB102!

HB-102

Submitted on: 2/9/2021 9:37:07 PM

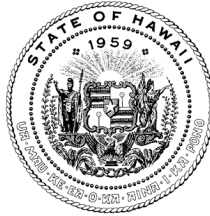
Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Karen	Individual	Support	No

Comments:

Chemical-based sunscreens need to be banned from Hawaii, especially those containing avobenzone and octocrylene. Research has shown avobenzone and octocrylene are harmful to coral reefs and other aquatic life. During covid-19, reef health and marine life has improved with the lack of swimmers. Too many swimmers wear the chemical-based sunscreens. The lack of avobenzone and octocrylene in Hawaiian waters during covid-19 has demonstrated the improved reef health and marine life. Please ban avobenzone and octocrylene from Hawaii.

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 House Committees on
ENERGY & ENVIRONMENTAL PROTECTION
and
WATER & LAND**

**Thursday, February 11, 2021
10:45 AM
State Capitol, Via VideoConference, Conference Room 325**

**In consideration of
HOUSE BILL 102
RELATING TO SUNSCREENS**

House Bill 102 proposes, beginning January 1, 2023, to ban the sale, offer of sale, or distribution in the State of any sunscreen that contains avobenzone or octocrylene, or both, without a prescription issued by a licensed healthcare provider to preserve marine ecosystems. **The Department of Land and Natural Resources (Department) supports this measure and offers the following comments.**

The Department recognizes the concerns about the presence of avobenzone and octocrylene in the nearshore marine environment. There is growing body of science that suggests these chemicals may have negative effects on corals and other marine life. Octocrylene is now the dominant UV-sunscreen contaminant in coastal waters.¹ Recent scientific studies suggest that octocrylene may have negative impacts in aquatic environments equivalent to oxybenzone (already banned from Hawaii sunscreens). Octocrylene functions as an endocrine disruptor, a metabolism disruptor, and a reproductive disruptor. It has also been shown to reduce the ability of coral symbionts to photosynthesize. Scientific evidence suggests that it can have toxic impacts to a variety of aquatic organisms from corals, to fish, to mammals, to plants.² Avobenzone has been shown to cause toxicity to the light-reactions of photosynthesis which can cause corals to bleach. Avobenzone is also an endocrine disruptor, and can disrupt fat metabolism.³ This could

¹ Downs, Craig A., personal communication (2021)

² Fel et al. (2019), Lozano et al. (2020), Giraldo et al. (2017), Boyd et al. (2021), Yan et al. (2020), Zhang et al. (2016), Campos et al. (2017), Gago-Ferrero et al. (2013), Cocci et al. (2020), Bluthgen et al. (2014)

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

reduce coral resilience during bleaching events because bleached corals depend extensively on fat metabolism in order to survive.³

As a result of these recent scientific findings, we feel that prohibiting the sale of products containing avobenzone and octocrylene would likely benefit the health and resiliency of Hawai‘i’s coral reef ecosystems. At the very least, the Department would recommend support for increased monitoring of various sunscreen chemicals at high-use swimming areas and further research examining the effects of these chemicals on the nearshore marine environment in Hawai‘i.

The Department supports the use of sunscreens that do not contain chemicals that are harmful to marine life, as well as sun protective clothing, as alternatives. The Department continues to conduct outreach efforts to help the public understand the issues regarding using oxybenzone and similar chemicals in the ocean so they can be better informed and make better choices regarding sun protection. These efforts include information on the Department’s Division of Aquatic Resources website, focused one-on-one outreach, news releases, videos, interaction with partner organizations, and meetings with boat tour operators and vendors who sell sunscreen. The Department continues to explore other ways to inform the public on this issue.

It should be noted that, although it is important to address all potential coral reef ecosystem stressors, the primary concerns with Hawaii’s coral reefs continue to be related to land-based source pollution, unsustainable fishing practices, invasive species, and climate change. Continued legislative support to reduce these main stressors will have the largest impact on coral reef resilience and recovery.

Thank you for the opportunity to comment on this measure.

³ Fel et al. (2020), Boyd et al. (2021), Klopčič and Delenc (2017), Lozano et al. (2020), Ahn et al (2019), Yang et al. (2018)

Citations

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- Yan, Saihong, et al. (2020). Reproductive toxicity and estrogen activity in Japanese medaka (*Oryzias latipes*) exposed to environmentally relevant concentrations of octocrylene, Environmental Pollution 261 (2020) 114104 . <https://doi.org/10.1016/j.envpol.2020.114104>.
- Zhang, Qiuya Y., et al (2016), Assessment of multiple hormone activities of a UV-filter (octocrylene) in zebrafish (*Danio rerio*), <http://dx.doi.org/10.1016/j.chemosphere.2016.06.037>. 0045-6535
- Yang, Changwon, et al. (2018), Avobenzone suppresses proliferative activity of human trophoblast cells and induces apoptosis mediated by mitochondrial disruption, Reproductive Toxicology 81, 50–57, <https://doi.org/10.1016/j.reprotox.2018.07.003>

HB-102

Submitted on: 2/9/2021 11:29:24 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lynn	Individual	Support	No

Comments:

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It's vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

I urge your support for HB102! Please don't allow these products to continue to damage our reefs. Make it effective immediately.

HB-102

Submitted on: 2/9/2021 11:30:31 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Hawaii Reef and Ocean Coalition	Hawaii Reef and Ocean Coalition	Support	No

Comments:

To: The Honorable Nicole Lowen, Chair,

The Honorable Lisa Marten, Vice Chair, and Members of the

House Committee on Energy and Environmental Protection, and

Honorable Representative David A. Tarnas, Chair

Honorable Representative Patrick Pihana Branco, Vice Chair, and Members of the

House Committee on Water and Land.

From: HAWAI'I REEF AND OCEAN COALITION – HIROC (by Ted Bohlen)

Re: Hearing HB102 RELATING TO SUNSCREENS

Hearing Date: [Thursday, February 11, 2021, 10:45 am](#), videoconference

Position: STRONG SUPPORT FOR HD102!

Aloha Chair Lowen, Vice Chair Marten, and Energy and Environmental Protection Committee members; Chair Tarnas, Vice Chair Branco, and Water and Land Committee members:

The HAWAI'I REEF AND OCEAN COALITION – HIROC – was formed in 2017 by coral reef scientists, educators, local Hawaii environmental organizations, elected officials, and others to address the crisis facing Hawaii's coral reefs and other marine life. Coral reefs are already being severely harmed by ocean waters that are warming and becoming more acidic as a result of greenhouse gas emissions worldwide. Coral reefs are also being harmed in Hawaii by sediment and nutrient runoff from the land, by overfishing, especially of herbivores, and sunscreen petrochemicals.

HIROC is joining the diverse Hawaii Coral Reef Stakeholders who strongly support HB102 expanding Act 104, Sessions Laws of Hawaii 2018, to include the ban on sale or

distribution of sunscreens containing octocrylene and avobenzone to protect the State's marine ecosystems.

We thank the Legislature for passing Act 104 in 2018 which provides for the ban on sale of sunscreens containing oxybenzone and octinoxate, two of the most problematic chemicals that interfere with the life-cycles of marine life, effective as of 1 January 2021. HB102 builds directly on Act 104 by adding two more harmful petrochemicals to the list: octocrylene and avobenzone. Evolving science clearly demonstrates that these pervasive reef toxins irreversibly interfere with the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Furthermore, long-term exposure to avobenzone and octocrylene has been found to be lethal for some organisms living in freshwater environments, and are considered dangerous for freshwater ecosystems. Avobenzone is the leading active ingredient in chemical sunscreens and can cause hormone disruptions. Octocrylene is also quickly metabolized into a mutagen called benzophenone which is regulated by the FDA and included in California's Prop 65 list of chemicals known to cause cancer or reproductive toxicity. And in February 2019, the U.S. Food and Drug Administration declared that it does not have sufficient scientific evidence that any of the organic UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, and avobenzone are safe and effective for human use - never mind our marine ecosystems!

Approximately one-fourth of the plants, fish, and invertebrates found in Hawaiian coral reefs are endemic to Hawaii. Coral reefs are intrinsic to Hawaiian culture, and fundamental to the fabric of our local communities. They provide critical habitat for near shore marine life, and natural protection against coastal erosion and sea level rise - ecosystem services worth billions of dollars. Further, our coral reefs underpin tourism, Hawaii's primary economic engine. It is therefore critical to eliminate as many existential threats to our marine ecosystems as possible, like these additional reef-toxic chemicals, to ensure our reefs can both survive and thrive for future generations.

It has been argued that banning sunscreens containing certain chemicals like avobenzone and octocrylene from the market would lead to additional skin cancers, because people therefore won't use any sunscreen. This false argument ignores the fact that there are ample safer alternatives available on the market containing active ingredient minerals zinc oxide or titanium dioxide. It also ignores what the World Health Organization has called "suntan abuse." Petrochemical sunscreens are often not applied sufficiently or frequently enough, and wash off in water, and so may actually give people a false sense of security that causes them to spend longer time in the sun and have MORE skin cancers.

The best course is to avoid the mid-day sun, but if you will be in the sun, wear a protective hat and clothing and sunscreens with zinc oxide or titanium dioxide. This is a much better course than using a petrochemical sunscreen that washes off in water and

kills corals and other marine life, gets into your bloodstream, and may disrupt your hormones, potentially causing more cancers.

The need for HB102 is obvious and critical, and we strongly urge you to pass this bill!

Mahalo for the opportunity to testify on behalf of Hawaii's coral reefs!

HAWAI'I REEF AND OCEAN COALITION – HIROC (by Ted Bohlen)

HB-102

Submitted on: 2/10/2021 2:47:56 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sherry Pollack	Individual	Support	No

Comments:

Please pass this very important bill!

HB-102

Submitted on: 2/10/2021 3:25:11 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
vienna krikard	Individual	Support	No

Comments:

The scientific evidence behind the detrimental effects that Octinoxate, Oxybenzone, Octocrylene, and avobenzone have had on our environment's ecosystems directly correlates to the bleaching and depletion of marine life not only in Hawai'i but all over the world. This is not only a danger to the fragile ecosystems and lives below water but it is also harmful to human health. The ban of these ingredients will not only help save us but save our environment too.



Bruce H. Thiers, MD, FAAD President
Kenneth J. Tomecki, MD, FAAD President-elect
Susan C. Taylor, MD, FAAD Vice President
Neal Bhatia, MD, FAAD Vice President-elect
Marta J. Van Beek, MD, MPH, FAAD Secretary-Treasurer
Daniel D. Bennett, MD, FAAD Assistant Secretary-Treasurer
Elizabeth K. Usher, MBA Executive Director & CEO



February 10, 2021

The Honorable Nicole E. Lowen
Chair, House Committee on Energy & Environmental Protection
Hawaii State Capitol, Room 425
Honolulu, HI 96813

The Honorable David A. Tarnas
Chair, House Committee on Water and Land
Hawaii State Capitol, Room 316
Honolulu, HI 96813

Dear Chairpersons Lowen and Tarnas:

On behalf of the Hawaii Dermatological Society and the over 13,800 U.S. members of the American Academy of Dermatology Association (AADA), we write concerning HB 102, legislation that would prohibit for sale or distribution sunscreens containing avobenzone or octocrylene. As dermatologists, we dedicate our lives to promoting habits in our patients that ensure healthy skin. UV radiation damages the skin's DNA, which is the beginning stage of skin cancer. We urge you to strongly consider the broad implications of banning sunscreens containing certain ingredients, and bear in mind the dangers of sun exposure without adequate protection that the residents and visitors of Hawaii face.

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UV light exposure is a risk factor for all types of skin cancer and sunscreen use is one photoprotection method to protect against it. UVA damages deeper layers of the skin and contributes to the development of melanoma, the deadliest form of skin cancer. UVB is the primary cause of sunburn and plays a key role in the development of skin cancer in the skin's more superficial layers. In addition, both types of rays can cause suppression of the immune system.¹ Unprotected sun exposure is the most preventable risk factor for skin cancer. According to current estimates, at least one in five Americans will develop skin cancer in their lifetime.^{2,3} Melanoma, the deadliest form of skin cancer, is now the second most common form of cancer for females aged 15-29 years old, and Caucasian men over 50 years of age are at a higher risk of developing melanoma than the general population.^{4,5,6} In 2021, 460 new cases of melanoma are expected to be diagnosed in Hawaii.⁷ Further, the annual cost of treating nonmelanoma skin cancer in the U.S. is estimated at \$4.8 billion, while the average annual cost of treating melanoma is estimated at \$3.3 billion.⁸

To help prevent skin cancer, the AADA recommends a comprehensive sun protection plan that includes seeking shade; wearing protective clothing, including hats and sunglasses; and generously applying a broad-spectrum, water-resistant sunscreen with an SPF of 30 or higher to exposed skin. Those who are concerned about the reported effects of chemical sunscreen ingredients can opt for a physical sunscreen containing the active ingredients zinc oxide or titanium dioxide.

Dermatologists have an interest in patient and public access to safe and effective sunscreen ingredients. The FDA is currently working with industry on safety testing for currently marketed sunscreen ingredients. The FDA is also considering several time-and-extent applications (TEAs) for new sunscreen ingredients to be added to the FDA over-the-counter (OTC) sunscreen monograph. The FDA's conclusion from recent studies on sunscreen ingredient absorption "supports the need for further studies to determine the clinical significance of these

¹ Lim HW, James WD, Rigel DS, Maloney ME, Spencer JM, Bhushan R. Adverse effects of ultraviolet radiation from the use of indoor tanning equipment: time to ban the tan. *Journal of the American Academy of Dermatology*. 2011 Apr 30;64(4):e51-60.

² Stern RS. Prevalence of a history of skin cancer in 2007: results of an incidence-based model. *Arch Dermatol*. 2010 Mar;146(3):279-82.

³ Robinson JK. Sun Exposure, Sun Protection, and Vitamin D. *JAMA* 2005; 294: 1541-43.

⁴ Siegel RL, Miller KD, Jemal A. Cancer statistics, 2017. *CA Cancer J Clin*. 2017; 67:7-30.

⁵ Little EG, Eide MJ. Update on the current state of melanoma incidence. *Dermatol Clin*. 2012;30(3):355-61.

⁶ NAACCR Fast Stats: An interactive quick tool for quick access to key NAACCR cancer statistics. North American Association of Central Cancer Registries. <http://www.naacccr.org/>. (Accessed on 3-10-2016).

⁷ American Cancer Society. Cancer Facts and Figures 2021. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2021/cancer-facts-and-figures-2021.pdf>

⁸ Guy GP, Machlin S, Ekwueme DU, Yabroff KR. Prevalence and costs of skin cancer treatment in the US, 2002–2006 and 2007–2011. *Am J Prev Med*. 2015;48:183–7

findings.” FDA further stated that “these findings do not indicate that individuals should refrain from the use of sunscreen.”⁹ It should be noted that sunscreen ingredients have been used since the 1970s without any reported systemic adverse side effects. This issue highlights the urgent need for new safe and effective ingredients to be introduced in the United States. With the approval of ingredients that utilize alternative UV filters available to sunscreen product manufacturers, the public’s health will be increasingly protected. The AADA will continue to take part in the discussion with the FDA and manufacturers regarding availability of current and new ingredients.

We are aware of and concerned about the potential environmental impact of UV-filters. However, the potential adverse effects, if any, related to the levels of UV-filters in the water supply and marine life (as well as humans) is an emerging science. In a recent review of this topic, 12 studies evaluating up to 14 different organic UV filters in seawater near coral reefs were critically analyzed. The authors concluded that the majority of concentrations found in seawater were in the nanograms per liter range. Nine papers report toxicological findings from no response to a variety of biological effects, however, these effects were detected in the micrograms per liter to milligrams per liter range, namely, at least 1000-fold higher than those reported in seawater in real life.¹⁰ The review concludes “there is currently limited evidence to suggest that corals are adversely impacted by environmental exposure to UV filters.”

