



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'  
DEPARTMENT OF LAND AND NATURAL RESOURCES | KA 'OIHANA KUMUWAIWAI 'ĀINA  
**COMMISSION ON WATER RESOURCE MANAGEMENT | KE KAHUWAI PONO**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

## STAFF SUBMITTAL

### for the meeting of the COMMISSION ON WATER RESOURCE MANAGEMENT

December 19, 2023  
Honolulu, Hawai'i

Modification of the Boundaries to the Surface Water Hydrologic Units of  
Hulē'ia (2046), Māhā'ulepū (2048), Waikomo (2049), Aepo (2050),  
To More Closely Align with Topographic Characteristics of the Watersheds, Kōloa, Kaua'i

### SUMMARY OF REQUEST

Staff requests that the Commission on Water Resource Management (Commission) approve the proposed modification to the boundary of the Waikomo Surface Water Hydrologic Unit (SWHU) on Kaua'i Island such that it more closely aligns with watershed delineations utilized by the U.S. Geologic Survey and State of Hawai'i, Department of Land and Natural Resources, Division of Aquatic Resources.

### BACKGROUND

Under the State Water Code (Code), Chapter 174C, Hawaii Revised Statutes (HRS), the Commission's General powers and duties (§174C-5) identifies that the Commission:

(3) Shall establish an instream use protection program designed to protect, enhance, and reestablish, where practicable, beneficial instream uses of water in the State;

(14) Shall catalog and maintain an inventory of all water uses and water resources;

Under HRS 13-169-2 definitions, the "hydrologic unit" is "a surface drainage area or a ground water basin or a combination of the two" and a "stream" is "any river, creek, slough, or natural watercourse in which water usually flows in a defined bed or channel. It is not essential that the flow be uniform or uninterrupted. The fact that some parts of the bed or channel have been dredged or improved does not prevent the watercourse from being a stream."

Early efforts to update the Commission's Water Resource Protection Plan (WRPP) highlighted the need for surface water hydrologic units to delineate and codify Hawai'i's surface water

resources. Surface water hydrologic units serve as an important first-step towards improving the organization and management of surface water information that the Commission collects and maintains, including diversions, stream channel alterations, and water use.

On June 15, 2005, the Commission approved the “CWRM Surface-Water Hydrologic Units: A Management Tool for Instream Flow Standards” report<sup>1</sup> and authorized staff to implement its use in the development of information databases in support of establishing instream flow standards. These units are the basis for developing the appropriate datasets necessary to begin the instream flow standard process in the State of Hawai‘i. Since its adoption, nearly 70 interim instream flow standards (interim IFS) have been adopted. The Stream Protection and Management (SPAM) Branch is currently working to develop and compile information summaries for specific surface water hydrologic units. Some of the areas that the Commission is actively working on are identified below.

### ISSUES WITH EXISTING WAIKOMO HYDROLOGIC UNIT BOUNDARY

In general, surface water hydrologic unit boundaries closely align with watershed boundaries such that the flow in a stream at the ocean is the cumulative flow from its tributaries and features of the hydrologic unit that may affect runoff, such as landcover, stream diversions, or reservoirs, can be incorporated into the analysis. In some instances, a hydrologic unit also includes nearby watersheds that may be too small to warrant a unique hydrologic unit designation and may share similarities with the neighboring hydrologic unit (e.g., Mokuapapa watershed within the Ho‘olawa hydrologic unit on Maui Island).

The Waikomo hydrologic unit (2049) boundary is currently drawn diagonally across the Waikomo watershed that places a portion of the uplands in the Māhā‘ulepū hydrologic unit (2048), and a small portion in the Hulē‘ia hydrologic unit (2046) (Figure 1). However, runoff in these areas naturally contributes to streamflow in Waikomo Stream, as identified in the U.S. Geological Survey (USGS) watershed delineation (Figure 2).

The current Waikomo hydrologic unit boundary has an area of 9.03 mi<sup>2</sup> (23.4 km<sup>2</sup>). This contrasts with the USGS watershed delineation that has an area of 10.3 mi<sup>2</sup> (26.68 km<sup>2</sup>) (Figure 2) and the Department of Land and Natural Resources Division of Aquatic Resources (DAR) watershed delineation that has an area of 10.81 mi<sup>2</sup> (28 km<sup>2</sup>) (Figure 3). There are multiple ahupua‘a associated with the Waikomo hydrologic unit, including portions of the Lāwai, Kōloa, Weliweli, and Pā‘ā ahupua‘a (Figure 4). Neither the original hydrologic unit boundaries nor the proposed hydrologic unit boundaries follow the borders of nearby ahupua‘a.

