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HAWAII



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STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

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Testimony of  
SUZANNE D. CASE  
Chairperson

Before the House Committee on  
OCEAN, MARINE RESOURCES, & HAWAIIAN AFFAIRS

Wednesday, February 17, 2016  
9:00 AM  
State Capitol, Conference Room 325

In consideration of  
HOUSE BILL 2020  
RELATING TO THE CAUSES OF DECLINE IN LIMU AND REEF FISH

House Bill 2020 proposes to appropriate general funds for the Department of Land and Natural Resources (Department) to conduct and contract for studies to identify the causes of decline in limu and reef fish along the Ewa coast. **The Department supports this measure provided that this appropriation does not adversely impact appropriations for other priorities in the Executive Supplemental Budget request.**

As outlined in its report to the Legislature, submitted in November 2015 in response to House Concurrent Resolution 119, Senate Draft 1, the Department believes that a combination of factors may be responsible for the decline in limu and reef fish along the Ewa coast. These potential factors include overharvesting, the decrease in groundwater recharge due to the closure of Oahu Sugar Company, the change in land use along the Ewa plain, and a prolonged drought which has led to a reduction in surface and ground water flows and less nutrients going into the ocean. Further research will be helpful in determining what factors have the greatest impact to the marine resources along the Ewa coast.

The Department wishes to acknowledge that we do not have water chemistry or other historical data to explain why limu and reef fish were more abundant in the past. Such baseline data is necessary to compare past and current conditions. However, research supported by this measure will assist in analyzing current conditions in which may have an impact on these marine resources.

Thank you for your consideration of this testimony.

**Report to the Twenty-Eighth Legislature  
Regular Session of 2016**

**RECOMMENDATIONS TO STOP THE DECLINE AND REPLENISH THE SUPPLY  
OF LIMU AND REEF FISH IN CERTAIN AREAS OF THE EWA COAST OF OAHU**



**Prepared by  
Department of Land and Natural Resources  
State of Hawaii**

**In response to  
House Concurrent Resolution 119, Senate Draft 1  
Regular Session of 2015**

**November 2015**

# **RECOMMENDATIONS TO STOP THE DECLINE AND REPLENISH THE SUPPLY OF LIMU AND REEF FISH IN CERTAIN AREAS OF THE EWA COAST OF OAHU**

## **PURPOSE**

House Concurrent Resolution (HCR) 119, Senate Draft (SD) 1, adopted during the Regular Session of 2015, requested the Department of Land and Natural Resources (Department) to provide a report of its recommendations on what actions are needed to stop the decline in and replenish the supply of limu and reef fish from the easternmost point of Pu'uloa to Barber's Point, Oahu.

## **BACKGROUND**

The Department notes that the Ewa area used to be the most productive limu grounds in the State but no longer produces limu in such amounts. The Department suspects that a reduction in the high productivity of the grounds may have been due to a loss of nutrients.

Given the limited data, it would be very difficult to scientifically prove why limu no longer grows in such abundance. The Department would have had to determine the causes for why limu was so abundant when it was abundant under past conditions, then compare those past conditions to current conditions to quantify the differences and understand the problem better. Because the Department does not have past baseline ocean nutrient information in the area, the Department had nothing to which the Department can compare current conditions.

What was causing the decline in limu and reef fish in certain areas of the Ewa coast of Oahu may have been due to several factors:

- Changes in land use along the Ewa coast with the cessation of intensive agriculture by Oahu Sugar being replaced by urban development;
- Land use changes would also change the amount and types of nutrients in the surface and groundwater runoff in the Ewa coastal area;
- Re-routing and re-alignment of outfall from wastewater treatment plants (WWTP), including the Honouliuli WWTP wastewater being re-routed to Pearl Harbor and the Pearl Harbor WWTP wastewater being re-aligned into deeper waters of the coast; and
- Prolonged drought has likely contributed to the reduction in surface and ground water flow to the ocean.
- Invasive species competition for nutrients and habitat.
- Disease impacting native species.
- Continued harvesting at rates no longer sustainable.

## **RECOMMENDATIONS**

Without the availability of baseline data to compare the impacts of land use changes and nutrient changes, it would be difficult to determine the causes of decline in limu and reef fish in the Ewa

coast areas. However, studies can be proposed to look at other possible causes of the decline in limu and reef fish in the Ewa area.

