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Wai Halana

Hawaii Flood News

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION



Act 70 Keeps Hawaii Eligible in the NFIP

Last April, the Federal Emergency Management Agency (FEMA) informed Governor David Ige that a law which was enacted in 2012 (Act 114) and amended in 2013 (Act 203) placed the State of Hawaii and all four counties in jeopardy of being suspended from the National Flood Insurance Program (NFIP).

Hawaii Revised Statute (HRS) §46-88 allowed agricultural structures and related appurtenances from having to obtain a building permit. Unfortunately, the well intended legislation, prevented the State and county from executing their agreement with FEMA to regulate development in Special Flood Hazard Areas (SFHA). Suspension would have resulted

in the loss of federally-backed flood insurance and some forms of disaster assistance for the State of Hawaii.

There were three key areas of Act 203 (2013) that were identified in FEMA's April 15th 2016 letter as being inconsistent with NFIP regulations, specifically Title 44 of the Code of Federal Regulations (CFR) § 59.1, § 60.3 (a)(1) and § 60.3 (b)(1) and thereby prohibited the counties from legally enforcing their floodplain management ordinances. During the 2017 legislative session, the Department of Land and Natural Resources (DLNR), as the state coordinating agency for the NFIP, worked with many industry stakeholders to develop revised language that amends HRS §46-88 to meet FEMA's eligibility requirements for participation in the NFIP. FEMA Region IX Mitigation Division Director Jeff Lusk, J.P. Henderson Regional Counsel, and Sarah Owen NFIP Compliance Specialist were instrumental in working with the State and providing technical assistance during the amendment process.

On January 25, 2017, a similar version of the Administration's legislative proposals (HB1122/SB988), was sponsored and introduced by State Representative Ryan Yamane and was widely supported by the legislature. House Bill 1418 successfully moved through the session with overwhelming support including the target beneficiaries of the original legislation. The unintended consequences of HRS §46-88 was a huge concern for everyone as the deadline for resolution coincided with the start of hurricane season.

On July 3rd, 2017 Governor Ige enacted HB1418 SD1 as Act 70, which concluded a year long effort in finding an acceptable solution that resolves the NFIP eligibility deficiency and maintains the primary intent of the original legislation. FEMA officially notified Governor Ige in an October 20, 2017 letter that the State of Hawaii and the four counties are no longer under the threat of suspension and remain in good standing with the NFIP.



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The current and selected past issues are also available at:
www.hawaiiinfip.org

If you wish to receive the Wai Halana via email or wish to be removed from our mailing list, please contact Kristen Akamine at (808) 587-0281.

Upcoming Events

ASFPM 42nd Annual National Conference



The ASFPM annual conference is recognized as the most important floodplain conference in the United States year after year. With more than 120 speakers and 1,200 participants, they are the national conferences all community, state and federal floodplain managers plan to attend. And because of that, many of the most important consulting firms and product vendors associated with floodplain management attend.

SAVE THE DATES: June 17-22, 2018

For more information, visit: www.asfpmconference.org/2018/

Meet Hawaii County's New Floodplain Manager



Congratulations to Bryce Harada for becoming an ASFPM Certified Floodplain Manager just this August !

Bryce is the new Floodplain Manager for the County of Hawaii's Department of Public Work's Engineering Division. A local boy, Bryce graduated from Waiakea High School and then received his Bachelor of Science degree in Engineering from the University of Hawaii (UH), Manoa campus in 2013 and received his Masters the following year.

Upon graduation from UH, Bryce worked for Parsons Brinckerhoff (now known as WSP) in Honolulu. After over a year at Parsons and just so happens after his father retired with 35 years of service from the County of Hawaii, Bryce returned to Hilo to follow in his father's footsteps. Come to find out, Bryce's family has served the public for generations. His maternal grandmother, Hatsumi Tsutsui, was the private secretary to Chief Engineer Edward Harada (no relation), his mother worked for the Department of Health, and his sister is a teacher for the Department of Education.

Bryce is responsible for the overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency prepared-

ness plans, flood control works and floodplain management regulations. He is a section of one, managing the entire island of Hawaii, over 4,000 square miles. With just over one year's experience as the County's Floodplain Manager, Bryce has survived his first CRS and CAV audit.

When he needs some fresh air from the office, Bryce enjoys running and has already completed the Great Aloha Run and is now in-training for the Honolulu Marathon in December.