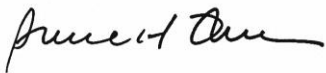
Our organization(s) advocated for the enactment of the Further Consolidated Appropriations Act, 2020, under which the U.S. Congress directed the Environmental Protection Agency (EPA) to contract with the National Academy of Sciences (NAS) to conduct a scientific literature review of current sunscreens’ potential risk to the marine environment. The study will also consider scientific literature on the potential public health implications as a result of reduced use of sunscreens. This type of further research is required in order to definitively understand how UV-filters may affect the environment. We encourage you to consider these ongoing efforts before taking any action to remove a product that has been proven effective to protect humans from skin cancer. Based on current data, removing specific sunscreen active ingredients and products from the market would be premature, and would deprive the public an integral component of photoprotection to decrease the risk of skin cancer.

⁹ Matta, MK, Florian, J, Zusterzeel, R, Nageswara RP, Patel, V, Volpe, DAPhD, et al. Effect of Sunscreen Application on Plasma Concentration of Sunscreen Active Ingredients: A Randomized Clinical Trial. *Journal of the American Medical Association* 323, No. 3 (2020). 267.

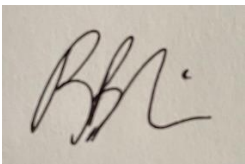
¹⁰ Mitchelmore CS, Burns, EE, Conway A, Heyes A, Davies IA. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ Toxicol Chem.* 2020 (00);00:1-21. Online 2 February 2021 in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/etc.4948

Please consider the public health consequences of removing access or attaching stigma to sunscreens containing certain ingredients. We request that Hawaii give the FDA more time to add new sunscreens for public use and for the NAS to conduct its review and publish a report. We appreciate the opportunity to provide written comments on this important public health issue. For further information, please contact Lisa Albany, director of state policy for the AADA, at LAlbany@aad.org or (202) 712-2615.

Sincerely,



Bruce H. Thiers MD, FAAD
President
American Academy of Dermatology Association



Rebecca Luria, MD, FAAD
President
Hawaii Dermatological Society

HB-102

Submitted on: 2/10/2021 5:30:08 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Dorothy Norris	Individual	Support	No

Comments:

Please continue to protect our ocean coral habitats. We have seen improvement to our reefs without the chemical sunscreen use and these chemicals have been shown to have significant impact on coral reefs, Hawaii's best natural resource.

February 10, 2021

Representative Nicole E. Lowen, Chair
Representative Lisa Marten, Vice Chair
Hawaii House Committee on Energy & Environmental Protection

Representative David A. Tarnas, Chair
Representative Patrick Pihana Branco, Vice Chair
Hawaii House Committee on Water & Land

RE: Oppose House Bill 102

Chairs Lowen and Tarnas and Vice Chairs Marten and Branco:

On behalf of the members of the Personal Care Products Council (PCPC),¹ I am writing to express our opposition to House Bill 102, banning the sale, offer for sale, or distribution in the State of any sunscreen that contains avobenzone or octocrylene, or both.

House Bill 102 lacks the necessary scientific evidence to demonstrate that sunscreen ingredients are responsible for Hawaii's coral bleaching. There are well-recognized causes of coral reef decline in Hawaii and the rest of the world, including climate change, land-based pollution and other human activities, such as physical damage to corals from recreational activities. There is scientific consensus that these well-recognized causes are the primary reasons for coral bleaching, not sunscreens. Making environmental management decisions on sunscreens based on insufficient scientific data may lead to unintended health consequences, such as fewer available sunscreens and an increase in the prevalence of skin cancer. Ensuring that consumers have access to products containing a broad variety of sunscreen active ingredients is critical to public health.

We remain concerned that sunscreen ingredients continue to be depicted as unquestionably harming coral reefs and other marine life. Available scientific evidence on the environmental impact of sunscreen active ingredients is limited and indicates organic UV filters are unlikely to threaten coral reefs. There are also major knowledge gaps and data reliability issues with published coral toxicity studies that have been used to justify recent state sunscreen/UV filter restrictions. A recent scientific review of published coral toxicity and environmental occurrence data supports our concern and makes recommendations for additional research that would allow the scientific community to reach a

¹ Based in Washington, D.C., the Personal Care Products Council (PCPC) is the leading national trade association representing global cosmetics and personal care products companies. Founded in 1894, PCPC's 600 member companies manufacture, distribute and supply the vast majority of finished personal care products marketed in the U.S. As the makers of a diverse range of products millions of consumers rely on and trust every day – from sunscreens, toothpaste, and shampoo to moisturizer, makeup and fragrance – personal care products companies are global leaders committed to product safety, quality and innovation.

consensus.² PCPC continues to work with leading environmental and coral experts to address open research questions by evaluating the risk of sunscreen active ingredients to U.S. corals.

Avobenzone and octocrylene, approved for use by the U.S. Food and Drug Administration (FDA), are two critical ingredients in sunscreen products, a crucial and well-recognized step in the fight against skin cancer and premature skin aging. The U.S. has a limited number of approved organic sunscreen ingredients to make products that protect consumers from the harmful effects of solar radiation. Two of these ingredients – avobenzone and oxybenzone – protect against UVA rays, which penetrate more deeply into the skin and have been scientifically proven to contribute to skin cancer. Only sunscreen products with ingredients protecting against both UVB and UVA rays may be labeled as “broad-spectrum protection,” preventing premature aging and skin cancer. With Hawaii’s previous ban on some sunscreen active ingredients, a ban on avobenzone would further limit access to products that can help prevent skin cancer. FDA previously proposed that all sunscreens with a SPF (sun protection factor) higher than 15 should be broad-spectrum sunscreens.

Sunscreens are a key factor in preventing and reducing the risk of skin cancer and UV damage. Nonprofit health organizations, including the American Cancer Society, American Academy of Dermatology, the Mayo Clinic and the Skin Cancer Foundation, recommend using sunscreen as part of a safe sun regimen to prevent skin cancer. The Centers for Disease Control and Prevention’s Sun Safety recommendations note the importance of daily sunscreen use, including on cloudy and overcast days, to help prevent most skin cancers.

For all of the above reasons, we respectfully ask that you vote NO on House Bill 102. Thank you for your consideration and for the opportunity to comment.

Sincerely,



Iain Davies, Ph.D.
Director, Environmental Science Programs
Personal Care Products Council

² Mitchelmore CL, Burns, EB, Conway A, Heyes, A, Davies IA. 2021. A critical Review of Organic Ultraviolet Filter Exposure, Hazard, and Risk to Corals. Environ Toxicol Chem. DOI: 10.1002/etc.4948.

Supporting Science

The following report outlines the state of the science pertaining to the risk UV filters pose to coral and these risks are put in the context of proven local and global stressors of coral reef decline. The risk UV filters pose to corals is important to investigate and manage; however, current data to assess this risk is limited. A roadmap to assessing risk is presented along with the knowledge gaps that industry, academia, and third-party experts are currently working to fill.

Local and Global Causes of Coral Reef Decline

Coral reefs are immensely valuable ecosystems and an essential habitat for numerous threatened and endemic species. They provide not only a buffer against coastal erosion, a wide variety of food resources, pharmaceutical materials, but also facilitate tourism and recreation.³ Therefore, the degradation of coral reefs is a serious concern for Hawaii and reef ecosystems globally. Significant efforts to determine and address the causes of reef decline are critical for protecting these ecologically and economically important ecosystems. Much work has been conducted to investigate the role of various stressors on reef decline, including local stressors such as land-based pollution (e.g., nutrients), coastal development, sedimentation (e.g. land runoff and dredging), and human recreation; while global stressors such as increased sea temperatures and ocean acidification as a result of climate change.

Many studies have examined the impact of local stressors on corals. Sedimentation, resulting from dredging or land-based runoff, has been studied in 89 coral species.⁴ Sensitivity to sedimentation is species-dependent, but it can cause adult coral mortality and reduce the successful recruitment and survival of coral larvae. For example, Ricardo et al.⁵ determined that a very thin (< 150 µm, similar to the thickness of paper) layer of sediment inhibited successful settlement and therefore the successful recruitment of *Acropora millepora* larvae. Increased nutrient loads from land-based runoff can trigger algal blooms which can kill corals, reduce coral growth, and also inhibit larval recruitment.^{6,7} The threat of nutrient-based pollution is particularly pronounced in Hawaii as large-scale cesspools and septic systems are utilized for waste management. These large-capacity cesspools have been found to violate the Safe Drinking Water Act by US Environmental Protection Agency (EPA),⁸ and are a significant source of land-based pollution to coastal Hawaiian waters.⁹ Human recreation such as snorkeling has also been identified as a mechanism to cause physical damage to corals (due to fragmentation and breakage).¹⁰

³ Weijerman, M. *et al.* Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. *Front. Mar. Sci.* **5**, 1–16 (2018).

⁴ Erftemeijer, P. L. A., Riegl, B., Hoeksema, B. W. & Todd, P. A. Environmental impacts of dredging and other sediment disturbances on corals: A review. *Mar. Pollut. Bull.* **64**, 1737–1765 (2012).

⁵ Ricardo, G. F., Jones, R. J., Nordborg, M. & Negri, A. P. Settlement patterns of the coral *Acropora millepora* on sediment-laden surfaces. *Sci. Total Environ.* **609**, 277–288 (2017).

⁶ Weijerman, M. *et al.* Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. *Front. Mar. Sci.* **5**, 1–16 (2018).

⁷ Wedding, L. M. *et al.* Advancing the integration of spatial data to map human and natural drivers on coral reefs. *PLoS One* **13**, 1–29 (2018).

⁸ US EPA News Release. July 22, 2020. <https://www.epa.gov/newsreleases/epa-fines-hawaii-local-and-state-governments-requires-three-cesspool-closures-effort>.

⁹ Mezzacapo, M. *et al.* Hawai'i's Cesspool Problem: Review and Recommendations for Water Resources and Human Health. *J. Contemp. Water Res. Educ.* **170**, 35-75 (2020).

¹⁰ Hannak, J. S., Kompatscher, S., Stachowitsch, M. & Herler, J. Snorkelling and trampling in shallow-water fringing reefs: Risk assessment and proposed management strategy. *J. Environ. Manage.* **92**, 2723–2733 (2011).

An extensive review by Brainard et al.¹¹ identified both an increase in sea temperatures and ocean acidification (resulting from climate change) as major threats to coral reefs. Ocean acidification leads to reduced calcification rates, indicating that the overall growth of calciferous reef structure is inhibited.¹² Meanwhile a clear connection between increased ocean temperatures and coral bleaching has also been established. In a landmark 2017 study, the cause of mass coral bleaching events in Australia's Great Barrier Reef in 1998, 2002 and 2015-2016 was examined.¹³ The authors concluded that sea temperature increases resulting from climate change was responsible for the bleaching events and that local pressures (water quality and fishing) were of minimal effect comparatively. The authors concluded that interventions targeting local pressures would provide little or no protection from the effects of climate change. In a follow-up study, Hughes et al.¹⁴ demonstrated that the mass coral mortality stemming from the 2015-2016 Great Barrier Reef bleaching events reduced coral recruitment (settlement and subsequent growth of sexually produced coral larvae) by 89%. This reduction in coral recruitment severely hampers coral recovery from the impacts of global warming. A 2017 University of Hawaii study by Rodgers et al.¹⁵ examined the causes of coral bleaching in Hawaii and considered visitor numbers, water currents and elevated sea temperatures. The authors concluded that climate change (increased sea temperatures) was the dominant factor driving coral bleaching in comparison to the other factors studied.

Taken together, there is a clear scientific consensus that both global and local stressors contribute to the degradation of coral reefs through a variety of mechanisms. It has been postulated that resilience to global stressors can be enhanced by addressing local stressors. A key 2018 modelling study conducted for Maui Nui, Hawaii, by Weijerman et al. evaluated how different local management approaches (sedimentation mitigation and the designation of marine protected areas) could improve coral reef conditions under various climate change scenarios.¹⁶ Multiple pressures were included in the model such as fishing; sedimentation from river mouths and dredging; land-based nutrient release from cesspools septic systems; and fertilizers, and hurricane damage. The comprehensive study identified that strict sedimentation mitigation could reduce coral cover decline; however, the benefit of these local management scenarios was lost when accounting for climate change impacts, a similar conclusion to that for the Great Barrier Reef.¹⁷ This is aligned with the position of multiple national and international governmental and environmental organizations including the National Oceanic and Atmospheric Administration (NOAA), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the U.S. Coral Reef Task Force, all of which have identified rising sea temperatures from global warming as the primary cause of coral bleaching. It is critical that the findings from studies like those presented by Weijerman et al., which integrate proven local and global stressors on coral reef decline to optimize coral ecosystem management, are utilized to give the best chance of protecting threatened reef ecosystems.

¹¹ Brainard, R. E. *et al.* Incorporating Climate and Ocean Change into Extinction Risk Assessments for 82 Coral Species. *Conserv. Biol.* **27**, 1169–1178 (2013).

¹² Weijerman, M. *et al.* Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. *Front. Mar. Sci.* **5**, 1–16 (2018).

¹³ Hughes, T. P. *et al.* Global warming and recurrent mass bleaching of corals. *Nature* **543**, 373–377 (2017).

¹⁴ Hughes, T. P. *et al.* Global warming impairs stock–recruitment dynamics of corals. *Nature* **568**, 387–390 (2019).

¹⁵ Rodgers, K. S., Bahr, K. D., Jokiel, P. L. & Donà, A. R. Patterns of bleaching and mortality following widespread warming events in 2014 and 2015 at the Hanauma Bay Nature Preserve, Hawai'i. *PeerJ* **5**, e3355 (2017).

¹⁶ Weijerman, M. *et al.* Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. *Front. Mar. Sci.* **5**, 1–16 (2018).

¹⁷ Hughes, T. P. *et al.* Global warming and recurrent mass bleaching of corals. *Nature* **543**, 373–377 (2017)

Coral Toxicity to UV Filters

Considering coral reefs are expected to be exposed to UV filters through wash-off during recreational activity, considering and evaluating their impact as a local stressor is important. An environmental risk assessment (ERA) should be conducted to fully assess the environmental impact of UV filters on coral. The ERA considers the level at which UV filters are found near coral reefs and whether this level exceeds the concentration that is expected to cause harm to corals. If safe levels are exceeded, then risks can be managed through mitigation measures. This is the fundamental approach used for chemical management in the U.S. and around the world.

A recent review by Mitchelmore et al. critically analyzed existing near reef UV filter concentrations and coral toxicity data.¹⁸ As this is the only comprehensive review of all relevant science thus far, the work reported in the review are discussed herein. A total of 12 studies have measured organic UV filters in the water near coral reefs. Generally, average concentrations of each organic UV filter were very low, below 0.1 microgram per liter ($\mu\text{g/L}$). Of the 12 studies, only two presented data relevant to the Hawaiian reef environment. Mitchelmore et al.¹⁹ measured all organic UV filters permitted for use in the U.S. at 19 sites in Hawaii, while Downs et al.²⁰ measured oxybenzone at 15 sites in Hawaii. The organic UV filter concentrations in Hawaii reported by Mitchelmore et al. were either similar to or less than concentrations reported for other regions. The review by Mitchelmore et al. highlighted significant analytical problems with the oxybenzone monitoring data reported by Downs et al., thereby limiting the usefulness of that data for ERA. For example, Downs et al. reported extraordinarily high limits of quantification, 0.5 $\mu\text{g/L}$, over 5000 times greater than the other studies. Furthermore, the values reported by Downs et al. are extraordinarily high, 1-3 orders of magnitude greater than any other study. For example, the average and maximum oxybenzone concentrations reported by Mitchelmore et al. (2019) were 0.02 and 0.14 $\mu\text{g/L}$, respectively, compared to 145 and 1395 $\mu\text{g/L}$ reported by Downs et al. (2016). The exceptionally high oxybenzone values reported by Downs et al. exceed the total dissolved organic carbon (TDOC) concentrations typical in seawater near coral reefs. This would mean that a TDOC concentration would be double the typical ranges in Hawaii due to the presence of oxybenzone alone. Taken together, the Downs et al.'s data are a clear outlier, and the methodological issues identified indicate the data is not reliable for ERA and will not be considered further.

In terms of organic UV filter toxicity to coral, Mitchelmore et al. reported that only nine studies have been published to date. Of these nine studies, only four attempted to demonstrate a dose-response relationship where toxic effects increase as UV filter concentrations increase.^{21,22,23,24} Observation of a dose-response

¹⁸ Mitchelmore, C. L., Burns, E. E., Conway, A., Heyes, A. & Davies, I. A. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ. Toxicol. Chem.* 1-22 (2021). 10.2002/etc.4948.