Staff are proposing to modify the existing Waikomo hydrologic unit boundary, such that it more closely aligns with the USGS and DAR watershed delineations (Figure 4). This change results in the Waikomo hydrologic unit having an area of 15.697 mi<sup>2</sup> (40.655 km<sup>2</sup>), while the Māhā‘ulepū hydrologic unit will have an area of 6.269 mi<sup>2</sup> (16.263 km<sup>2</sup>), Aepo hydrologic unit will have an

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<sup>1</sup> <https://files.hawaii.gov/dlnr/cwrmpublishedreports/PR200501.pdf>

area of 2.877 mi<sup>2</sup> (7.451 km<sup>2</sup>), and the Hulē‘ia hydrologic unit will have an area of 28.066 mi<sup>2</sup> (72.691 km<sup>2</sup>).

### JUSTIFICATION

Staff recommends the boundary change to the Waikomo SWHU because:

1. Water management operations that are happening outside of the current boundary (e.g., potential diversions from Waihohonu stream or its tributaries) but are affecting downstream flow into Waikomo Stream, cannot be incorporated in the analysis;
2. Potential instream values outside of the current boundary (but are hydrologically connected to Waikomo Stream) cannot be considered in the evaluation of instream values for a future interim IFS.
3. The current boundary does not match USGS watershed catchments or DAR stream management units.

### OUTREACH

Staff have communicated their intention to submit the proposed boundary modifications to the following organizations:

- Ahu Moku Advisory Committee- Llewellyn “Billy” Ka‘ohelauli‘i
- DLNR Ahu Moku- Leimana DaMate
- Friends of Maha‘ulepu- Bridget Hammerquist
- Office of Hawaiian Affairs- Zuri Aki
- Sierra Club of Hawai‘i- Wayne Tanaka
- State of Hawai‘i Division of Aquatic Resources- Glenn Higashi, Heather Yitalo-Ward
- U.S. Geological Survey- Sara Rosa

Each of these organizations understood the intention of the proposed change and support staff’s efforts.

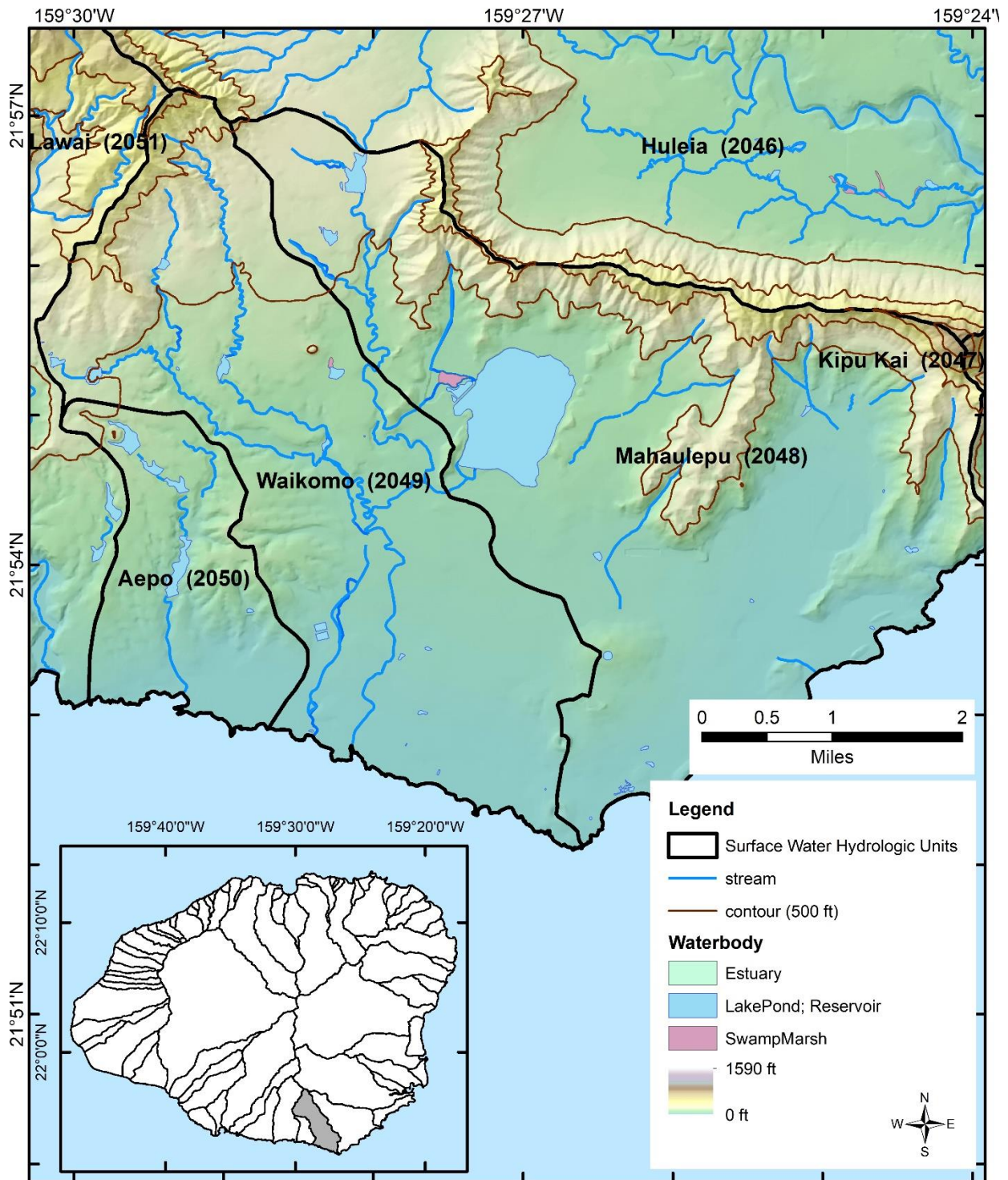
DAR made the formal comment:

*Thank you for the opportunity to comment. The reasons you mentioned to change the boundary line make sense, especially given the connectivity of the systems. What would the consequences of these actions be in terms of current management? Are there negative repercussions possible with the boundary change?*

Staff response:

No management action is proposed. The boundary change would provide for a more inclusive and holistic analysis of watershed hydrology and instream values which may be used for a future management action. No negative repercussions are possible as the boundary is for administrative purposes only.

**Figure 1.** Current boundary of the Waikomo and neighboring surface water hydrologic units (swhu) with elevation. Inset: Waikomo swhu in southeast Kaua'i.



**Figure 2.** US Geological Survey watershed boundary, with USGS hydroID sub-catchments labeled and National Hydrography Dataset flowlines compared to the original CWRM hydrologic unit boundary (dashed gray) and the proposed boundary (red) for Waikomo, Kaua'i.

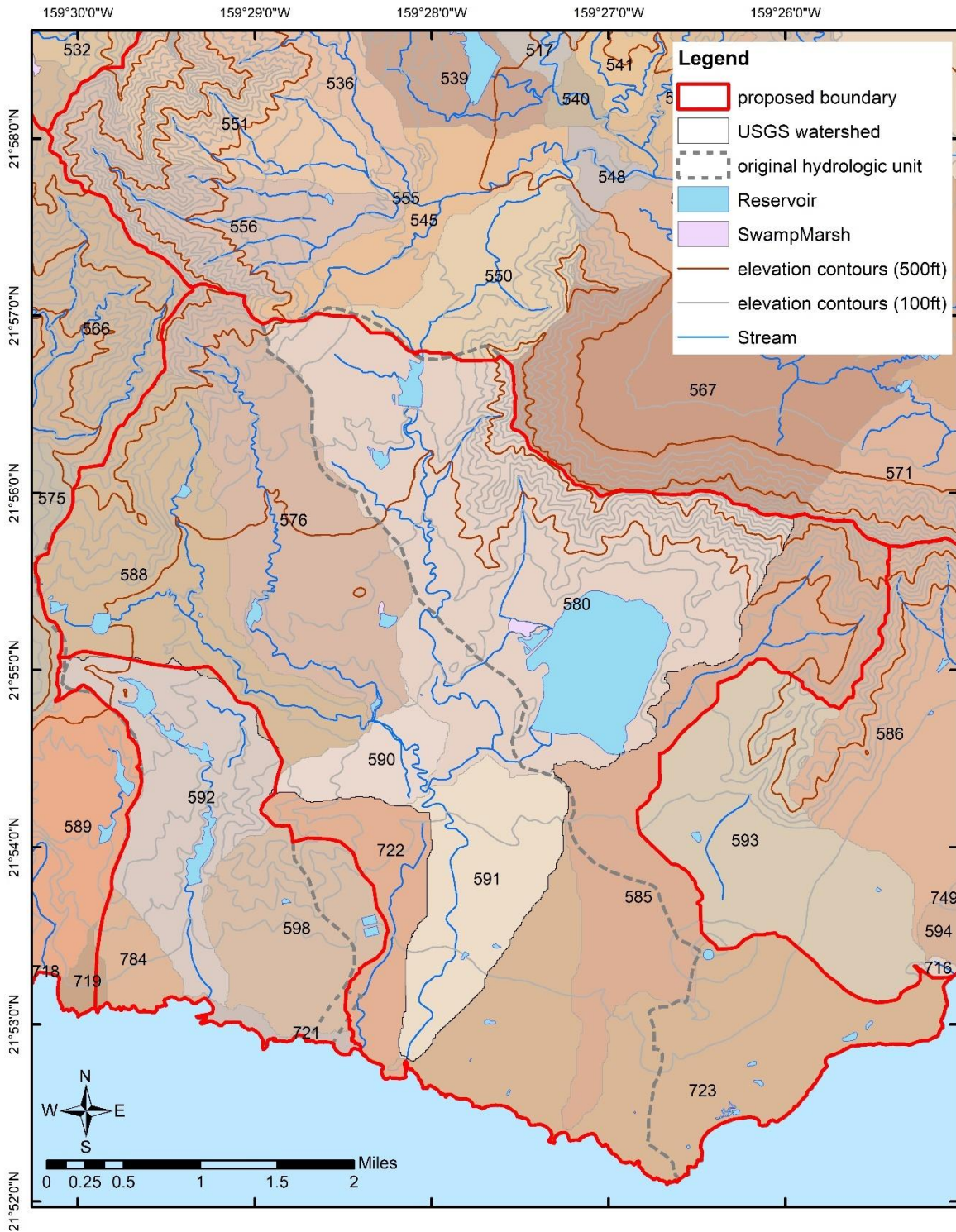
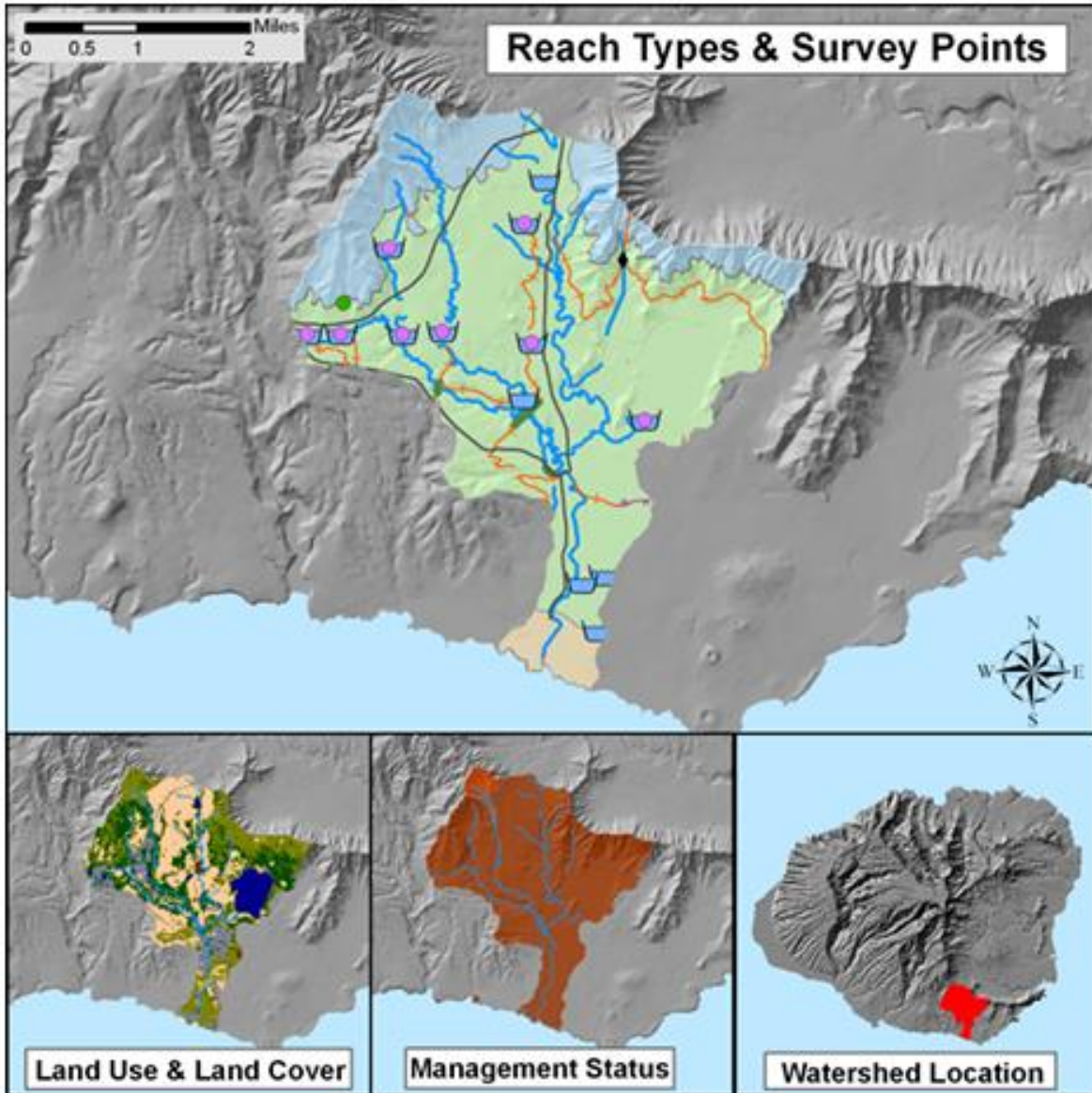
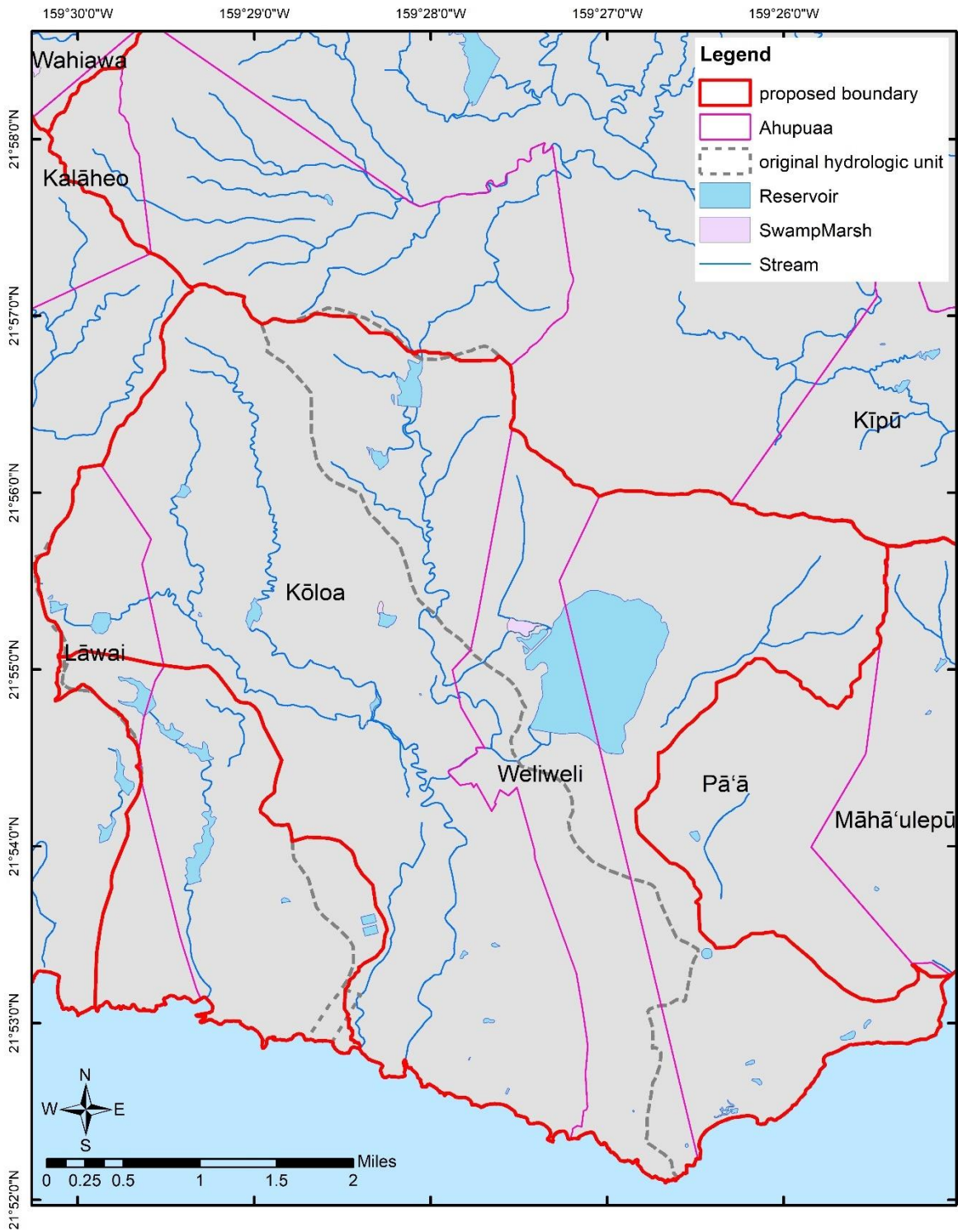