Some little known facts about Bryce:



According to his father, Bryce loves NBA statistics and while attending UH, Bryce was selected to participate in the UH Men's Basketball halftime contest which he had 40-seconds to complete a layup, a free throw, a 3-point shot and a half-court shot... and he NAILED IT!



According to his friend (and his Instagram account), Bryce is a very talented artist. It is something he likes to do that isn't related to engineering.

The County of Hawaii is excited to have a young engineer that is passionate about his job, takes pride in his performance, and is patient and compassionate with customers. We can't wait to see what the future holds for this young man.



Meet Hawaii's Newest Certified Floodplain Managers

The Certified Floodplain Manager (CFM) program was established in 1999 by the Association of State Floodplain Managers. This continuing education program emphasizes knowing the fundamentals of flood mapping, managing floodplain development with national and state standards and how to apply them to our local county floodplain management programs. The roles of floodplain managers are expanding due to the increases in disaster losses and a need for more professionals to help with mitigation and addressing flooding issues. At the 13th Annual Hawaii Floodplain Managers Conference in Honolulu on August 17, 2017, six individuals successfully passed the CFM exam and join the other 23 Hawaii Certified Floodplain Managers, bringing the total CFMs in Hawaii to 30. We are pleased to **CONGRATULATE** Hawaii's newest Certified Floodplain Managers:

Jesse Colandrea, *Department of Land & Natural Resources*

Jesse, a Civil Engineer, works for the Department of Land and Natural Resources in the Engineering Division's Flood and Dam Safety Section. His responsibilities include administering the State General Flood Control Plan and assisting with the Floodplain Management Program.



Matthew Gonser, *City & County of Honolulu*

Matthew serves in the City and County of Honolulu's new Office of Climate Change, Sustainability and Resiliency. His position focuses generally on coastal and water issues. Matthew previously served as an extension agent with the University of Hawai'i Sea Grant College Program, where he focused on community planning and design, natural hazards and climate change mitigation, climate change adaptation, and stormwater management. He holds one of two Directors-at-Large positions with the Hawai'i Chapter of the American Planning Association, is a member of the American Institute of Certified Planners (AICP), and is a Certified Floodplain Manager (CFM).

Bryce Harada, *Hawaii County – Department of Public Works (pictured on page 2)*

Bryce is a civil engineer and works for the Department of Public Works in the Engineering Division and is the Hawaii County's floodplain manager.



Stanford Iwamoto, *Kauai County – Department of Public Works*

Stanford is the Kauai County Floodplain Manager and head of the Regulatory Section of the Engineering Division of the Department of Public Works with the County of Kauai. He previously worked with the Highways – Kauai Division of the State Department of Transportation and with Kodani and Associates, Inc. on Kauai.

Amber Takenouchi, *Blue Ocean Civil Consulting*

Amber Takenouchi is a founding principal engineer at Blue Ocean Civil Consulting, an Envision sustainability professional, a LEED accredited professional, a qualified storm water pollution plan developer and practitioner, and now a Certified Floodplain Manager. With a career focused in site and land redevelopment, Amber is committed to conserving healthy blue oceans with smart designs and strategic sustainable development. She is motivated to deliver projects with multi-benefit solutions that include reducing flood risks and impacts to water quality. Amber is excited to obtain her CFM credential and further her knowledge in flood plain and storm water management. In her free time, she enjoys swimming, going to the beach and traveling to new places.



Emi Tanitomi, *Bow Engineering & Development, Inc.*

Emi is a graduate of the University of Hawaii at Manoa with a Bachelor of Science in Civil Engineering and a post graduate of the San Diego State University specializing in water resources. She has worked on projects involving hydraulic design, hydrologic analysis and utility system planning and design. Emi has been with Bow Engineering & Development since January 2016.



Bryson Vivas, *Kauai County – Department of Public Works*

Bryson Vivas works for the County of Kaua'i in the Regulatory Section of the Engineering Division of the Department of Public Works. He received his Bachelors of Science degree in Physics from Pacific University in Oregon. He provides flood information and assistance for surveyors, engineers and the residence of Kaua'i. Bryson enjoys coaching, fitness and spending time with his family.

For more info on the CFM program, visit: www.floods.org





Understanding FEMA's Summary of Map Actions and Revalidation Letter

What are the Summary of Map Actions and Revalidation Letter and Why are they Needed?