Objectives and Estimated Time Frame:

- Contract a study (multi-year (3 years)) to survey, inventory, and monitor the macro-algae community along the Ewa coast line. Study the nutrient requirements for the desired native macro-algae species and look at any invasive algae species (*Avranvilla amadelphia*) which are present that may out compete native algal species for nutrients or space. (\$600k total budget).
- Research, review and analyze previous hydrological studies in the Ewa coastline area to determine what is already known and if additional hydrological studies are needed to identify causes for the decline of limu and reef fish. (1 year, \$100k total budget).
  - The study should include, but not be limited to:
    - Determine if groundwater flows have changed;
    - Determine if there was a nutrient change;
    - Determine if the groundwater and nutrient levels are connected; and
    - Determine if nutrient levels are the reason that limu and reef fish have declined.
- Conduct a study to review and analyze the decline in commercial limu and reef fish landings in the Ewa area. (1 year).

**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Monday, February 15, 2016 11:10 PM  
**To:** omhtestimony  
**Cc:** hawaiifishingfanatic@gmail.com  
**Subject:** \*Submitted testimony for HB2020 on Feb 17, 2016 09:00AM\*

**HB2020**

Submitted on: 2/15/2016

Testimony for OMH on Feb 17, 2016 09:00AM in Conference Room 325

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Don Aweau	Individual	Support	No

Comments:

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**Sent:** Saturday, February 13, 2016 10:42 PM  
**To:** omhtestimony  
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**Subject:** Submitted testimony for HB2020 on Feb 17, 2016 09:00AM

**HB2020**

Submitted on: 2/13/2016

Testimony for OMH on Feb 17, 2016 09:00AM in Conference Room 325

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Carl M Jellings Sr	Individual	Support	No

Comments: Strong Support

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TESTIMONY IN SUPPORT OF  
HB2020, Relating to the Causes of Decline in Limu and Reef Fish  
Committee on Ocean, Marine Resources, and Hawaiian Affairs  
Wednesday, February 17, 9:00 a.m., room 325

Representative Kaniela Ing, Chair  
Representative Nicole Lowen, Vice Chair  
Members of the Committee on Ocean, Marine Resources, and Hawaiian Affairs

Aloha!

I wish to strongly urge passage of HB2020, Relating to the Causes of Decline in Limu and Reef Fish and that would appropriate general funds for the Department of Land and Natural Resources to conduct and contract for studies to identify the causes of decline in limu and reef fish along the Ewa coast.

Last year, I provided testimony on HCR 119, Requesting a Study of Limu and Reef Fish Decline in Certain Areas of the 'Ewa Coast of O'ahu, but apparently, DLNR was unable to do due to lack of funding. **It's time sensitive and essential to do this study in order to determine solutions to save what little now remains of a once abundant limu and reef fish resource.** DLNR's earlier guess was the lack of nutrients, thus, to assure expeditious solutions are found, recommend that the bill require coordination with the University of Hawaii and cultural practitioners, especially in areas where limu is still prevalent.

In July 2014, the then Governor, Mayors and legislators proudly launched the Aloha+Challenge, a series of targets for the state to reach in various sectors of sustainability, renewable energy and natural resource management. Two benchmarks are worth mentioning: Local food: Double local food production with a goal of 20 to 30 percent of food consumer being grown locally; and Natural resource management: Increase watershed protection, community-based marine management, invasive species prevention and control, and restoration of native species.

**This bill walks the talk of the Aloha+Challenge. Mahalo to the introducers of this bill. Please pass it to enable DLNR to do the studies necessary to be proactive in protecting and enhancing this food source.....important to the diet of Native Hawaiians and others who live in Hawai'i.**

**Me kealoha**

**/s/ by e-mail**

**LEIMOMI KHAN**





**From:** mailinglist@capitol.hawaii.gov  
**Sent:** Tuesday, February 16, 2016 12:42 PM  
**To:** omhtestimony  
**Cc:** rkailianu57@gmail.com  
**Subject:** \*Submitted testimony for HB2020 on Feb 17, 2016 09:00AM\*

**HB2020**

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Testimony for OMH on Feb 17, 2016 09:00AM in Conference Room 325

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Rachel L. Kailianu	Ho`omana Pono, LLC	Support	Yes

Comments:

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