¹⁹ Mitchelmore, C. L. et al. Occurrence and distribution of UV-filters and other anthropogenic contaminants in coastal surface water, sediment, and coral tissue from Hawaii. *Sci. Total Environ.* **670**, 398–410 (2019).

²⁰ Downs, C. A. et al. Toxicopathological Effects of the Sunscreen UV Filter, Oxybenzone (Benzophenone-3), on Coral Planulae and Cultured Primary Cells and Its Environmental Contamination in Hawaii and the U.S. Virgin Islands. *Arch. Environ. Contam. Toxicol.* **70**, 265–288 (2016).

²¹ He, T. et al. Toxicological effects of two organic ultraviolet filters and a related commercial sunscreen product in adult corals. *Environ. Pollut.* **245**, 462–471 (2019a).

²² He, T. et al. Comparative toxicities of four benzophenone ultraviolet filters to two life stages of two coral species. *Sci. Total Environ.* **651**, 2391–2399 (2019b).

²³ Fel, J. P. et al. Photochemical response of the scleractinian coral *Stylophora pistillata* to some sunscreen ingredients. *Coral Reefs* **38**, 109–122 (2019).

²⁴ Downs, C. A. et al. Toxicopathological Effects of the Sunscreen UV Filter, Oxybenzone (Benzophenone-3), on Coral Planulae and Cultured Primary Cells and Its Environmental Contamination in Hawaii and the U.S. Virgin Islands. *Arch. Environ. Contam. Toxicol.* **70**, 265–288 (2016).

relationship is a cornerstone of ecotoxicology, as it enables toxicity results to be translated into an environmental context.²⁵ If a study is not designed to observe a dose-response, it is of no value for ERA or decision-making. Therefore, only these four studies are relevant for determining toxicological thresholds or the safe levels of UV filters that coral can be exposed to before exhibiting toxic effects.

Avobenzone has only been included in a single ecotoxicity study.²⁶ Danovaro et al. included it in their preliminary study,²⁷ but that study is not acceptable for determining toxicological thresholds for multiple reasons reported in the Mitchelmore et al. review. Fel et al. monitored photosynthetic yield, which is thought to be a precursor for coral bleaching.²⁸ If the UV filter suppresses photosystem II in the coral symbiont algae, photosynthetic yield will be reduced. The lowest concentration of avobenzone that caused a significant reduction in photosynthetic yield was 516 µg/L. To put this value in an environmental risk context, it needs to be compared to relevant exposure data. Tsui et al. have reported the highest near-reef avobenzone concentration globally as 0.7 µg/L.²⁹ This level is **700 times less than the lowest level needed to cause an effect** based on the only coral toxicological data available to date. Furthermore, Mitchelmore et al. did not even detect avobenzone in Hawaiian waters above their limit of detection, indicating that less than 0.003 µg/L was present, **over 170 000 times less than the level that causes an effect (516 µg/L)**.

Octocrylene was also included in the Fel et al. study.³⁰ The concentration required to significantly reduce photosynthetic yield was even higher than avobenzone, 1318 µg/L. Additionally, octocrylene was included in a toxicity study carried out on two adult coral species by He et al. (2019).³¹ A range of effects were studied and the lowest concentration that caused an effect was 1000 µg/L. At this concentration, a significant reduction in the symbiotic algae within the coral host was observed and the coral condition was impacted as evidenced by polyp retraction. Importantly, He et al. did not observe any coral bleaching, even at the highest concentration studied (1000 µg/L). Therefore, the lowest toxicity concentration for octocrylene reported to date is 1000 µg/L, **over 13 000 higher than average octocrylene levels measured in near-reef environments near reefs**, as reported by Mitchelmore et al.³² The highest near-reef concentration of octocrylene reported in Hawaii to date is 0.027 µg/L,³³ indicating that based on current data environmental concentrations of octocrylene near reefs are far too low to cause an effect on coral.

Similarly to avobenzone, octinoxate has appeared only in a single coral ecotoxicity study. He et al. (2019) exposed adult corals and monitored a range of toxic effects.³⁴ Polyp retraction was the lowest observed

²⁵ Harris, C. A. *et al.* Principles of Sound Ecotoxicology. *Environ. Sci. Technol.* **48**, 3100–3111 (2014).

²⁶ Fel, J. P. *et al.* Photochemical response of the scleractinian coral *Stylophora pistillata* to some sunscreen ingredients. *Coral Reefs* **38**, 109–122 (2019).

²⁷ Danovaro, R. *et al.* Sunscreens cause coral bleaching by promoting viral infections. *Environ. Health Perspect.* **116**, 441–447 (2008).

²⁸ Fel, J. P. *et al.* Photochemical response of the scleractinian coral *Stylophora pistillata* to some sunscreen ingredients. *Coral Reefs* **38**, 109–122 (2019).

²⁹ Tsui, M. M. P. *et al.* Occurrence, distribution and ecological risk assessment of multiple classes of UV filters in surface waters from different countries. *Water Res.* **67**, 55–65 (2014).

³⁰ Fel, J. P. *et al.* Photochemical response of the scleractinian coral *Stylophora pistillata* to some sunscreen ingredients. *Coral Reefs* **38**, 109–122 (2019).

³¹ He, T. *et al.* Toxicological effects of two organic ultraviolet filters and a related commercial sunscreen product in adult corals. *Environ. Pollut.* **245**, 462–471 (2019a).

³² Mitchelmore, C. L., Burns, E. E., Conway, A., Heyes, A. & Davies, I. A. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ. Toxicol. Chem.* 1-22 (2021). 10.2002/etc.4948.

³³ Mitchelmore, C. L. *et al.* Occurrence and distribution of UV-filters and other anthropogenic contaminants in coastal surface water, sediment, and coral tissue from Hawaii. *Sci. Total Environ.* **670**, 398–410 (2019).

³⁴ He, T. *et al.* Toxicological effects of two organic ultraviolet filters and a related commercial sunscreen product in adult corals. *Environ. Pollut.* **245**, 462–471 (2019a).

effect at 10 µg/L, while the lowest concentration to cause bleaching was 100 µg/L. The maximum concentration of octinoxate reported in near reef environments globally was observed by Tsui et al. (2014) at 4 µg/L, while the average concentration across seven monitoring studies as reviewed by Mitchelmore et al. was 0.1 µg/L.³⁵ Mitchelmore et al. were unable to detect octinoxate in near-reef Hawaiian waters, meaning levels were below 0.002 µg/L³⁶. Therefore, the most sensitive coral toxicological response to octinoxate, polyp retraction, would not be expected to occur in Hawaii as **environmental concentrations are over 5000 times lower than the effect concentration (10 µg/L)**.

Two studies have conducted coral toxicological investigations of oxybenzone. Downs et al. exposed coral planulae (fertilized larvae) and determined a median lethal concentration (LC50) and median effect concentration (EC50) for planulae deformity under light and dark conditions.³⁷ Downs et al. also included a coral cell line assay, but this was not correlated with effects in whole organisms and is therefore not suitable for risk assessment, as discussed in the Mitchelmore et al. review.³⁸ The LC50 was reported as 139 µg/L, while the deformity EC50 was lower, 49 µg/L. In Hawaii specifically, Mitchelmore et al. recorded an average near-reef oxybenzone concentration of 0.02 µg/L and a maximum concentration of 0.14 µg/L.³⁹ This means the average concentration of oxybenzone in near reef environments in Hawaii is **over 2000 times less** than the concentration required to cause an effect, according to the toxicity data reported by Downs et al. for coral larvae.⁴⁰ He et al. also studied the impacts of oxybenzone on two coral species in both larval and adult life stages.⁴¹ In adults, polyp retraction was observed at the lowest concentration, 10 µg/L, while bleaching was observed at 1000 µg/L of oxybenzone. He et al. concluded that coral larvae were not as sensitive to oxybenzone exposure as adults. Therefore, the lowest effect concentration for oxybenzone was observed by He et al. at 10 µg/L for polyp retraction. This effect concentration is still below far the average concentration of oxybenzone in Hawaiian waters reported by Mitchelmore et al. (0.02 µg/L) and below the global near-reef maximal values reported in the environment by Bargar et al.⁴² and Tsui et al.⁴³ of 6.2 and 5.4 µg/L globally.

Octisalate and homosalate were not included in any suitable ecotoxicological coral study to date. Therefore, there is **no ecotoxicological evidence** these UV filters harm coral. Octisalate is included in the Danovaro

³⁵ Mitchelmore, C. L., Burns, E. E., Conway, A., Heyes, A. & Davies, I. A. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ. Toxicol. Chem.* 1-22 (2021). 10.2002/etc.4948.

³⁶ Mitchelmore, C. L. *et al.* Occurrence and distribution of UV-filters and other anthropogenic contaminants in coastal surface water, sediment, and coral tissue from Hawaii. *Sci. Total Environ.* **670**, 398–410 (2019).

³⁷ Downs, C. A. *et al.* Toxicopathological Effects of the Sunscreen UV Filter, Oxybenzone (Benzophenone-3), on Coral Planulae and Cultured Primary Cells and Its Environmental Contamination in Hawaii and the U.S. Virgin Islands. *Arch. Environ. Contam. Toxicol.* **70**, 265–288 (2016).

³⁸ Mitchelmore, C. L., Burns, E. E., Conway, A., Heyes, A. & Davies, I. A. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ. Toxicol. Chem.* 1-22 (2021). 10.2002/etc.4948.

³⁹ Mitchelmore, C. L. *et al.* Occurrence and distribution of UV-filters and other anthropogenic contaminants in coastal surface water, sediment, and coral tissue from Hawaii. *Sci. Total Environ.* **670**, 398–410 (2019).

⁴⁰ Downs, C. A. *et al.* Toxicopathological Effects of the Sunscreen UV Filter, Oxybenzone (Benzophenone-3), on Coral Planulae and Cultured Primary Cells and Its Environmental Contamination in Hawaii and the U.S. Virgin Islands. *Arch. Environ. Contam. Toxicol.* **70**, 265–288 (2016).

⁴¹ He, T. *et al.* Comparative toxicities of four benzophenone ultraviolet filters to two life stages of two coral species. *Sci. Total Environ.* **651**, 2391–2399 (2019b).

⁴² Bargar, T. A., Alvarez, D. A. & Garrison, V. H. Synthetic ultraviolet light filtering chemical contamination of coastal waters of Virgin Islands national park, St. John, U.S. Virgin Islands. *Mar. Pollut. Bull.* **101**, 193–199 (2015).

⁴³ Tsui, M. M. P. *et al.* Occurrence, distribution and ecological risk assessment of multiple classes of UV filters in surface waters from different countries. *Water Res.* **67**, 55–65 (2014).

et al. study (in addition to avobenzene, oxybenzone, octocrylene and octinoxate) but as mentioned the study was conducted so poorly that it is not possible to draw any conclusion from it as discussed in the Mitchelmore et al. review.⁴⁴

Quality of Published UV Filter Coral Toxicity Studies

Major scientific flaws have been found for all published UV filter coral toxicity studies. These issues reduce the confidence we can have in their findings, which ultimately makes them unsuitable for environmental risk assessment. For ERA to be successful and protective, high quality data need to be used. There are several methods to assess the reliability of a study, and these approaches are routinely applied by regulatory bodies (such as the U.S. Environmental Protection Agency and Environmental and Climate Change Canada) to ensure that data used to inform decision-making is suitable. These coral studies are not the first ecotoxicity studies to be criticized for failing to meet basic requirements for conducting reliable experiments.⁴⁵ To improve the usefulness of ecotoxicity studies published in the peer-reviewed literature for ERA, data reliability assessments have been established, such as the CRED method.⁴⁶ These methods evaluate the quality of five key areas of a study: test setup, test compound, test organism, test design/conditions, and results and statistics. This covers aspects such as whether adequate controls were used, whether the test medium suitable for the test animal, and whether the concentration of the test compound was measured and maintained throughout the test.

Applying the CRED method to the four coral toxicity studies extensively discussed, no study is 'reliable without restriction,' which is considered the scientific gold standard, and use of those data in an ERA would be suitable. The two He et al. studies contained the fewest reliability issues; however, the test concentrations they used meant they were not able to observe statistically important effects (for example EC50s or LC50s). They also demonstrated that the UV filters degraded (broke-down) so much so that by the end of their tests oxybenzone, octocrylene and octinoxate were no longer detectable. Therefore, we cannot say what level of UV filter the coral were actually exposed to and this can lead to an under or overestimate of toxicity.⁴⁷ A similar problem was observed with the Downs et al. study; no concentrations were measured throughout the whole test.⁴⁸ Turner and Renegar observed similar issues in a review of coral toxicity studies with petroleum hydrocarbons, where test concentrations were either not measured or measured too infrequently to determine an average exposure.⁴⁹ The purpose of a toxicity study is to determine a threshold concentration that can be compared with concentrations observed in the environment to inform chemical management. If this threshold concentration is not measured, then the study is of little value. On the other hand, Fel et al.⁵⁰ did monitor the concentration of UV filters throughout the test; significant UV filter

⁴⁴ Mitchelmore, C. L., Burns, E. E., Conway, A., Heyes, A. & Davies, I. A. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ. Toxicol. Chem.* 1-22 (2021). 10.2002/etc.4948.

⁴⁵ Harris, C. A. & Sumpter, J. P. Could the Quality of Published Ecotoxicological Research Be Better? *Environ. Sci. Technol.* **49**, 9495–9496 (2015).

⁴⁶ Moermond, C. T. A., Kase, R., Korkaric, M. & Ågerstrand, M. CRED: Criteria for reporting and evaluating ecotoxicity data. *Environ. Toxicol. Chem.* **35**, 1297–1309 (2016).

⁴⁷ Harris, C. A. *et al.* Principles of Sound Ecotoxicology. *Environ. Sci. Technol.* **48**, 3100–3111 (2014).

⁴⁸ Downs, C. A. *et al.* Toxicopathological Effects of the Sunscreen UV Filter, Oxybenzone (Benzophenone-3), on Coral Planulae and Cultured Primary Cells and Its Environmental Contamination in Hawaii and the U.S. Virgin Islands. *Arch. Environ. Contam. Toxicol.* **70**, 265–288 (2016).

⁴⁹ Turner, N. R. & Renegar, D. A. Petroleum hydrocarbon toxicity to corals: A review. *Mar. Pollut. Bull.* **119**, 1–16 (2017).

⁵⁰ Fel, J. P. *et al.* Photochemical response of the scleractinian coral *Stylophora pistillata* to some sunscreen ingredients. *Coral Reefs* **38**, 109–122 (2019).

degradation was also identified, but due to the frequency of measurement, a mean exposure concentration could be calculated.

Using the CRED method, the Fel et al. and Downs et al. studies are considered unreliable due to the number and severity of studies' flaws (and the remaining six UV filter toxicity studies that were not discussed). For the Fel et al. study specifically, a significant dose-response relationship was not observed, and the experiment was not adequately replicated. For the Downs et al. study, test concentrations were not analytically verified; the test chemical was incorrectly identified; a reference toxicant was not included (which was required as part of the guideline the authors cited); too little data provided to assess basic study acceptability criteria including control mortality and effects; the exposure conditions were not suitable for the coral larvae; and the use of a solvent, dimethyl sulfoxide, which is not considered acceptable by the US EPA. Together, these flaws limit the usefulness of these studies for drawing any conclusions about the harm UV filters may cause coral and **would not** be suitable for any ERA conducted by regulatory authorities such as the U.S. EPA, European Chemicals Agency or Environment and Climate Change Canada.