When a revised Flood Insurance Rate Map (FIRM) panel becomes effective, all previous map changes for that panel are superseded. Each time a panel is physically republished, the panel must be updated to include any changes in the flood hazard information made via Letters of Map Change (LOMCs). A LOMC is a document used to revise or amend the FIRM, such as a Letter of Map Amendment (LOMA), Letter of Map Revision based on Fill (LOMR-F) or Letters of Map Revision (LOMR). Frequently, the results of LOMCs are too small to show on the revised panel. During a map revision, FEMA prepares two documents to assist a community in maintaining the FIRM: a Summary of Map Actions (SOMA) and a Revalidation Letter.

The SOMA provides a comprehensive list of previously issued LOMCs for a community and assists community officials and property owners in determining the status of these LOMCs as a result of revisions to the FIRM. The SOMA identifies if the outcome of a current LOMC is likely to be incorporated into the revised panel, superseded by new information used to prepare the revised panel, or revalidated once the revised panel becomes effective. The SOMA is issued in conjunction with the publication of a community's preliminary or final FIRM.

The Revalidation Letter lists previously issued LOMCs that have been reaffirmed for the new FIRM. A Revalidation Letter becomes effective one day after the publication of a community's new or revised final FIRM. The Revalidation Letter does not list LOMCs that have been incorporated into the revised panel, LOMCs that are superseded by new or revised mapping, or LOMCs that are no longer valid. While the SOMA is a preliminary assessment of which LOMCs may still be valid after the new maps are issued, the Revalidation Letter is the final, effective determination of the LOMCs which remain valid. The Revalidation Letter is considered legally binding, in the same manner as an original LOMR-F or LOMA, provided that a copy of the original determination accompanies the Revalidation Letter.

Together these documents are meant to assist community officials in the maintenance of the community's FIRM. Careful research on each LOMC is conducted to verify if the original determination of a LOMC is no longer valid because of changes or revisions to the FIRM. If the determination for structures or lots in the original LOMC has changed, the LOMC will not be revalidated. Should a LOMC not be eligible to be revalidated, the SOMA will identify the LOMC as superseded and provide a reason for this conclusion. Reasons may include lack of required data or information necessary for adequate review (such as elevation information), revised hydrologic and hydraulic analysis, or revised or new topographic information. The SOMA and Revalidation Letter are mailed to community officials; therefore, if a community wishes to distribute this information to its citizens, it must take any necessary action to do so.

Answers to Common Questions about the Summary of Map Actions and Revalidation Letter

Q: What does it mean when a LOMC is superseded?

A: When a LOMC is superseded it means that the original determination is no longer valid and the property or structure is considered to be located within a Special Flood Hazard Area (SFHA) or high-risk flood zone on the revised map. There are several reasons why a LOMC may be superseded: 1. The original case may be incomplete or contain insufficient information to verify that the structure or property is not in the SFHA on the revised map. 2. The elevation of the structure, or the Lowest Ground Elevation, as provided in the original LOMC application, is below the proposed or final Base (1% annual chance) Flood Elevation (BFE). 3. Other technical information on which the original LOMC determinations were based, such as topography or hydrologic and hydraulic data, has changed. The reason a LOMC has been superseded is recorded on the SOMA.

Q: What happens if a structure or property is in the SFHA?

A: Once the final FIRM has been published, a letter is mailed to the property owner by the lending institution stating that flood insurance is required. If insurance is not purchased within 45 days of the letter the lender may force place insurance on the structure. Forced-placed flood insurance can be significantly more expensive than a policy purchased by a homeowner. For Federally-backed mortgage holders, a property owner will be required to

purchase flood insurance when the FIRM becomes effective. However, if flood insurance is purchased before the revised FIRM become effective and a policy is in place, then property owners will be able to take advantage of cost-saving rating options (for example, Preferred Risk Policy Extension or “Grandfathering”).

Q: What is “Grandfathering”?

A: When risk designations change, flood insurance rates change as well. As an existing policyholder (one that obtained a policy prior to the publication of the final updated FIRM), a property owner can take advantage of FEMA’s “grandfather” rules and use the rate for the previous, lower-risk zone. It is important to note that the NFIP also permits the transfer of a flood insurance policy to a buyer when a property is sold; therefore anyone who buys the house will be eligible for the grandfathered rate, as long as continuous coverage is maintained.

Q: If a LOMC was not included on the Revalidation Letter, can a property owner obtain a new LOMC?