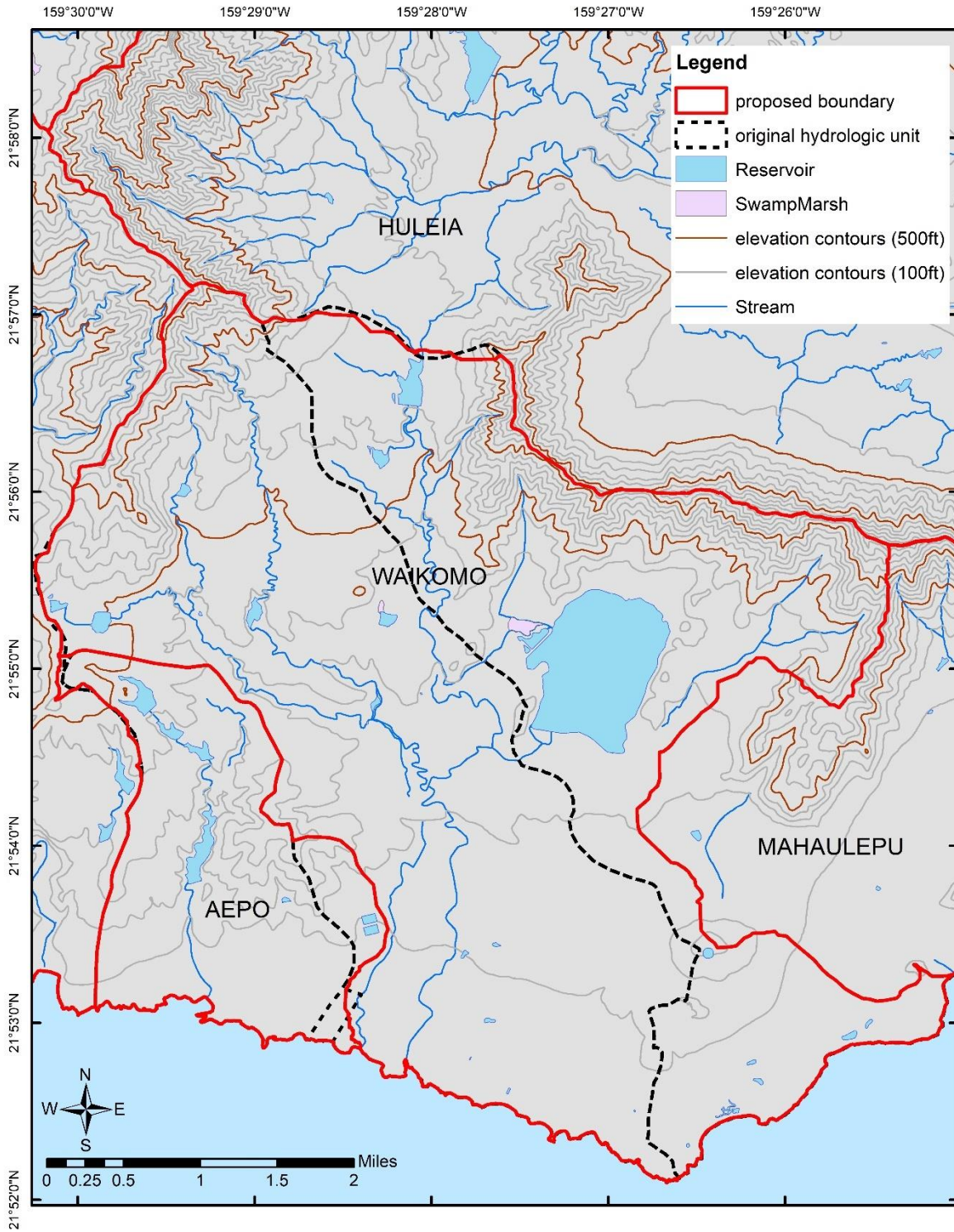
Figure 3. Division of Aquatic Resources watershed boundary for Waikomo, Kaua'i.



**Figure 4.** Proposed (red line) and original (dashed gray) surface water hydrologic unit boundary with the nearest ahupua'a boundaries (pink line) for the Waikomo hydrologic unit in southeast Kaua'i.



**Figure 5.** Proposed (red line) and original (dashed gray line) surface water hydrologic unit boundary for the Waikomo hydrologic unit in southeast Kaua'i.





RECOMMENDATION

Staff recommends that the Commission:

1. Approve the modification of the boundary to the Hulē‘ia (2046), Māhā‘ulepū (2048), Waikomo (2049), Aepo (2050), hydrologic units such that it more closely aligns with the watershed boundaries defined by the U.S. Geological Survey and the Division of Aquatic Resources as identified in Figure 5.
2. Add the amended boundary in the Water Resource Protection Plan.

Ola i ka wai,



M. KALEO MANUEL  
Deputy Director

APPROVED FOR SUBMITTAL:



DAWN N. S. CHANG  
Chairperson

Exhibit 1. Comments provided by Division of Aquatic Resources

Staff Submittal  
Waikomo Surface Water Hydrologic Unit Boundary Modification

December 19, 2023

JOSH GREEN, M.D.  
GOVERNOR | KE KIA'ĀINA  
SYLVIA LUKE  
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII  
DEPARTMENT OF LAND AND NATURAL  
RESOURCES DIVISION OF AQUATIC RESOURCES  
1151 PUNCHBOWL STREET, ROOM 330  
HONOLULU, HAWAII 96813

Date: 10-19-23  
DAR # AR6493

DAWN N.S. CHANG  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT  
LAURA H.E. KAAKUA  
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 WILD LIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

MEMORANDUM

TO: Brian J. Neilson  
DAR Administrator  
FROM: Heather Ylitalo-Ward *HY*, Aquatic Biologist  
SUBJECT: Proposed boundary changes to Waikomo/Mahaulepu hydrologic units

Request Submitted by: Ayron M Strauch CWRM  
Waikomo/Mahaulepu units  
Location of Project: \_\_\_\_\_

Brief Description of Project:

Currently, there is an arbitrary surface water hydrologic unit boundary that is in error...in that it cuts off much of the mauka watershed that supports these tributaries. The Waikomo hydrologic unit was initially provided to the Commission in a staff report about two decades ago, and we've been using it ever since. Commission staff need to redraw the boundary to better reflect the true watershed characteristics and catchment area of the stream. The proposed new boundary is slightly to the east and therefore includes a portion of the existing western side of the Mahaulepu hydrologic unit.

Comments:

No Comments  Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: *EB* Date: Oct 24, 2023  
Edward L. Kekoa for Brian J. Neilson  
DAR Administrator

DAR# AR6493

Brief Description of Project

We want to incorporate the boundary change because:

1. Water management operations that are happening outside of the current boundary (diversion from Waihohonu stream or tributaries into Waita Reservoir) but are affecting downstream flow into Waikomo Stream cannot be incorporated in the analysis
2. Potential instream values outside of the current boundary (but are hydrologically connected to Waikomo Stream) cannot be considered in the evaluation of instream values for a future IIFS.
3. The current boundary does not match USGS watershed catchments or DAR stream management units

DAR# AR6493

Comments

Thank you for the opportunity to comment. The reasons you mentioned to change the boundary line make sense, especially given the connectivity of the systems. What would the consequences of these actions be in terms of current management? Are there negative repercussions possible with the boundary change?