Critical Knowledge Gaps for the Impacts of UV Filters on Coral

At this time, we cannot conclusively determine that UV filters do not harm coral; however, the presented synthesis of existing data demonstrate that based on current environmental levels, UV filters are not suspected of harming coral. This is because there is currently limited or no ecotoxicological data for some UV filters and much of the existing data are considered unreliable based on the results of systematic data quality evaluation approaches. These ecotoxicological knowledge gaps need to be addressed with robust ecotoxicological tests that are repeatable and reliable for all UV filters. The design of these studies should provide comparable toxicological thresholds that are suitable for ERA and can therefore support evidence-based decision making. Conducting an ERA for UV filters is also a priority of the U.S. EPA as recently they tasked the U.S. National Academy of Sciences (NAS) with determining data gaps and/or risks UV filters pose to both the freshwater and marine environment and to assess the impact on public health of potential changes in sunscreen use.⁵¹

A significant barrier exists for generating reliable coral toxicological data. There is no standardized coral toxicity test system, which describes basic acceptability criteria, water quality thresholds, replication, animal husbandry, and endpoints to observe. This is likely a significant reason why most of the toxicity studies to date are unreliable; there is no core method or suitable modified guideline method to follow. In response to this need, PCPC is working to develop a standardized coral ecotoxicological test system. This work is in conjunction with scientists at the University of Maryland Center for Environmental Science and the Nova Southeastern University and can be used to generate reliable, comparable and consistent data for ERA purposes. Development of a coral toxicity test system will be critical for filling knowledge gaps with reliable coral toxicity data for UV filters so that an ERA with appropriate data can be conducted.

More broadly, PCPC published the first comprehensive review on the UV filter occurrence, effects and risks to coral reefs.⁵² The review identified a series of actions that need to be taken in order to effectively assess the environmental risk of UV filters to coral environments. This includes the prediction of UV filter

⁵¹ NASEM [NASEM] National Academies of Sciences, Engineering, and Medicine. 2020. Environmental impact of currently marketed sunscreens and potential human impacts of changes in sunscreen use. <https://www.nationalacademies.org/our-work/environmental-impact-of-currently-marketed-sunscreens-and-potential-human-impacts-of-changes-in-sunscreen-usage>.

⁵² Mitchelmore, C. L., Burns, E. E., Conway, A., Heyes, A. & Davies, I. A. A critical review of organic ultraviolet filter exposure, hazard, and risk to corals. *Environ. Toxicol. Chem.* 1-22 (2021). 10.2002/etc.4948.

concentrations in marine environments due to recreational and down-the-drain use. A scoping exercise to determine appropriate models for this purpose has already been initiated by a coalition of industry and non-industry scientists. Predicted environmental concentrations are better suited to ERA as they don't reflect a snapshot in time and can incorporate spatial variability within a probabilistic framework. The review also identified the use of an eco-epidemiological approach which could be a useful strategy for evaluating combinations of physical, chemical and environmental conditions over time to identify dominant stressors. A feasibility assessment for the eco-epidemiological approach has already been commissioned by PCPC. This approach is similar to Weijerman et al.'s modelling study (discussed previously) that evaluated the effectiveness for different local management approaches to improve coral reef conditions under various climate change scenarios in Hawaii.⁵³

There is currently limited evidence to suggest that corals are adversely impacted by environmental exposure to UV filters; however, these major knowledge gaps need to be addressed with high-quality UV filter toxicity and environmental occurrence data. Together these studies can be used to appropriately quantify the risk of UV filters to coral, thus enabling assessors to make informed, evidence-based decisions that will truly be of benefit for coral health.



Emily Burns, Ph.D.
Environmental Scientist
Personal Care Products Council



Iain Davies, Ph.D.
Director, Environmental Science Programs
Personal Care Products Council

⁵³ Weijerman, M. *et al.* Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. *Front. Mar. Sci.* **5**, 1–16 (2018).

HB-102

Submitted on: 2/10/2021 6:14:42 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ron Jarvis	Individual	Support	No

Comments:

I urge you to support Bill HB102 which bans the chemicals avobenzone and octocrylene from sunscreen formulas. These chemicals are known to adversely affect coral reefs and other marine life.



February 11, 2021

To: The Honorable Nicole E. Lowen, Chair
Members, House Committee on Energy & Environmental Protection

The Honorable David A. Tarnas, Chair
Members, House Committee on Water & Land

From: Tim Shestek
American Chemistry Council

Re: **HB 102 – OPPOSE**

On behalf of the American Chemistry Council (ACC), I am writing to express our concern with HB 102, legislation that would ban non-prescription sunscreens containing avobenzone or octocrylene. If passed, this bill would eliminate many of the U.S. Food and Drug Administration (FDA) approved sunscreen active ingredients that protect skin against the damaging effects of ultraviolet light. In addition to these comments, ACC supports the comments submitted by the Personal Care Products Council (PCPC) and the Consumer Healthcare Products Association (CHPA).

The FDA, the Centers for Disease Control and Prevention (CDC), the U.S. Surgeon General, the American Academy of Dermatology (AAD), the Skin Cancer Foundation, and health care professionals worldwide emphasize that using sunscreens is a critical part of a safe sun regimen. The dangers of sun exposure are clear and universally recognized by public health professionals and dermatologists. The National Institutes of Health Report on Carcinogens identifies solar UV radiation as a “known human carcinogen.” A single bad burn in childhood doubles the risk of developing skin cancer later in life.

ACC shares the concerns regarding the threat to the world’s coral reefs. Climate change and ocean warming are the most notable culprits for reef bleaching. According to the U.S. National Oceanic and Atmospheric Administration’s (NOAA) Coral Reef Conservation Program, coral reefs are impacted by an increasing array of hazards, primarily from global climate change, ocean acidification, and unsustainable fishing practices.

Thank you for the opportunity to share these comments. Should you have any questions, please do not hesitate to contact me at 916-448-2581 or tim_shestek@americanchemistry.com. You may also contact ACC’s Hawai’i based representative Ross Yamasaki at 808-531-4551 or ryamasaki@808cch.com



HB-102

Submitted on: 2/10/2021 6:39:39 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
laurie hillyard	Individual	Support	No

Comments:

Research and science support removing these chemicals from our waters. Please vote remove these unnecessary toxins.

HB-102

Submitted on: 2/10/2021 6:46:33 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lauren Ing	Individual	Oppose	No

Comments:

Oppose as not all sunscreen users enter the ocean and more natural sunscreens may not be as protective against skin cancer.

HB-102

Submitted on: 2/10/2021 7:00:51 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Angel Cynova	Individual	Support	No

Comments:

We must support the bill HB102 to strengthen the ban on the sale of sunscreens in Hawaii containing chemicals, avobenzone and octocrylene. The research that the Kohala Center has done has shown that they are harmful to coral reefs and other aquatic life.

For the past three years my husband and I have had the privilege to travel to the islands and enjoy what they offer. We try to do our part by volunteering at beaches when we visit to help educate other visitors but it is not enough. If we do not protect the islands, their reefs and their aquatic life there will be nothing left for future generations.

HB-102

Submitted on: 2/10/2021 7:13:38 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Crystal Castellanos	Individual	Support	No

Comments:

The bill that was passed in 2018 and the banning of selling sunscreens with other toxic ingredients to our life giving reefs (and others) was a huge step forward. It was so huge that we can do a little more! Research proves that the ingredients, avobenzone and octocrylene, are also harmful to reefs. Let's do what we can to protect our reefs, as well the sentient beings of the sea, and our future. Thank you!

HB-102

Submitted on: 2/10/2021 7:52:30 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Menton	Individual	Support	No

Comments:

I strongly support the ban of the sale of sunscreens in Hawaii containing avobenzone and octocrylene. Research has shown these chemicals are harmful to coral reefs and other aquatic life, damaging normal reproductive processes. As a volunteer at Kaha'u Bay, a very popular snorkeling site on the Big Island, I have been a witness to the efforts of the Kohala Center's ReefTeach program to educate visitors about which sunscreens they should and shouldn't use. There remains much confusion for visitors over which sunscreens are safe for the reef, due to the ongoing ability of companies to advertise their product as "safe" because they have removed two chemicals (oxybenzone and octinoxate) and replaced them with increased amounts of other chemicals (avobenzone and octocrylene). Banning the first two chemicals has been a step in the right direction, but until the other harmful sunscreen chemicals are banned, we are in danger of causing continued destruction of one of the earth's most valuable ecosystems, the coral reef. It is **our kuleana** to play this important role in consideration of the *future* of our planet by doing what we know is right *now* - banning coral-damaging chemicals - while there is still time. Thank you.

HB-102

Submitted on: 2/10/2021 7:52:39 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Suzanne Marie Ager	Individual	Support	No

Comments:

I am in support of HB102 to help protect our waters. Chemical sunscreens are damaging to bay areas and need to be eliminated.

HB-102

Submitted on: 2/10/2021 7:54:14 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Renee Perrington	Individual	Support	No

Comments:

2023 seems a long time to wait to stop pouring poisonour chemicals into our ocean. What is the point of supporting tourism if the beautiful ocean they come to see and that we call home, is being killed. The hypocracy of destroying the thing you love is overwhelming.

February 9, 2021

TO:

Representative Nicole Lowen, Chair
Representative Lisa Marten, Vice Chair

Members of the Committee on Energy and Environmental Protection
Thirty First Legislature
Regular Session of 2021

TO:

Representative David Tarnas, Chair
Representative Patrick Pihana Branco, Vice Chair

Members of the Committee on Water & Land
Thirty First Legislature
Regular Session of 2021

FROM:

The members of the Hawaii Skin Cancer Coalition

RE: OPPOSITION to House Bill 102, – RELATING TO SUNSCREENS
Hearing Date – Thursday, February 11, 2021

Dear Chair Lowen, Vice Chair Marten, and Members of the Committee,

Mahalo for the opportunity to submit testimony in strong OPPOSITION to House Bill 102, (HB 102) on behalf of the Hawaii Skin Cancer Coalition. This Bill, HB 102 proposes to ban the sale, offer for sale, or distribution in the State of any SPF sunscreen protection personal care products that contain avobenzone or octocrylene, or both, without a prescription issued by a licensed healthcare provider.

The publicity surrounding this bill has created tremendous misconceptions regarding the effects of sunscreens containing these ingredients on our precious coral reef ecologies. The Hawaii Skin Cancer Coalition members emphasize that the scientific studies identified to support House Bill 102 do not substantiate the contention that these chemicals, when used as ingredients in sunscreen contribute significantly to the degradation of coral reefs. Further, there is no evidence that banning or reducing their use will favorably affect coral reefs.

We agree that damage to coral reefs is precipitated by human interaction. However the primary sources of this damage are not swimmers wearing sunscreen, but rather land-based source pollution (e.g., industrial waste), over-fishing, invasive species, and climate change. In fact, the

The Hawaii Skin Cancer Coalition's mission is to provide clear, concise messages on skin cancer prevention, and early detection for both the public and health professionals based upon current and accurate information. The Coalition is a collaborative effort between concerned local organizations and businesses including, the University of Hawaii Cancer Center, American Cancer Society, Hawaii Pathologists' Laboratory, the Friends of the University of Hawai'i Cancer Center, the Hawai'i Dermatological Society, Kaiser Permanente, Kuakini Health System, the Hawai'i Lifeguard Association, Queen's Healthcare Plan and the Hawaii Ophthalmological Society. All of these organizations share a common goal to help prevent skin cancer.

foundational studies that report reef effects of chemicals in sunscreens were conducted in laboratory settings and did not test the actual risks to coral in a natural setting. One study even states that the sample obtained for testing from Hawaii's coral reefs had minimally detectable levels of avobenzone or octocrylene (Schneider& Lim 2019).

In fact, banning sunscreen products that contain avobenzone or octocrylene in favor of "reef safe" products opens the door to potentially more harm, both to our reef to individuals at risk for skin cancers. The ingredients of many "reef safe" products currently have not been tested for their environmental effects or, to our knowledge, for their ability to provide adequate sun protection according to standards set by the U.S. Food and Drug Administration. Their acceptability to the public has been mixed in online reviews of some "reef safe" sunscreen products. However, many people in Hawaii who use sunscreen to prevent sunburn and skin cancer DO NOT go into the ocean at all – they walk, run, play in land sports, etc. It is not and should not be the business of the state government to restrict their consumer choice of sunscreen products because of beliefs about effects on marine environments.

Morbidity and deaths from skin cancers are on the rise in the U.S. and Hawaii. The current focus of Hawaii's legislative policy limiting the sale of sunscreen products will undermine years of progress towards addressing the effects of unprotected sun exposure, a primary risk factor for skin cancer. The leading scientific agencies in the U.S., all emphasize that using sunscreens is a critical part of regimens to prevent skin cancers, along with protective clothing, hats with brims, and shade. In open water, hats and shade are not options.

According to the National Cancer Institute, nearly 5 million people in the US and at the cost of over 8 billion dollars to our U.S. health care system In Hawaii, ~7,000 people are treated for skin cancers each year. Melanoma, the deadliest form of skin cancer, is now the second most common form of cancer for females aged 15-29 years old. Each year more than 10,000 people die of melanoma across the U.S. In Hawaii, 400 people are diagnosed, and ~50 people die each year.

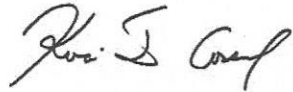
It is essential that we conduct valid research to understand the potential environmental effects of sunscreen use better to protect Hawaii's natural resources. Currently, there is insufficient scientific evidence demonstrating that avobenzone or octocrylene are responsible for coral bleaching. The Hawaii Skin Cancer Coalition members suggest that Hawaii's legislators put forth efforts and resources to utilize the vast scientific expertise found at the University of Hawaii, including its world-renowned School of Ocean and Earth Science and Technology, and the Department of Chemistry, to identify the cause of coral decline and develop and test safe and effective sunscreen products in collaboration with the many environmental advocacy groups in support of this bill.

We believe that together, we can work simultaneously towards the development of effective, affordable and acceptable sunscreen products that are effective for cancer prevention and safe for our environment. We can also initiate efforts to address and ameliorate other major causes of

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damage to coral reefs. Thank you for the opportunity to submit testimony on behalf of the Hawaii Skin Cancer Coalition. For more information, please contact us at 808-284-9097.

Sincerely,

A handwritten signature in black ink that reads "Kevin D. Cassel". The signature is written in a cursive, flowing style.

Kevin D. Cassel, DrPH
President, Hawaii Skin Cancer Coalition

REFERENCES

Schneider SL, Lim HW. Review of environmental effects of oxybenzone and other sunscreen active ingredients. *J Am Acad Dermatol.* 2019 Jan;80(1):266-271. doi: 10.1016/j.jaad.2018.06.033. Epub 2018 Nov 14. PMID: 29981751

The Hawaii Skin Cancer Coalition's mission is to provide clear, concise messages on skin cancer prevention, and early detection for both the public and health professionals based upon current and accurate information. The Coalition is a collaborative effort between concerned local organizations and businesses including, the University of Hawaii Cancer Center, American Cancer Society, Hawaii Pathologists' Laboratory, the Friends of the University of Hawai'i Cancer Center, the Hawaii Dermatological Society, Kaiser Permanente, Kuakini Health System, the Hawaii Lifeguard Association, Queen's Healthcare Plan, and the Hawaii Ophthalmological Society. All of these organizations share a common goal to help prevent skin cancer.

HB-102

Submitted on: 2/10/2021 8:35:31 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Arla C Meyer	Individual	Support	No

Comments:

Please support this bill.

Why haven't we done this already?

There are safe and effective alternatives to the chemical sunscreens, which don't kill the coral and other aquatic life.

This bill is the least we can do.

My only complaint is it should be effective sooner.

HB-102

Submitted on: 2/10/2021 8:49:24 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Christy Hill	Individual	Support	No

Comments:

We must keep all harmful chemicals out of sunscreen. By doing so we will be helping our environment.

HB-102

Submitted on: 2/10/2021 8:52:38 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Heloise Lochman	Individual	Support	No

Comments:

Dear Friends in the State House, please vote in favor of HB 102, which will continue the important work you began by regulating the ingredients in sunscreen. Everywhere we see evidence that our oceans are under attack, from climate change, overfishing, and of course from chemicals and plastics entering the ocean.

Hawaii is one of the best-loved water destinations in the world. We must protect the quality of our water. During the 18 years I have been snorkelling at Kahaluu, I've seen a drastic die-off in the coral populations. I have also seen results of water testing which show the decrease in oxybenzones which followed an intensive education and sunscreen swap program at Kahaluu.

Our culture in Hawaii often speaks of kuleana, the responsibility to take care of things around us. What is more important than the ocean? There is simply NO REASON not to enact this legislation -- manufacturers can, and will, do what they are told to. Thank you, Heloise Lochman

HB-102

Submitted on: 2/10/2021 9:02:54 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mindy Clepper	Individual	Oppose	No

Comments:

Dear Chair Tarnas and Chair Lowen,

As a melanoma survivor and mother, I oppose HB 102 that would ban more sunscreen ingredients from being sold in Hawaii.