A: In response to the updated FIRM, some property owners may believe that their properties have been incorrectly omitted from the Revalidation Letter and placed in a SFHA and, therefore, are subject to the mandatory Federal flood insurance requirement for structures with a Federally-backed mortgage. If information is available proving that their property or structure should not be shown in the newly-revised SFHA, property owners can request a new LOMC. Based on the type and size of request, individuals, groups of property owners, or community officials may request changes to the FIRM based on new or revised data using a Letter of Map Amendment (LOMA) or Letter of Map Revision based on Fill (LOMR-F). When evaluating a decision to request a new LOMC, property owners should determine if data is available that would provide evidence that the newly published FIRM should be amended. For more information on requesting a LOMC, please contact FEMA’s Map Information eXchange (FMIX) at 1-877-336-2627 or visit the website at <https://www.fema.gov/letter-map-changes>.

Q: What is the effect of a successful LOMC on Flood Insurance Requirements?

A: If FEMA determines a structure or property is outside the SFHA, the mandatory Federal flood insurance requirement will no longer apply. A lender may still require flood insurance as a condition of the loan, but premiums are lower for structures outside the SFHA. It is important to know that many flood claims are made by property owners located outside the high-risk flood zone and that the issuance of a LOMC does not mean the structure or property is safe from all flooding. Floods greater than the 1-percent-annual-chance event (100-year flood) can, and do, occur. Therefore, because flooding also occurs in areas of moderate or minimal flood risk, FEMA recommends flood insurance coverage, even if it is not required by law or a lender.

Q: What about properties that are not affected by changes to the FIRM?

A: If the updated FIRM does not change the flood risk for a certain property location and the owner holds a previously issued LOMC, then the LOMC for that specific property remains valid. Once the FIRM is finalized, all valid LOMCs will be included on the Revalidation Letter (which confirms that there is no change to the property’s status in regard to the new FIRM). As noted above, while there may be no change to a property’s status, FEMA recommends that property owners review their insurance coverage to ensure that their property and contents are protected, as the risk of flooding has been reduced, not removed. FEMA also recommends that property owners talk to their insurance agent about qualifying for a low-cost Preferred Risk Policy.

Q: What does it mean when a LOMC is revalidated?

A: When a LOMC is revalidated it means that the original determination of a previously issued LOMC is still valid when compared to the results of a new or revised map. The case number of a revalidated LOMC is listed in a community’s Revalidation Letter. This letter becomes effective one day after the publication of a new or revised FIRM, and confirms that the structure or property listed in the original LOMC determination is considered to be located outside of the SFHA on the updated map. The Revalidation Letter is considered legally binding, in the same manner as an original LOMR-F or LOMA, provided that a copy of the original determination accompanies the Revalidation Letter.

Q: Who should be contacted if property owners would like copies of their LOMCs?

A: Property owners who would like copies of their LOMCs can contact their local floodplain administrator or visit FEMA’s Map Service Center website at msc.fema.gov for more information.

For the complete FAQs or print friendly FACTSHEET, visit: <https://www.fema.gov/media-library/assets/documents/27551>



FLOOD MAPS Updates



Are you currently doing work in the Counties listed here? If so, please take note that FEMA has approved the following Letter of Map Changes (LOMCs) to the flood hazard information shown on the effective Flood Insurance Rate Maps.

City and County of Honolulu

Type: LOMA

FIRM Panel 0290H

Revision Date: September 20, 2017

FEMA Case Number: 17-09-2478A

Flooding Source: Kawainui Stream

On-line readers can view LOMC [here](#)

Maui County

Type: LOMR-APP

FIRM Panel 0670E

Revision Date: September 8, 2017

FEMA Case Number: 17-09-0740P

Flooding Source: Kapia Gulch

On-line readers can view LOMC [here](#)

Type: LOMR-F

FIRM Panel 0580F

Revision Date: September 8, 2017

FEMA Case Number: 17-09-2323A

Flooding Source: Waiakoa Gulch

On-line readers can view LOMC [here](#)

Type: LOMR-F

FIRM Panel 0586G

Revision Date: September 20, 2017

FEMA Case Number: 17-09-1965A

Flooding Source: Shallow Flooding

On-line readers can view LOMC [here](#)

Type: LOMR-FW

FIRM Panel 0588G

Revision Date: October 10, 2017

FEMA Case Number: 17-09-2361A

Flooding Source: Kamaole Gulch

On-line readers can view LOMC [here](#)

Hawaii County

Type: LOMR-APP

FIRM Panel 0895F

Revision Date: October 2, 2017

FEMA Case Number: 17-09-2731P

Flooding Source:

Unnamed Flooding Area A

Unnamed Flooding Area B

Unnamed Flooding Area C

This LOMR is a reissuance of LOMR case number 17-09-0654P (High Country Farms III Subdivision).

On-line readers can view LOMC [here](#)

Staying Prepared even after Hurricane Season

We are often flooded (no pun intended) with a host of public service announcements, just ahead of, and leading into a new hurricane season on preparing for hurricanes. This season has already produced three hurricanes to make landfall in the United States. Hurricane Harvey, Irma and Maria were all destructive and deadly. Although Hawaii has had some close calls in recent years, we have been fortunate to not have to experience such devastation that Hurricane Iniki did on Kauai 25 years ago this past September. Kamaainas should heed the situation in Puerto Rico in the aftermath of Hurricane Maria. We are far more distant to the US Mainland than Puerto Rico. *Could you imagine if Hawaii was hit by a hurricane with the same intensity of Maria? How long could your household survive before help arrived?* Just because hurricane season is nearing its end, we should not let our guard down. After hurricane season, we enter our raining season? It's always good to be reminded of important safety tips. Look for a special edition of the Wai Halana this winter on being prepared and planning for severe weather events.



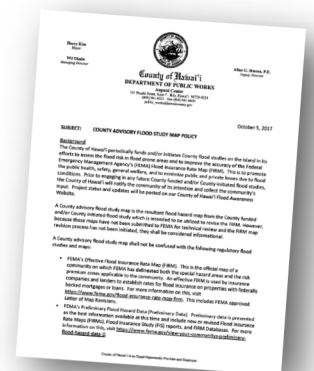
DFIRMs Effective for Hawaii County

"OUT" with the old, "IN" with the new. After a 10+ year effort, Hawaii County's Digital Flood Insurance Rate Maps (DFIRMs) have finally become effective. The days of trying to interpret where your house is located on the old paper maps are a thing of the past. As of September 29, 2017, Hawaii County will utilize digital FIRMs that include an imagery base map. The new Hawaii County DFIRMs represent a combination of the digital conversion of the existing FIRMs, the incorporation of 31 previously approved Letter of Map Revisions (LOMR), and various new studies in Hilo Bay, North and South Kona, and a few other areas. Approximately 29 LOMCs were not reflected on the DFIRMs because they were superseded by new detailed flood hazard information. However, 36 previously approved amendments (LOMA or LOMR-F) were revalidated. A copy of FEMA's revalidation letter can be downloaded [here](#).

As part of FEMA's Physical Map Revision process, the county was required to update Hawaii County Code, Chapter 27 (Floodplain Management) and Chapter 5 (Building Code) to be consistent with the National Flood Insurance Program regulations set forth in Title 44 of the Code of Federal Regulations §60.3. To view the amended chapters, visit: www.hawaiicounty.gov/lb-countycode.

Another change, is in the county's policy concerning "DRAFT" flood studies (i.e. Puna Flood Study, Keopu-Hienaloli Flood Study). Previously, Hawaii County required development to comply with their county's floodplain management regulations based on county initiated "DRAFT" flood studies that had not yet been submitted to FEMA for technical review and initiation of the FIRM revision process.

As of October 5th, 2017, the Department of Public Works has changed their policy and the county advisory flood study map shall be used for informational purposes only. These maps will not be used for regulatory purposes. However, the county recommends that proposed development in high risk flood areas based on these advisory flood studies and maps be built in compliance with floodplain management regulations. A copy of the "COUNTY ADVISORY FLOOD STUDY MAP POLICY" can be downloaded [here](#).