According to data from the Hawaii Department of Health, skin cancer is on the rise in Hawaii – which is sad, because we know that 80% of skin cancer is preventable with sun safe behavior. And as misinformation about sunscreen is becoming more prevalent, it seems that sun safety measures are lagging in Hawaii. Only about 1 in 10 teens in Hawaii regularly uses sunscreen when outside on a sunny day, and just one blistering sunburn in childhood more than doubles your chances of developing melanoma later in life.

I feel strongly that sun safe behaviors need to be instilled in our children and I make sure my kids always wear sunscreens and protective gear whenever they are outside – whether they are playing sports, running, hiking, at the pool or doing anything outdoors.

I also feel strongly that we need to save our coral reefs, but we also need to make sure that we balance that with public health. Hawaii already has one of the most progressive laws banning oxybenzone and octinoxate. Rather than ban more sunscreens, we can educate and encourage people to use reef-safe sunscreens when in the ocean.

Sun safety is a public health imperative. Melanoma and other skin cancers need to be taken seriously. We can both save our coral reefs and prevent skin cancer.

Thank you for the listening to my concerns.

Respectfully,

Mindy Clepper
Skin cancer survivor

HB-102

Submitted on: 2/10/2021 9:14:37 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kathleen Clark	Individual	Support	No

Comments:

I am writing in strong support of HB102. Hawai'i's coral reefs are reaching a tipping point. With little respite from yearly thermal stress since 2015, continuous impact from land based sources of pollution and decades of physical damage from an exploding number of visitors, coral reefs are in a constant state of stress. These reefs in peril are the same reefs that we rely on for food, coastal protection and an economic benefit that reaches deep into Hawai'i's economy. It is imperative that we do everything in our power to help preserve and protect the coral reef ecosystems that remain. Reducing addressable stressors like harmful sunscreen chemicals is one of the many ways we can increase the resiliency of the reefs that we depend on for so much.

The sunscreen legislation that passed in 2108 was a good start and has been embraced by the local community and the visitor industry as a tangible action we can take to help care for coral reef ecosystems. Since 2018, the science has become more robust and now includes peer reviewed research on the harmful affects of many of the additional common chemicals found in sunscreens including avobenzene, homosalate, octisalate and especially octocrylene. In order to strengthen and fulfill the goals of existing legislation, it is critical that these chemicals are added. It is so disheartening to see locals and visitors alike trying to do the right thing by purchasing what is labeled as "reef friendly" sunscreen only to find a long list of harmful chemicals on the ingredients list.

Also, we now know that the FDA has only listed two ingredients as safe and effective for sun protection: zinc oxide and titanium dioxide. The other chemicals, including those listed in this bill have not been proven to be safe or effective for human use.

The intention of the legislation in 2018 was to protect Hawai'i's precious coral reef ecosystems, and it was a positive step in the right direction. In order to reach that goal it is imperative that, with science supporting the deletrious effects of these additional chemicals, they are also included in the law.

The time to act is now if we want to ensure that the reefs we rely on are still healthy enough to provide for future generations. I appreciate your time and consideration.

Kathleen M. Clark



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February 10, 2021

To: Committee on Energy and Environmental Protection
Chairwoman Nicole E. Lowen and Vice Chair Lisa Marten
Committee on Water & Land
Chairman David Tarnas and Vice Chair Patrick Branco

Re: **HB 102 Related to Sunscreens - OPPOSE**

On behalf of the Consumer Healthcare Products Association (CHPA), the national trade association representing the leading manufacturers of over-the-counter (OTC) medications, dietary supplements, and consumer medical devices, I'm writing to express strong opposition to HB 102 – legislation seeking to ban the sale, offer of sale, or distribution in the State of any sunscreen that contains avobenzone and/or octocrylene.

Avobenzone and octocrylene are Food and Drug Administration (FDA) approved ingredients found in many common sunscreens sold on the market today. They are commonly used in broad spectrum sunscreens to block the full range of ultraviolet rays that are linked to skin cancer – one of the most common, yet preventable forms of cancer in the world according to the World Health Organization.¹ Eliminating sunscreen options for consumers needlessly increases the risk of skin cancer for residents and visitors to the State of Hawai'i and will provide no benefit to the health of the native coral reef population. In fact, the American Cancer Society estimates that melanoma will be one of the leading causes of new cancer cases in Hawai'i in 2021.²

The State of Hawai'i remains the only American state to have banned the sale of sunscreens containing oxybenzone and octinoxate. Expanding this ban to also include avobenzone and octocrylene is based on an inaccurate assumption that sunscreen ingredients are unquestionably harmful to coral reefs and other marine life. This notion is contrary to the scientific consensus that global warming, land pollution, and other human activities are the primary cause of coral bleaching around the world.³ Rising sea temperatures as a result of global warming are the primary cause of coral decline.

¹ <https://www.who.int/news-room/q-a-detail/radiation-protecting-against-skin-cancer>

² American Cancer Society, Cancer Facts & Figures 2021; available at <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2021/cancer-facts-and-figures-2021.pdf>

³ e.g., see Hughes *et al.*, 2017 Global warming and recurrent mass bleaching of corals. *Nature*, 543(7645):373-377; Rodgers *et al.*, 2017 Patterns of bleaching and mortality following widespread warming events in 2014 and 2015 at the Hanauma Bay Nature Preserve, Hawai'i. *PeerJ*, [DOI 10.7717/peerj.3355](https://doi.org/10.7717/peerj.3355)



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Taking healthcare personally.

Given the lack of convincing scientific evidence that sunscreens are responsible for coral degradation, we strongly oppose the elimination of sunscreen ingredients like avabenzene and octocrylene. Consumer access to sunscreen products containing a broad variety of ingredients, especially in a state with the highest rate of melanoma cases attributed to UV exposure, is a matter of public health and sunscreen use has been proven to reduce the risk of skin cancer.⁴ For these reasons, we oppose passage of HB 102.

Thank you for taking the time to consider our concerns and feel free to contact me or our local representative, Lauren Zirbel, directly with any follow up questions you may have.

Sincerely,

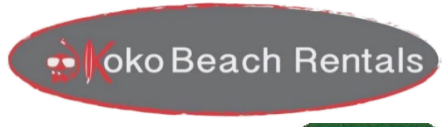
A handwritten signature in blue ink that reads 'Carlos I. Gutiérrez'.

Carlos I. Gutiérrez
Vice President, State & Local Government Affairs
Consumer Healthcare Products Association
Washington, D.C.
202.429.3521
cgutierrez@chpa.org

⁴ Watts *et al.*, 2018 Sunscreen Use and Melanoma Risk Among Young Australian Adults. *JAMA Dermatol*, 154(9):1001-1009.



Environmental Caucus of The Democratic Party of Hawai'i



To: The House Committees on Energy and Environmental Protection (EEP) and Water and Land (WAL)

Re: HB102 RELATING TO SUNSCREENS

Position: STRONG SUPPORT

Hearing Date: Thursday, February 11, 2021, 10:45 am, videoconference

Aloha Chair Lowen, Vice Chair Marten, and Energy and Environmental Protection Committee members; Chair Tarnas, Vice Chair Branco, and Water and Land Committee members:

The noted diverse Hawaii Coral Reef Stakeholders strongly support HB102 and SB366 expanding Act 104, Sessions Laws of Hawaii 2018, to include the ban on sale or distribution of sunscreens containing octocrylene and avobenzone to protect the State's marine ecosystems. We thank the Legislature for passing Act 104 in 2018 which provides for the ban on sale and distribution of sunscreens containing oxybenzone and octinoxate, two of the most problematic chemicals that interfere with the life-cycles of marine life, effective as of 1 January 2021. HB102 and SB366 build directly on Act 104 by adding two more harmful chemicals to the list: octocrylene and avobenzone. Evolving science clearly demonstrates that these pervasive reef toxins irreversibly interfere with the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Furthermore, long-term exposure to avobenzone and octocrylene has been found to be lethal for some organisms living in freshwater environments, and are considered dangerous for freshwater ecosystems. Avobenzone is the leading active ingredient in chemical sunscreens and can cause hormone disruptions. Octocrylene is also quickly metabolized into a mutagen called benzophenone which is regulated by the FDA and included in California's Prop 65 list of chemicals known to cause cancer or reproductive toxicity. And in February 2019, the U.S. Food and Drug Administration declared that it does not have sufficient scientific evidence that any of the organic UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, and avobenzone are safe and effective for human use - never mind our marine ecosystems!

Approximately one-fourth of the plants, fish, and invertebrates found in Hawaiian coral reefs are endemic to Hawaii. Coral reefs are intrinsic to Hawaiian culture, and fundamental to the fabric of our local communities. They provide critical habitat for near shore marine life, and natural protection against coastal erosion and sea level rise - ecosystem services worth billions of dollars. Further, our coral reefs underpin tourism, Hawaii's primary economic engine. It is therefore critical to eliminate as many existential threats to our marine ecosystems as possible, like these additional reef-toxic chemicals, to ensure our reefs can both survive and thrive for future generations.

The need for HB102 and SB366 is obvious and critical, and we strongly urge you to support them.

Mahalo for the opportunity to testify on behalf of Hawaii's coral reefs!

Sincerely,

Coral Reef Stakeholders:

Melodie R. Aduja
Alan B. Burdick
Co-chairs
Environmental Caucus of the
Democratic Party of Hawaii

Ted Bohlen
Hawaii Reef and Ocean Coalition

Cindi Punihaole
Director Kahalu`u Bay Education Center
The Kohala Center

Mendy Dant
Executive Vice President
Fair Wind Cruises

Lisa Bishop
President
Friends of Hanauma Bay

Craig Downs, Ph.D.
Executive Director
Haereticus Environmental Laboratory

Maxx Phillips
Hawai'i Director
Center for Biological Diversity

William T. White, III
President, Wailea Property Owners
Association

Bill Coney
Dr. Susanne Otero
Co-Founders
Legacy Reef Foundation

Pat B. Lindquist
President
Napili Bay and Beach Foundation

Rene Umberger
Executive Director
For the Fishes

Jamie Lung Ka'eo
General Manager
Hale Napili

Ken Staples
Director of Hawai'i Operations
Ocean Defenders Alliance

Ka`imi Kaupiko
Executive Director
Kalanihale

Mike Nakachi
President
Moana Ohana

Caren Loebel-Fried
Artist, Illustrator, Author

Caroline Duell
CEO
All Good

Brian A. Guadagno
Founder
Raw Elements USA

Elizabeth Reilly
Founder/President
Livable Hawaii Kai Hui

Wilkie McClaren
Safe Sunscreen Coalition

Lauren Blickley
Hawai'i Regional Manager
Surfrider Foundation

Rick Gaffney
President
Hawaii Fishing & Boating Association

Sue Aronson
Owner
Kona Coast Realty Corp.

Florin Nica
Owner
Hanauma Bay Snorkel Adventures

Kealoha Pisciotta
Founder
Kai Palaoa

Iris Kahaulelio
Aloha Surfing Ohana

Ryan Scalf and Christy Johnson
Co-Owners
Nudi Wear

Ray Hollowell
Founder
Sea Inspiration

Christine Zalewski, Ph.D.
Founder
Silver Spiral Seas, LLC

Matt Zimmerman
Owner
Island Divers Hawaii and Honolulu Scuba
Company

Jeannie Jewell
President
Destination Kona Coast

Scott Head
Vice President of Resort Operations
Waikoloa Beach Resort

Marcio Lira
Florin Mosanica
Co-Founders
Koko Beach Rentals

Marcio Lira
Owner
Kaimana Tours



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www.haereticus-lab.org
info@haereticus-lab.org

Aloha Hawaii Legislature,

This letter is testimony for our support of Senate Bill 366 and House Bill 102, amending Act 104.

The inclusion of avobenzene, and especially octocrylene, as amendments to 2018 Hawaii Act 104 is an important step in coral reef and marine conservation against the threat of localized plumes of sunscreen pollution. Hawaii's leadership in banning oxybenzone and octinoxate inspired the rest of the world to pass their own regulations, but also inspired millions of tourists to consider their impact to the places they love to visit.

Octocrylene is ubiquitous in coastal environments. Octocrylene is found in the fish we eat (Cunha et al. 2018), in shellfish that we consume (Picot-Groz et al. 2018), and has been found in coral reefs and marine environments all over the world, including Hawaii's (Tsui et al. 2017; Mitchelmore et al. 2019). Its environmental pollution stems from the fact that it is found in most of the sunscreen products and anti-aging creams throughout the world, and often at a concentration of 10% octocrylene per product.

The ecotoxicity of octocrylene has been known to be a threat to wildlife since 2014, when it was shown that fish exposed to octocrylene exhibited endocrine disruption action, as well as inducing developmental deformities in the brain and testes of larval fish (Blüthgen et al. 2014). Recently, the danger of octocrylene has been further discovered to cause reproductive tissue deformities in developing fish larvae (Zhang et al. 2016). Just this past year, scientists documented that environmentally relevant concentrations of octocrylene acted as estrogenic endocrine disruptors and caused reproductive toxicity in fish – essentially threatening the continuity of populations (Yan et al. 2020). What are the impacts of octocrylene pollution to Hawaii's reef fish?

The ecotoxicity of octocrylene to aquatic invertebrates is just as alarming. Octocrylene induced toxic metabolic effects in coral that could have implications in reducing their resiliency to climate change (Stien et al. 2019; Stien et al. 2020). Octocrylene causes an ecdysone endocrine disruption and an induction of the protein stress response (Ozaez et al. 2016; Muniz-Gonzalez & Martinez-Guitarte, 2018). Furthermore, studies indicate that octocrylene exhibited an ecological threat at environmental concentrations to marine organisms, such as algae, sea urchins, mussels, and an arthropod critical in marine food webs (Giraldo et al. 2017).

Please consider this legislation as an important conservation tool in the judicious and effective management to mitigate the toxic effects of sunscreen pollution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Craig A. Downs", with a long, sweeping flourish extending to the right.

Craig A. Downs, Ph.D.
Executive Director

References Cited:

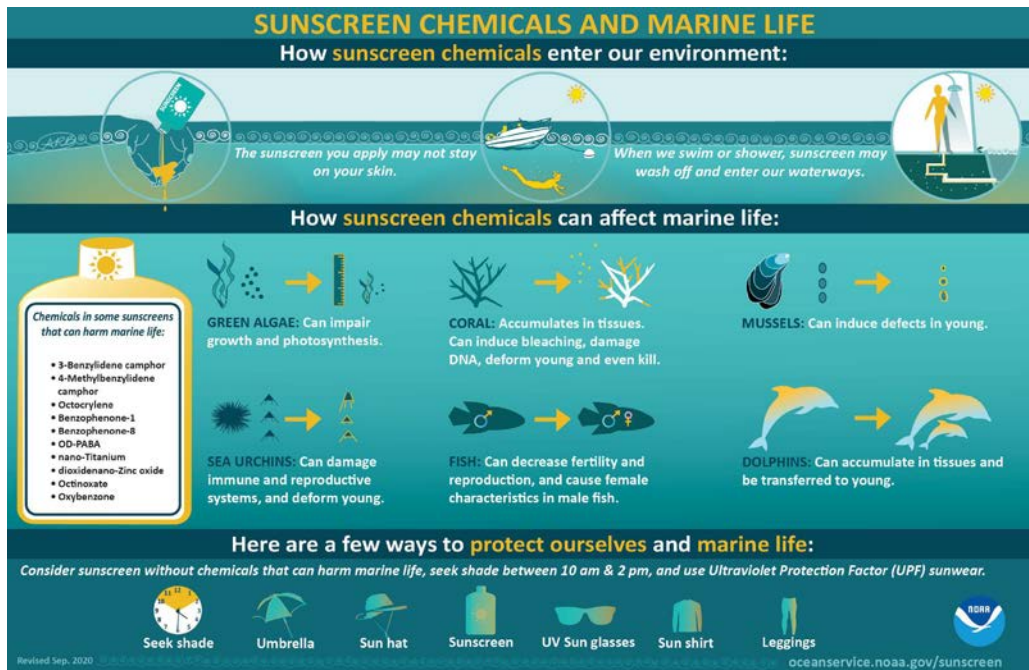
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February 8, 2021

Aloha Members of Hawaii State Legislature:

Napili Bay and Beach Foundation, Inc. supported the 2018 legislative efforts which resulted in the ban of sales of sunscreens containing octinoxate and oxybenzone in the new Hawaiian law. Likewise we are in support of Senate Bill 366 and House Bill 102, amending 2018 House Act 104 by including avobenzone, and especially octocrylene, as an important step in coral reef and marine conservation against the threat of localized plumes of sunscreen pollution.

We have recently become aware of increasing scientific evidence that traces of the chemical octocrylene found in many sunscreens can be found in aquatic environments. Multiple recent (2014 – 2020) studies have demonstrated various deleterious effects of octocrylene and octinoxate and their derivatives on marine life ranging from corals to fish. NOAA has recently updated their public information on sunscreen chemicals that harm the marine environment, and added octocrylene to the list of ingredients known to be harmful to marine life.



Respectfully ,

Pat B. Lindquist

We are a non-profit organization formed to protect and improve the health of Napili beach and bay.

Gregg Nelson, GM Napili Kai Resort & VP
 Nane Aluli, GM The Mauian, & Secretary
 Norm Runyan, GM Napili Shores Resort & Dir.
 Jamie Lung-Ke’o, GM Hale Napili Resort & Dir.
 Tano Taitano, GM Napili Surf Resort & Dir.

Hawaii State Legislature

February 6, 2020

Dear Committee Members,

I am writing in support of two bills, Senate Bill 366 and House Bill 102, that will soon be coming before you to ban the use of sunscreens containing avobenzone and octocrylene in Hawaii. In 2019 alone, about 10.5 million tourists visited Hawaii. Most visitors use sunscreens containing the above chemicals. I implore you to pass these bills for the long-term sustainability of Hawaii's marine environment and the tourism economy that relies on Hawaii's beautiful ecosystems.

Sunscreen chemicals cause damage to the marine life and environment at multiple levels. Many research studies have reported that these chemicals are toxic to fish, shellfish, coral and microplants (Tsui et al, 2014). Small fish depend on microplants for food. When the sunscreen chemicals destroy microplants, small fish are the first to go, followed by bigger fish. The loss of microplants can impact the entire food chain. Large fish and shellfish can store these chemicals to a very high concentration (Fent et al., 2010). In a study in Switzerland rivers, high levels of octocrylene were detected in brown trout (Poiger et al., 2004). In another study, high levels of octocrylene were detected in mussels (Bachelot et al. 2012). When people eat seafood with high levels of sunscreen chemicals, they are unwittingly exposed to the toxicity of these chemicals. Many of these chemicals penetrate coral cells and kill them by causing coral bleach. Fifty percent of the world's coral reefs have already died because of physical and chemical pollution. Coral reefs support 25% of all aquatic life in our oceans (Boyce et al, 2010). The loss of reefs would have direct impact on millions of people around the globe including all of Hawaii's residents. In addition to killing fish and corals, sunscreen chemicals can also change the water chemistry by destroying the chemical balance of sea water. Change in marine chemistry will have long-term implications on the whole marine ecosystem. US Food and Drug Administration (FDA) is seriously considering banning several chemicals in the sunscreens (Matta et al., 2020). Additional information on the toxicity of sunscreen compounds on the environment and human health can be found in the following research papers (Downs et al., 2016; Goikaas et al, 2007; Laffoley et al., 2019; Song, 2020).

From my experience as an environmental toxicologist with 24 years of research experience in drinking water, wastewater treatment, and environmental toxicology, I strongly support both Senate Bill 366 and House Bill 102. Banning sunscreens containing toxic chemicals such as oxybenzone and avobenzone in Hawaii is the right decision for the environment and for Hawaii's economic sustainability long term. It will protect Hawaii's marine life and protect people's health in Hawaii and the tourists who visit Hawaii to be able to enjoy the pristine beaches and oceans for generations to come.

Respectfully submitted,



Achal Garg, Ph.D.

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February 3, 2021

Re: Letter of support for ban of Octocrylene

To whom it may concern

I support legislative Senate Bill 366 and House Bill 102 that will help to mitigate pollution that threatens the conservation and restoration of coral reefs in Hawaii. There is increasing scientific evidence that traces of chemicals such as octocrylene originating in cosmetics and sunscreens can be found in aquatic environments with high swimmer pressure. In these studies various effects of these chemicals and their derivatives were reported to have deleterious affects on marine life including corals. Studies by our group further showed that the active ingredients found in these common sunscreens and cosmetics affect coral larval viability and is toxic to coral cells *in vitro*. We demonstrated that these chemicals can cause disruption of coral physiology and may even cause their death. It was found that these chemicals accumulate in coral tissues and causes dysfunction of the coral cells' mitochondria (Stein et al 2019, 2020). These effects occur at concentrations that are found in the environment. The information published in these papers is significant and should hopefully be taken into account by legislators in Hawaii. In light of these deleterious effects and the large number of swimmers in areas where corals are found, we call for the prevention of further harm to our marine life from this chemical. This is especially important in light of possible additive effects of these chemicals with additional pollutants and with the deleterious effect of climate change. We therefore call for a ban of this chemical and its derivatives in sunscreens used in Hawaii in order to maintain healthy reefs and marine environment in the wonderful Hawaiian Islands.

Sincerely

Dr Esti Kramarsky Winter
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Ben Gurion University
Beersheva Israel

325 Lysander Place,
Ottawa, ON K1K 3X8,
CANADA.
FEB 5, 2021.

To: Honourable Members, Senate and House of Representatives, 31st Legislature 2021, and Governor Inge, State of Hawaii.

Re: Soluble Organic UV filters and the Parallels between Human and Wildlife Toxicity. A Common Precautionary Approach for Humans and The Marine Eco-system.

The Government of Hawaii is considering extending the ban of *soluble* organic UV filters to include octocrylene and avobenzone in addition to oxybenzone and octinoxate, the filters restricted in 2018. We strongly support SB 366 and HB 102 as physicians who cherish the first dictum or the sacred trust in medicine - First Do No Harm. All four belong to the group of twelve *soluble* organic UV filters watchlisted by the US-FDA in February 2019 and classified as Category III or insufficient data to be designated Generally Regarded As Safe or Effective (GRASE). Only two *insoluble* inorganic UV filters were placed in Category I or classified as GRASE [1]. The FDA merely affirmed over two decades of peer-reviewed literature that these 12 *soluble* organic UV filters were bioavailable and were associated with diverse toxic effects in humans and wildlife [1]. More alarmingly, they do not appear to prevent skin cancer [1]. The FDA also re-confirmed 25 years of science that permeation (percutaneous absorption) through human skin leads to systemic bioavailability. The six *soluble* organic filters in the FDA Maximum use Studies Trial (MuST) were avobenzone, oxybenzone, octinoxate, homosalate, octocrylene and octisalate. All attained blood levels after only one application > the threshold for non-clinical toxicology testing [2].

Bioavailability

There appears to be a common pathway for toxicity to humans and the marine eco-system. It is established that human toxicity begins with permeation then bioavailability resulting in binding to various cell receptors, causing hormone disruption, DNA mutation, and damage to enzymes that methylate genes leading to the alarming consequence of epigenetic changes or transgenerational effects, in the progeny of exposed individuals. The pathogenetic pathway in humans – first permeation – then endocrine disruption, DNA mutation or genotoxicity – is also likely to occur in the marine environment, given the similar properties of human skin to coral epidermis and the external membranes of many marine organisms. Oxybenzone at relatively low concentrations degraded coral acting as a skeletal endocrine disruptor in planula of *Stylophora pistillata* [3]. *Coral has an epidermis similar to human skin but less complex, and an unintended consequence of human use of soluble organic UV filters may be the degradation of the marine habitat* [3,4].

A 1997 study warned about the human danger posed by cutaneous absorption of oxybenzone from sunscreens. Basic physiology instructs that any substance with a molecular weight (MW) < 500 Daltons applied to skin will enter human blood [5]. Bioavailability in humans is a fact established by many studies over 25 years. Only a few can be cited here in the interest of brevity. The CDC confirmed 96.8% of Americans had oxybenzone contamination from its pervasive use in sunscreens and cosmetics [6]. International studies proved bioavailability to the fetus and newborn - 85.2% of nursing mothers in the EU had at least one UV filter in breast milk [7], and another CDC study found oxybenzone in the urine (99%) and amniotic fluid (61%) of pregnant patients [8]. The lipophilic (fat soluble) nature of soluble organic UV filters ensure widespread contamination of humans literally bathing every cell in the human body and brain. They are found in blood, urine, amniotic fluid, placenta, fetal and cord blood, semen, ovarian follicular fluid, and adipose tissue [9].

A Benefit Risk Assessment of Sunscreens using Soluble organic UV Filters

Benefit Risk Assessment (BRA) is a compulsory precept in medicine, drug research, and a prudent practice for life in general. A “net risks test” or similar has never been applied to the use of sunscreens, now allowed to make therapeutic label claims in some regulatory jurisdictions. These label claims are largely based on the assumption that sunscreens could prevent sunburn and by extrapolation skin cancer and sun damage. They were never preceded by

the mandatory rigorous clinical research trials required for any medication making a serious claim like preventing skin cancer.

For over 60 years, applying sunscreen to UV exposed skin is promoted to prevent sunburn, skin cancer, and other effects of sun damage like photoaging and immune suppression. Most sunscreens deliver some degree of sunburn protection, largely by reducing the effects of UVB and UVA2 radiation, but there is little or no evidence in published literature that they prevent skin cancer to a significant degree. Prior to 2010 some studies suggested that sunscreens caused skin cancer, particularly melanoma [10-15]. These early studies detail the uncertainty that sunscreens actually prevent skin cancer, and more recently, the two most encyclopedic and exhaustive reviews DO NOT show that sunscreens prevent skin cancer to any useful degree [16,17]. Not surprising, as early sunscreens were designed to prevent sunburn, not skin cancer.

Early and current sunscreens use combinations of soluble organic UV filters providing UVB and UVA2 attenuation but with minimal or no UVA1 extinction, resulting in 10X more UVA than UVB passing through the sunscreen to reach the skin [18]. This asymmetric UV or UVB-BIASED protection over the past 6-7 decades parallels the global rise in skin cancer. Non-Melanoma Skin Cancer (NMSC) continues to rise in the USA and worldwide at an average annual rate of 1-2% [19,20]. The National Cancer Institute reports that melanoma rates in the United States tripled between 1975 and 2014 [21]. Skin cancer is now the most common cancer in the USA and in N. America, and accounts for more than 50% of all human cancers i.e. skin cancer cases outnumber all other cancers combined [19,21]. The rate of new melanoma cases among American adults has tripled from 7.9 per 100,000 people in 1975 to 25.2 per 100,000 in 2014 [21]. Melanoma is the leading cause of cancer death in women ages 25-30, the second leading cause of cancer death in women ages 30-35, and melanoma is the second most commonly diagnosed cancer age 15-29 [21]. From 1970 to 2009, the incidence of melanoma increased by 8-fold among young women and 4-fold among young men, and in the USA, one person dies of melanoma every 54 minutes, and an estimated 9,730 people will die of melanoma in 2017 [19,21]. The Global Burden of Disease Study (2015) reported that from 2005 to 2015 there was a 27.2% and 42.9% increase in the global death rate from melanoma and NMSC respectively [22].

The detailed review above explaining the global rise in all skin cancers is necessary to refute the misconception fostered by stakeholders that sunscreens using combinations of soluble UV filters actually prevent skin cancer. It establishes along with the studies cited [10-17] that there is no measurable BENEFIT from using these sunscreens. There is a logical and intellectual explanation for the parallel rise in global skin cancer provided by understanding the concept of UVB-BIASED protection [18]. If there is **NO BENEFIT** in using these petrochemical UV filters, any level of risk, however minimal becomes significant and arguably unacceptable, particularly for the most vulnerable to toxic effects – expectant or nursing mothers, young or adolescent children, and couples trying to conceive. Definitive fetal toxicity studies to identify mutagenic, and epigenetic effects, or to assess the NOAEL (No Observed Adverse Effect Level) in a fetus are either unethical or methodically impractical. It would require exposing women in pregnancy to chemicals thought to be harmful and could require observation and data collection involving their progeny for at least two generations. For sunscreens using petrochemical organic filters, the Benefit Risk Assessment (BRA) equation has only **risk to the fetus and the environment** (terrestrial and marine) and **no intended benefit**. This fact strongly resonates with the authors, one of whom was a former obstetrician.

The **first** precept in medicine 'first do no harm' (primum non nocere) - taken from the writings of Hippocrates), and the Precautionary Principle [23] are more stringent standards than 'not generally regarded as safe'. The Precautionary Principle is applied variably, but fundamentally asserts "that the burden of proof for potentially harmful actions by industry or government rests on the assurance of safety and that when there are threats of serious damage, scientific uncertainty must be resolved in favor of prevention". This approach supports the physician's **first rule** and is long overdue for soluble organic sunscreens

These **soluble** organic filters share functional properties along with their structural analogues that include human estrogen, pesticides like DDT (an organochlorine), organophosphate pesticides like malathion or diazinon, dioxin, and other hormone disruptors like BPA and phthalates. The risks to humans and wildlife have been well described for almost 3 decades [24,25]. In humans they represent **a primary exposure** to hormone disruptors in a first world modern society where sunscreen use is highest - now more likely than DDT, dioxin, BPA, and others.

Human Risks

The 12 watchlisted FDA Category III soluble organic filters are similar in chemical structure and are all potential or proven hormone disruptors, sharing these properties with BPA, DDT, and other persistent organophosphates. ***The human and wildlife effects are numerous and diverse, described by several hundred publications, too numerous to be referenced here.*** There is another instructive often forgotten first principle from basic endocrinology – ***isoform function*** – chemicals with the same structure will act at a cellular level in a similar manner, and bind to the same receptors [24]. Hence if oxybenzone exhibits endocrine disrupting properties, then all soluble organic UV filters are suspect, and the Precautionary Principle should be applied. This principle should also apply to the marine eco-system.

The peer-reviewed literature implicates oxybenzone, octinoxate, octocrylene, homosalate, and 4-methyl benzilidene camphor as hormone disruptors in humans and animal models, and suggest generally that reproductive organs and the central nervous system represent sensitive targets for developmental effects of endocrine active xenobiotics [24,26]. Contemporary studies document widespread effects in human and wildlife from soluble organic UV filters and their structural analogues like DDT, BPA, and other hormone disruptors. A review of 85 scientific papers in humans and lower species concluded that aromatic hydrocarbon UV filters are generally involved in the disruption of the hypothalamic–pituitary–gonadal system [26].

Oxybenzone, homosalate, avobenzone and 4-methyl benzilidene camphor (4-MBC, not used in the USA) show variable interaction with estrogen, androgen, and progesterone receptors using Reporter Gene Assays [27], and reports showed that octinoxate and 4-MBC had equal effects to 17 β -estradiol on gene induction, reproductive, and skeletal systems in mammalian, amphibian, and other animal models cells [28]. A change in a hormone level is arguably evidence of Hormone Disruption. In one of several recent studies in healthy premenopausal women, various phenols, including oxybenzone and parabens, changed the levels of key reproductive hormones - FSH (Follicle Stimulating Hormone), (LH) Luteinising Hormone, estradiol, and progesterone [29]. Contemporary reviews show the disruption of endocrine, reproductive, metabolic systems, leading to a variety of human disorders and cancers [29,30,31]. Some effects from fetal exposure are seen in newborns – spina bifida [32] and Hirschsprung's Disease [33,34], others in adolescents – delayed puberty [35,36], and others delayed until adult life – endometriosis [37,38] and infertility [39], usually serious and often irreversible.

Environmental/Wildlife/Marine Eco-System Risks

Soluble organic UV filters contaminate every link in the land-based aquifer leading to the oceans. Most of the twelve watchlisted by the FDA are found in Waste Water Treatment Plant (WWTP) influents and effluents, since most WWTP do not remove the traditional soluble aromatic hydrocarbon sunscreen filters [40]. As of 2015, thirty-three scientific publications confirmed these UV filters polluting not only WWTP inflow and outflow, but swimming pools, tap-water, urban groundwater, freshwater (rivers and lakes), estuaries, and seawater [41]. The ubiquitous contamination by soluble organic UV filters of the entire global environment from industrial, lifestyle, and recreational activities is supported by their presence in the open waters of the Pacific Ocean, the surface waters of China, Japan, the USA, Thailand, the Arctic [41], and every global coral reef system [42]. Fifteen studies confirmed significant concentrations of these filters in sediments from rivers and lakes, beach sand, soils and sludge [4].

The contamination of the entire global water supply is intimidating [4,41,42]. No other chemical, drug, pesticide or agent is apparently a contaminant on this scale. With the toxicity in wildlife and the eco-system these petrochemical UV filters have arguably become the world's number one POLLUTANT. Recent reviews confirmed significant concentrations of organic UV filters in sediments from rivers and lakes, beach sand, soils and sludge, ultimately reaching land-based and marine wildlife [4,41]. Reviews describe their biomagnification in mussels, corals, crabs, shrimps, prawns, squids, fish, dolphins, cormorants, and in unhatched eggs of bird's species, where the same effects of hormone disruption in marine species and aquatic biota are observed [4,43] as in humans [25]. Reports spanning a decade focused global attention on their effects on coral and ocean reefs [4,42,44]. Contamination of the marine food supply is a secondary source of human exposure. The hormone disrupting and other effects on marine species have also been consistent for 20 years [45,46,47,48,49].

A Solution based on a Precautionary Approach

The most persuasive argument for adopting a precautionary approach to UV filters and human/environmental safety – whatever the level of risk – is the mere possibility for congenital, teratogenic, hormone disruption, and carcinogenic effects in the exposed individual – human or wildlife - and the risk for transgenerational and multigenerational sequelae. Human safety may be *the pre-emptive consideration* when looking at the marine eco-system and sunscreens. The toxic petrochemical filters have a low MW < 500 Daltons that enable bioavailability leading to systemic toxicity. They are benzyl chemicals with properties to cause photocontact or irritant dermatitis. They are consistently in the top 30 contact allergens, although the prevalence is low.

The approach is simple – avoiding bioavailable UV filters eliminates any human risks and the unintended consequences to the environment and wildlife. Larger filters with MW > 500 Daltons are not bioavailable through intact human skin and are less likely to harm wildlife. Mineral oxides, new organic agents like bemotrizinol, bisoctrizole, and drometrizole trisiloxane meet this objective and satisfy the safety first concept of the Precautionary Principle. These insoluble filters provide the best UVA protection and have a better chance of preventing skin cancer and sun damage, since modern science now confirms that UVA is the primary driver of skin cancer [18]. The authors prefer 25% zinc oxide as a safe and effective sunscreen. It does not permeate human skin and even if it did zinc is a normal and important mineral in human physiology, as a co-factor in over 200 enzyme reactions. There is no evidence that zinc is accumulating in the marine environment and it is a small component in sea water. Industry and their consultants argue that banning the toxic UV filters will discourage sunscreen use, particularly in people of colour who disliked old goopy-white mineral sunscreens. Products with soluble UV filters have no benefit anyway, and contaminate our bodies and the world we live in. Modern zinc oxide sunscreens are no longer white or chalky on even dark skin. They are available in 25% zinc oxide dispersions that apply clear on any skin colour. Safe, esthetic, and effective. A former First Lady, Venus Williams (tennis icon), and others with coloured or dark skin now use transparent 25% zinc oxide sunscreens.

The worry that nanoparticles from mineral sunscreens are marine contaminants is overstated, since most modern mineral products with either zinc oxide or titanium dioxide particles are no longer nanoscale but are in the micron range. They are insoluble particles that mostly fall to the ocean floor and do not travel on surface ocean currents for thousands of miles like soluble petrochemical UV filters. Marine contamination from mineral sunscreens is a valid environmental concern requiring thoughtful investigation. At this time it is theoretical rather than empirical, as there is little or no present evidence that mineral oxide particles - nano or larger - from sunscreen use are accumulating in the ocean environment.

Eventually, the FDA and others will develop a regulatory framework from valid evidence of safety and efficacy. While it evolves, a good place to start would be with a WARNING Label on BIOAVAILABILITY and a CAUTION to pregnant or nursing mothers and the most vulnerable among us – young or adolescent children, and couples trying to conceive. This occurs for almost everything that is bioavailable to vulnerable groups, particularly the fetus, including low dose aspirin and many other OTC non-prescription items, such as vitamins, cigarettes, and alcohol. A Warning Label is justified based on the absolute proof of bioavailability, and allows the consumer to make their own informed choice.

Thoughtful and strategic future marine research on sunscreen ingredients and finished products may confirm that large insoluble UV filters, which avoid human permeation, bioavailability, and any systemic toxicity are also better for the entire environment. This research must transcend borders, financial and political interests, and involve a global team of multidisciplinary scientists. Meanwhile, a simple solution is to apply the Precautionary Principle to sunscreen use. Label warnings of permeation and bioavailability should convince expectant and nursing mothers, and prudent parents to avoid soluble filters. A ban on ineffective sunscreens that are toxic to humans and the environment is one simple measure, compared to other initiatives to protect the reefs. Wearing highly effective UV protective clothing outdoors, reduces the amount of sunscreen used on exposed skin and lowers the amount available to reach terrestrial and marine water. Applying a sunscreen using insoluble large MW UV filters in conjunction with UV protective clothing is very effective photoprotection for humans. Both measures will support reef and marine conservation. This precautionary approach for humans is in harmony with a precautionary measure for coral and all wildlife, land-based and marine. Banning these 4 soluble organic UV filters in Hawaii leads by example, but only a partial solution. As these four toxic petrochemicals are removed from your marine environment, the others in the group of twelve FDA Category III are still toxic to humans. Others like homosalate or ecamsule may

begin to emerge as environmental toxins with effects on marine life as they are used in greater relative frequency. Banning all 12 of the FDA Category III filters is best for the human condition, and will likely be better for the coral and remove these non biodegradable petrochemicals from your streams and ocean. A definite precautionary measure for the health of your citizens, your millions of visitors, and their progeny.

SUBMITTED BY

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February 7, 2021.

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-

Re: Letter of support

Feb. 4, 2021


To whom it may concern

I support legislative Senate Bill 366 and House Bill 102 that will help to mitigate pollution that threatens the conservation and restoration of coral reefs in Hawaii. There is increasing scientific evidence that traces of the chemical **octocrylene** found in many sunscreens can be found in aquatic environments. Studies demonstrated various deleterious effects of these chemicals and their derivatives on marine life ranging from corals to fish. In addition to that studies by a number of researchers further showed that the active ingredients found in some common sunscreens and cosmetics affect coral larval viability and is toxic to coral cells *in vitro*. These chemicals can cause disruption of coral physiology and may even cause their death. It was found that these chemicals accumulate in coral tissues and causes dysfunction of the coral cells' mitochondria (Stein et al 2019, 2020). It is important to note that these effects occur at concentrations that are found in the environment. The information published in these papers is significant and should hopefully be taken into account by legislators in Hawaii.

In light of these deleterious effects, we call for the prevention of further harm to our marine life from this chemical. This is especially important in light of possible additive effects of these chemicals with additional pollutants and climate change. I therefore call for a ban of this chemical and its derivatives in cosmetics used in Hawaii in order to maintain healthy reefs and marine environment in the Hawaiian Islands.

Thank you

Professor Ariel Kushmaro



Prof. Ariel Kushmaro
Head of Environmental Biotechnology Laboratory
The Department of Biotechnology Engineering
Ben-Gurion University of the Negev

*Prof. Ariel Kushmaro, John A. Ungar Chair in Biotechnology, Head of Environmental Biotechnology Lab,
Department of Biotechnology Engineering, The Ilse Katz Center for Meso and Nanoscale Science and
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<http://www.bgu.ac.il/~arielkus/Academic%20Staff.html>

Google scholar: <https://scholar.google.com/citations?user=E6U8wkAAAAAJ&hl=en>



Department of Biology
February 3, 2021

Hawaii State Legislature
Dear Members,

I write in support of two bills that will come before you (SB366/HB102) that ban the use of sunscreens containing oxybenzone and avobenzone. These sunscreens are found in all the world's coastal waters principally due to human application to prevent UV skin damage. However, it is also found in seafood and marine organisms that humans consume (oysters, fish, crabs, shrimp). The toxicity of these compounds has been shown to be alarming including being toxic to reef corals and fish. I support legislative Senate Bill 366 and House Bill 102 because it will mitigate pollution that threatens the conservation and restoration of coral reefs and the overall health of the oceans.

My 50 years as a coral reef ecologist put me in the witness box to the global collapse of coral reef ecosystems from human stress. Science is now demonstrating that decreased local stress improves resiliency to global stressors like thermal bleaching. The continued use of toxic chemicals is unnecessary and can only push reefs closer to the brink of extinction.

Sincerely,

Phillip Dustan PhD FLS
Professor of Biology



Re: Letter of support

Feb. 04, 2021

To whom it may concern

I would like to support legislative Senate Bill 366 and House Bill 102 that will help to mitigate chemical pollution that threatens the conservation of coral reefs in Hawaii.

I would like to stress that there is increasing scientific evidence that traces of the octocrylene, a chemical found in many sunscreens and personal care products can be found in aquatic environments at various concentrations. In these studies the effects of these chemicals and their derivatives have been reported to have deleterious effects on marine life including corals. This is based on a number of published studies showing that the active ingredients found in some common sunscreens and cosmetics affect coral health. These chemicals can cause disruption of coral physiology and may even cause their death. Recent studies showed that octocrylene accumulates in coral tissues and causes dysfunction of the coral cells' mitochondria. Indeed these effects occur at concentrations that are found in the environment. The information published in these papers is significant and should hopefully be taken into account by legislators in Hawaii

In light of these effects on corals we call for the prevention of further harm to the reefs of Hawaii by this chemical. This is important in light of possible additive effects of these chemicals with effects of climate change. We therefore call for a ban of this chemical and its derivatives in sunscreens used in the Hawaiian Islands.

A handwritten signature in black ink, appearing to read 'Y. Loya'.

Yossi Loya, PhD
Professor Emeritus of Marine Ecology
School of Zoology, Tel Aviv University
Tel Aviv, 69978 Israel



In The Name of God

Institute of Geophysics
University of Tehran

No.

Date

Date: For the 2021 Hawaii Legislative Season

To: The State of Hawaii Legislature, its Committees and Chairpersons, and Governor Ige

Re: Restriction of the Sale of Octocrylene & Avobenzone SPF products

DANGER of UV chemicals to climate change and its carbon footprint.

I am an environmental scientist and oceanographer at the Institute of Geophysics within the University of Tehran, Tehran, Iran. I am one of the foremost experts in my country that studies the impact of human activities on the marine environment.

To the point, I want to express my support for HB102 and SB366. These bills were written with the broad input of a number of independent scientists that strikes a wise and effective balance to diminish Oxybenzone/Octinoxate environmental pollution to coral reefs and other marine habitats, while NOT impacting tourism.

I am sure there will be a number of scientists worldwide who will provide scientific testimony to the toxicology and pollution of these two dangerous chemical that impacts all matter of marine life, but also the integrity of human health.

Carbon footprint - I would like to point out something that my other scientific colleagues may not. The CARBON FOOTPRINT of hydrocarbon-based sunscreens is considerable. If Hawaii DLNR is correct, that over 55 gallons of sunscreen pollutes the coast line of Maui per day, then we can calculate that the input of octocrylene alone is contributing to 4,444lbs (2.02 metric tons) of CO₂ per year. If you include avobenzone into the calculation, that is almost 1.5 metric tons of CO₂ per year. For Hanauma Bay, assuming that 6,025 pounds of octocrylene pollutes the bay per year, that is equivalent to more than 8.5 metric tons of CO₂ per year.

Sunscreen pollution is not just the direct toxic impact it has to nearshore and mesophotic reef habitats, and migrating cetaceans. The use of these chemicals in Hawaii has a direct contribution of the CO₂ load to atmospheric and oceanic condition. The State of Hawaii government has made a promise to recognize and mitigate the overall size of their carbon footprint. Sunscreen pollution and its impact to climate change is an issue that Hawaii can show leadership and responsibility.

Your efforts in legislative conservation have been noted around the world, and we applaud your effort and leadership.

Respectfully submitted,

S. Abbas Haghshenas, PhD

Assistant Professor in Physical Oceanography

Institute of Geophysics -University of Tehran

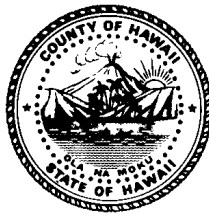
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REBECCA VILLEGAS
Council Member
District 7, Central Kona



PHONE: (808) 323-4267
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EMAIL: Rebecca.villegas@hawaiicounty.gov

HAWAI'I COUNTY COUNCIL

*West Hawai'i Civic Center, Bldg. A
74-5044 Ane Keohokalole Hwy.
Kailua-Kona, Hawai'i 96740*

February 10, 2021

TESTIMONY OF REBECCA VILLEGAS
COUNCIL MEMBER, HAWAI'I COUNTY COUNCIL
ON HB102, RELATING TO SUNSCREEN SALE AND DISTRIBUTION
Committee on Energy & Environmental Protection
Committee on Water & Land
Thursday, February 11, 2021
9:00 a.m.
Conference Room 325 Via Videoconference

Aloha Chair Lowen, Chair Inouye, and Members of the Committees:

I thank you for the opportunity to testify in support of HB102 which will ban the sale, offer to sale, and distribution in the State of any sunscreen that contains avobenzone or octocrylene, or both, without a prescription. My testimony is submitted in my individual capacity as a member of the Hawai'i County Council and Chair of the Climate Resilience and Natural Resource Management Committee.

The purpose of this measure is to prohibit the sale and distribution of sunscreen containing dangerous chemicals within the State and assist the Department of Health to prevent the sale of additional chemicals through its administrative rulemaking process.

A number of sunscreens have recently demonstrated to pose intolerable toxicological threats such as; environmental contamination in coastal waters, harmful impacts on Hawai'i's marine environment, coral reefs and other residing ecosystems, increases the risk of breast cancer, birth defects, development disorders in children and other issues. Our local dive and snorkel companies have been documenting and educating their clients about the heartbreaking amount of coral bleaching we have along our coastline, in some of the most pristine waters on Earth.

The State, in the interest to preserve our marine ecosystem has banned sunscreen that contain oxybenzone or octinoxate through the enactment of Act 105, session laws of Hawai'i 2018. Additional action must be taken to prevent any potential harmful impacts of sunscreens containing ingredients these other ingredients that are harmful to the environment and public health. Allowing the Department of Health to prevent the sale of additional chemicals through its rulemaking process can ensure future protections.

For the reasons stated above I urge the Committee on Energy & Environmental Protection and the Committee on Water & Land to support this measure as well. Should you have any questions, please feel free to contact me at (808) 323-4267.

Mahalo for your consideration.

A handwritten signature in black ink, appearing to read 'Rebecca Villegas', with a stylized flourish at the end.

Rebecca Villegas
Council Member, Hawai'i County Council

HB-102

Submitted on: 2/10/2021 10:19:29 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Erin Elizabeth	ONE LOVE BODY SOUL LLC	Support	No

Comments:

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzone is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, after numerous studies, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (“chemical”) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzone are safe for human use.

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

HB-102

Submitted on: 2/10/2021 10:42:43 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Severine Busquet	Individual	Support	No

Comments:

Aloha,

Coral reefs are already being severely harmed by ocean waters that are warming and becoming more acidic as a result of greenhouse gas emissions worldwide. Coral reefs are also being harmed in Hawaii by sediment and nutrient runoff from the land, by overfishing, especially of herbivores, and sunscreen chemicals.

I strongly support HB102 to ban on sale or distribution of sunscreens containing octocrylene and avobenzone to protect the State's marine ecosystems.

It has been argued that banning sunscreens containing certain chemicals like avobenzone and octocrylene from the market would lead to additional skin cancers, because people therefore won't use any sunscreen. This false argument ignores the fact that there are ample safer alternatives available on the market containing active ingredient minerals zinc oxide or titanium dioxide. It also ignores what the World Health Organization has called "sunscreen abuse." Petrochemical sunscreens are often not applied sufficiently or frequently enough, and wash off in water, and so may actually give people a false sense of security that causes them to spend longer time in the sun and have MORE skin cancers.

The best course is to avoid the mid-day sun, but if you will be in the sun, wear a protective hat and clothing and sunscreens with zinc oxide or titanium dioxide. This is a much better course than using a petrochemical sunscreen that washes off in water and kills corals and other marine life, gets into your bloodstream, and may disrupt your hormones, potentially causing more cancers.

For these reasons, I strongly support HB102.

Thanks for your attention

Severine Busquet

Hawaii Kai

HB-102

Submitted on: 2/10/2021 10:37:32 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Wil McClaren	Individual	Support	No

Comments:

Avobenzone and octocrylene should have been included on the original sunscreen bill and now that all the pertinent studies have been published there is absolutely no reason for them to be omitted. These are just as dangerous as oxybenzone and octinoxate for the health of people, corals and marine life.

We have chemical sunscreens labelled as "reef safe" filled with these dangerous ingredients - which fool tourists and locals into using them thinking they are using a product that is safe for them and the environment.

Protecting our reefs is vital for Hawaii in terms of coastal erosion and our sustainability. If Hawaii is serious about protecting its coral reefs and marine life we need a law that includes all of these organic (chemical) uv blockers.

Non-nano zinc oxide is the most efficient broad spectrum protection with a multitude of safe formulations to choose from so it's simply no longer an issue that we have no options. Non-nano mineral sunscreens should be the only option in a place trying to protect their freshwater and marine ecosystems.

We urge your support for HB102!

mahalo!

HB-102

Submitted on: 2/10/2021 10:49:35 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Alisa Yee	Individual	Support	No

Comments:

Aloha,

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzone is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, after numerous studies, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (“chemical”) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzone are safe for human use.

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

The evidence of mass death of the coral reefs in most of the coastal areas around the Hawaiian islands attributed, in part, to the toxic chemicals in sunscreens and the impact this has on the fishing industry, tourist industry, and potentially on our future generations should be reason enough to ban these products from entering Hawaii.

We urge your support for HB102!

Thank you,

Alisa Yee (Kaneohe resident)

HB-102

Submitted on: 2/10/2021 12:32:42 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Patricia Williford	Individual	Support	No

Comments:

The passing of the HB102 bill is essential in protecting Hawaii's ecosystem, marine life, and residents. Science has provided ample evidence that chemicals found in most sunscreens such as avobenzone and octocrylene have detrimental impacts on Hawaii marine life. One example is coral reefs which provide critical habitat for near shore marine life and natural protection against coastal erosion, but face significant threats and damage from these chemicals. To ensure coral reefs and marine life can survive and thrive for future generations, we must eliminate these chemical threats. In addition, scientific studies have shown these chemicals affect humans in that they can cause endocrine disruption, cancer, and reproductive toxicity. With the growing threat of the climate crisis, the immediate passing of the HB102 is necessary for the protection of Hawaii's environment, marine life, and residents.

HB-102

Submitted on: 2/10/2021 1:34:19 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kyra Robinson	Individual	Support	No

Comments:

Please sign bill HB102 to protect vital natural marine resources and communities.
Mahalo, Kyra.

HB-102

Submitted on: 2/10/2021 3:38:48 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Andrea Eller	Individual	Support	No

Comments:

Science has provided ample evidence that long term exposure to these chemicals found in sunscreen are harmful for marine life, corals, marine mammals etc. The FDA does not have enough evidence that these chemicals are even safe for humans. Coral reefs are fundamental to our planets sustainability. We have to do what we can to protect them and in turn protect ourselves. Please support HB102.

HB-102

Submitted on: 2/10/2021 4:08:51 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Patricia Trimble	Suntegrity	Support	No

Comments:

Science has provided ample evidence that long-term exposure to avobenzene and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzene is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, after numerous studies, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (“chemical”) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzene are safe for human use.

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

We urge your support for HB102!



**TESTIMONY OF TINA YAMAKI, PRESIDENT
RETAIL MERCHANTS OF HAWAII
February 11, 2021
Re: HB 102 Relating to Sunscreen**

Good morning Chairperson Lowen, Chairperson Tarnas and members of the House Committee on Energy & Environmental Protection and the House Committee on Water and Land. I am Tina Yamaki, President of the Retail Merchants of Hawaii and I appreciate this opportunity to testify.

The Retail Merchants of Hawaii was founded in 1901, RMH is a statewide, not for profit trade organization committed to the growth and development of the retail industry in Hawaii. Our membership includes small mom & pop stores, large box stores, resellers, luxury retail, department stores, shopping malls, local, national, and international retailers, chains, and everyone in between.

We are opposed to HB 102 Relating to Sunscreen. This measure beginning January 1, 2023, bans the sale, offer of sale, or distribution in the State of any sunscreen that contains avobenzone or octocrylene, or both, without a prescription issued by a licensed healthcare provider to preserve marine ecosystems.

Hawaii is known for its many sunny days and **many residents and visitors who uses sunscreen include little leaguers, hikers, golfers, soccer and baseball players, and joggers to name a few.** With the pandemic we are seeking more people and families enjoying outdoor sports biking, playing outside, and going to the park.

Many of us wear sunscreen daily to protect ourselves from the effects of the sun like skin cancer - the most common form of cancer. Every year there are more cases of skin cancer in the United States than incidences of breast cancer, prostate cancer, lung cancer, and colon cancer combined. One out of five Americans will develop skin cancer in their lifetime, and one person dies of melanoma (the deadliest form of skin cancer) every hour. The vast majority of melanomas are caused by the sun, and **a person's risk of melanoma doubles if he or she has had more than five sunburns.**

This measure is too premature to ban ingredients. Sunscreen products should be affordable and accessible first line of defense for individuals seeking protection from the sun's cancer-causing UV rays. Banning the sale of these products will drastically reduce the selection of sunscreen products available in Hawaii as well as compel local residents to purchase products online or not use sunscreen at all and our visitors to bring their own in their suitcases. How many will actually take time off from work, pay a co-payment to see a doctor and then wait in the pharmacy to get a prescription for suntan lotion? Not to mention having to pay for the sunscreen because insurance may not cover it.

We may also run the risk of people no longer wearing sunscreen and thus increasing their chances of skin cancer. This ban would also penalize those who do not go to the beach but use sunscreen on a regular basis like hikers, golfers, tennis players and joggers to name a few. Most people will not take time off from their work to have to pay for a visit to the doctors and then must pay for an expensive prescription for sunscreen that may not be covered under their healthcare.

For these reasons, we respectfully urge you to hold this bill.

Mahalo again for this opportunity to testify.

HB-102

Submitted on: 2/10/2021 8:30:07 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Constance Arthur	Individual	Support	No

Comments:

I absolutely support this bill - it is CRUCIAL to Hawaii's continued sea life systems.

Thank you for considering this - we need it for our land.

Constance Arthur

HB-102

Submitted on: 2/10/2021 8:45:25 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Chris Reed	Individual	Support	No

Comments:

Keeping our coral reefs safe is just another step in healing our island

Mahalo

HB-102

Submitted on: 2/10/2021 10:42:17 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ashley Bowman	Zero Waste Hale	Support	No

Comments:

Science has provided ample evidence that long-term exposure to avobenzene and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzene is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, after numerous studies, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (“chemical”) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzene are safe for human use.

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

HB-102

Submitted on: 2/10/2021 11:45:00 PM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Karen J Comcowich	Individual	Support	No

Comments:

Please support HB102 banning the sale of sunscreen containing ingredients that harm the reef. During Covid-19 residents had the pleasure of seeing the ocean clear of the oily slick of sunscreen from the surface. It was beautiful to see the ocean look healthier than it has in years. Then in January 2021 the two most harmful chemicals were phased out. But it is confusing to visitors who feel like they are doing well and then are told the reef friendly sunscreen they just bought is actually harming the reef. Be kind to the reef and visitors and vote yes on this bill, take away the chemicals and the confusion.



STREAM2SEA®
—EcoConscious • Biodegradable—

RE: SB102

Thursday, February 11, 2021

Dear Council Members,

I am writing in strong support for Bill SB102 the sale or distribution of any sunscreen that contains avobenzene or octocrylene. These ingredients have been proven to harm our reefs AND our bodies.

I am the founder and formulator of Stream2Sea, an environmentally friendly product line formulated without using avobenzene, octocrylene, oxybenzone, octinoxate or any other ingredients known or suspected to harm the coral reef environment. A cosmetic chemist with more than 20 years experience formulating natural products, and as a scuba instructor, I created Stream2Sea because I knew we could create effective, consumer friendly products while not harming our precious underwater resources. We use only non-nano titanium dioxide as our active ingredient in our sunscreens. Our formulas have been independently tested by FDA validated labs to meet or exceed FDA standards for SPF, broad spectrum and water resistance claims. Our products are both effective and cost comparative with other performance-based sport sunscreens, without the potential negative environmental effects. Consumers are actively looking for eco-friendly and ocean safe non-nano mineral based sunscreens like those offered by Stream2Sea.

Before bringing Stream2Sea to the market, I contracted with Eckerd College to perform various toxicity trials from *C.Elegans* and fish to **coral larvae**. We currently offer the ONLY mineral based sunscreen proven to readily biodegrade in fresh water and saltwater, and are non toxic to various species tested, including coral *Porites astreoides* larvae.

There are many UV absorbers that can be effectively used to protect our skin, without the detrimental effects shown with avobenzene, octocrylene, oxybenzone and octinoxate. There are enough human and environmental studies showing these ingredients are not safe for continued use. Again, I fully support your efforts. If I can be of any assistance, please do not hesitate to contact me.

Consciously,

Autumn P Blum
Formulator & CEO
Stream2Sea, LLC
autumn@stream2sea.com

HB-102

Submitted on: 2/11/2021 6:16:27 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Vicki N. Goldstein	Inland Ocean Coalition	Support	No

Comments:

Dear Representatives,

Science has provided ample evidence that long-term exposure to avobenzone and octocrylene commonly found in sunscreens (including sunscreens labelled as “reef safe”) have been found to have detrimental impact on the life-cycles of Hawaii marine life including corals, algae, fish, shellfish, sea urchins and marine mammals.

Avobenzone is the leading active ingredient in chemical sunscreens and can cause endocrine disruption. Octocrylene is quickly metabolized into a mutagen called benzophenone which is included in California’s Prop 65 list of chemicals known to cause cancer or reproductive toxicity. Both are dangerous to the health of people, corals, marine life.

In Feb 2019, after numerous studies, the U.S. FDA declared it does not have sufficient scientific evidence that any organic (“chemical”) UV filters in sunscreens including oxybenzone, octinoxate, octocrylene, avobenzone are safe for human use.

Coral reefs are intrinsic to Hawaiian culture and fundamental to our sustainability. They provide critical habitat for near shore marine life and natural protection against coastal erosion. It’s vital we eliminate as many existential threats to our marine ecosystems as possible, including these toxic chemicals, to ensure our reefs can survive and thrive for future generations.

We urge your support on HB 102.

Warm regards,

Vicki N. Goldstein

Director, Inland Ocean Coalition

HB-102

Submitted on: 2/11/2021 7:26:25 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Michael McGuire	Individual	Oppose	No

Comments:

We support to ban the sale of sunscreens in Hawaii containing two additional chemicals, avobenzone and octocrylene, that research has shown are harmful to coral reefs and other aquatic life. These bills, if passed, would strengthen the bill passed in 2018 and now in effect for banning the sale and distribution of sunscreens containing oxybenzone and octinoxate.



February 11, 2021

RE: In Support of Senate Bill 366 and House Bill 102 - Amending Act 104

TO: Hawai'i Legislature

We are the [Safe Sunscreen Council](#), a coalition of companies working to raise public awareness about the impact sunscreen ingredients may have on people and planet. As such, we believe it is our responsibility to offer alternatives to harmful ingredients and we would like to show our **support of Senate Bill 366 and House Bill 102, amending Act 104.**

We request that the State of Hawai'i continue its global leadership role in protecting coral ecosystems by amending Act 104 to include two other toxic ingredients: Octocrylene and Avobenzone.

Emerging [scientific studies](#) indicate that ingredients found in many chemical sunscreens may cause damage to coral reefs and oceanic ecosystems. We know that these chemical sunscreen pollutants impact not just coral larvae and recruitment, but they also impact other important species such as algae, sea urchins, mussels, and an arthropod critical in marine food webs.

There are better ways - safer ways - to protect from UV rays without putting the health of our oceans at risk. Safer ingredients, like the ones found in mineral sunscreens made by members of the Safe Sunscreen Council and many other companies, all comply with U.S. Food & Drug Administration's regulations on SPF values and UV protection and are cost-competitive to products made with harmful chemical ingredients.

Please consider this legislation as a way to combat aquatic contamination within the State of Hawai'i and beyond. Thank you for your consideration.

With Gratitude,

Caroline Duell, Spokesperson & Members of the
Safe Sunscreen Council



HB-102

Submitted on: 2/11/2021 8:57:25 AM

Testimony for EEP on 2/11/2021 10:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jeff Bagshaw	Individual	Support	No

Comments:

I am in support of HB 102, banning the sale of any sun-care product containing the tradename compounds Avobenzone/Avobenzene and Octocrylene, for the health of our coral reefs, the safety of our food supplies, and for our own health.

Avobenzene is the heir-apparent to Oxybenzone. Avobenzene, like its earlier ancestor Oxybenzone, was created in laboratories using benzene rings – the byproducts of the distillation of gasoline from petroleum, they make a highly flammable, colorless gas with a sweet smell. Benzenes have been used in chemical solvents, in rubber cement, paint strippers and as de-greasers: many have been banned because they are toxic/dangerous to inhale. In 1948, the American Petroleum Institute (API) stated that “it is generally considered that the only absolutely safe concentration for benzene is zero.” The US Department of Health and Human Services (DHHS) classifies benzene as a human carcinogen.

Avobenzene as well as Oxybenzone appear in human urine as early as 20 minutes after application on the skin – meaning the compounds (containing benzenes) have traveled through your skin, bloodstream and have been processed by your thyroid gland, liver and kidneys. These compounds can be detected in your blood for weeks after one application. Avobenzene is usually combined with stabilizers like Octocrylene, Octosalate and Homosalate – which accumulate in the body and disrupts production of hormones such as estrogen, androgen and progesterone. These products work in two ways: first, they re-program your endocrine system to trick your skin to not “burn.” You are still receiving the same amount of UVA/UVB rays, but your body is not reacting. Sunburns do not cause skin cancer, they are symptom of too much sunlight exposure – the actual cause of skin cancer. When absorbed by tissues (whether human skin or coral tissues cells) and when activated by sunlight’s UVA and UVB rays, they release heat. They dissipate that energy to keep you from burning, and this is why you must reapply every 20 minutes – the compounds break down and more must be applied to continue the chemical reactions taking place within your own skin.

They do not keep UVA or UVB rays from reaching your skin; they do not “screen” sunlight out. Dermatologists agree the only effective topical products are those that physically block the sun’s rays from reaching your skin, in the form of naturally occurring minerals such as zinc or titanium oxides. It is well documented that there has been an increase in skin cancer since the introduction of these compounds, not the reverse.

There may be many causes, but these products do not save lives, and the mineral sun-blocks, or even clothing, used for generations prior still work today. There is no logical argument to support that the sale of these highly profitable, patented compounds prevents skin cancer. There are alternatives which are safe for both people and the environment. People have survived for eons without these benzene-compounds, we'll do just fine with clothing or mineral sun-blocks. products react the same ways in coral tissues as they do in human tissues – by breaking down and releasing heat in sunlight, they raise the temperature of corals by as much as ten degrees. In a time when our irreplaceable reefs are under siege from climate change in form of stronger surf and warmer seas, our reefs which drive not only our visitor industry (HVB reports that over 70% of visitors participate in some form of marine wildlife watching), but which also supply our people with fish, limu, crabs, urchins, and more – all these resources deserve protection, we cannot continue to dump petroleum distillates, one swimmer at a time, into our oceans. Avobenzone and its cousins can persist in the environment at least 90 days – it all adds up.

Please examine the facts, the chemistry. These products were created for profit, not protection.