Continued from Page 1 "Act 70 Keep Hawaii Eligible in the NFIP"

The following table summarizes the amendments that were made to Hawaii Revised Statutes (HRS) § 46-88 and what things to note regarding the revisions:

Mandatory NFIP Regulation	Act 70 (2017) amendments consistent with NFIP Regulations	Things to NOTE and UNDERSTAND about Act 70 amendments
<u>44CFR §59.1 Definitions: Development means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.</u>	<u>HRS §46-88 (d):</u> "Development" means any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.	The term "development" is defined in HRS §46-88 consistent with the definition in 44CFR §59.1. The NFIP mandates that proposed construction and other development in a SFHA be regulated by the local community official. Additionally, all four counties adopted higher standards which regulate specific areas outside the SFHA.
<p><u>44CFR § 60.3 (a)(1) Require permits for all proposed construction or other development in the community, including the placement of manufactured homes, so that it may determine whether such construction or other development is proposed within flood-prone areas;</u></p> <p><u>44CFR § 60.3 (b)(1) Require permits for all proposed construction and other developments including the placement of manufactured homes, within Zone A on the community's FHBM or FIRM;</u></p>	<p><u>HRS §46-88 (c)(5)</u> An owner or occupier that intends to utilize the exemptions under this section shall provide written notice to the appropriate county agency of the size, type, and location of the proposed building, structure, related appurtenances, or development. No work shall commence until the county agency has determined that a building permit for the proposed building, structure, related appurtenances, or development is not required for compliance with county, state, or federal floodplain management development standards, ordinances, codes, statutes, rules, or regulations pursuant to the National Flood Insurance Program requirements.</p> <p><u>HRS §46-88 (j):</u> This section does not exempt any new or existing agricultural buildings, structures, related appurtenances, or other development from building permit requirements and other requirements of county, state, or federal floodplain management development standards, ordinances, codes, statutes, rules, or regulations, pursuant to National Flood Insurance Program requirements.</p>	<p>An owner or occupier who intends to utilize the building permit exemption pursuant to HRS §46-88 must now provide written notice to the county of the intended action before the start of construction. The county shall certify, within 30 calendar days of receipt of the written notice, that the proposed action will not require a building permit. No work shall commence until the county has issued a certification for a building permit exemption. If the county's 30 calendar day deadline has lapsed, the owner or occupier shall not assume this to be an automatic certification that a building permit is not required.</p> <p>This is new language was added to make clear that existing structures and other development built pursuant to HRS §46-88 must be remedied to the maximum extent possible if found to be in violation of floodplain management regulations. Although Act 114 (2012) and Act 203 (2013) provided for building permit exemptions, it did not allow exemptions from floodplain management regulations. Compliance with these regulations have been consistently in force by the counties.</p>





DLNR would like to extend our warmest **MAHALO to the following individuals, agencies, and organizations for your support:** FEMA Region IX, Governor David Ige, Hawaii State Legislators, State Department of the Attorney General, Mayor Harry Kim, Hawaii Emergency Management Agency, Department of Commerce and Consumer Affairs Insurance Division, Department of Agriculture, Hawaii Housing Finance and Development Corporation, City and County of Honolulu Department of Planning and Permitting, City and County of Honolulu Department of Emergency Management, Maui County Planning Department, Kauai County Department of Public Works, Hawaii County Department of Public Works, Hawaii Independent Insurance Agents Association, Hawaii Insurers Council, Hawaii

Association of Realtors, Mortgage Bankers Association of Hawaii, Hawaii Association of Mortgage Professionals, Hawaii Bankers Association, Hawaii Financial Services Association, Hawaii Credit Union League, Hawaii Building Industry Association, American Council of Engineering Companies of Hawaii, Hawaii Cattlemen's Council Inc., and Hawaii Farm Bureau. To view Governor Message No. 1171 and Act 70 (2017), click [here](#)



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Make Hawaii a Great Place to Live !!



VOICE OF THE SEA: Sea Level Rise and the Ala Wai



Voice of the Sea is an original half-hour television series produced in partnership with the University of Hawaii Sea Grant Center for Marine Science Education and the Curriculum Research & Development Group. The innovative half-hour TV *Voice of the Sea* series presents global issues in a local context, incorporating traditional knowledge and cultural practices into the STEM canon. Episodes highlight ocean research and careers in science, technology, engineering, and mathematics (STEM). The *Voice of the Sea* host travels throughout Hawaii and the Pacific meeting researchers, scientists and cultural practitioners whose work benefits the ocean. Viewers learn about current science research, it's importance to them, and the ways in which traditional knowledge can inform science and management practices.



Episode: VOS4-10
Airdate: July 30, 2017

In this episode, we head inland to take a look at how rising sea level will affect our infrastructure, aquifers, and fresh water supplies. Researchers from the [University of Hawaii Sea Grant College Program](#) and the [School of Ocean and Earth Science and Technology](#) are using King Tides as a window into future ocean conditions, which will have dramatic effects on our island life. .

WATCH VIDEO:

