LITERATURE GATHERED FOR THE KEAUHOU AQUIFER SYSTEM GROUNDWATER ADAPTIVE MANAGEMENT PLAN ("AMP")

(Draft as of: 07.07.25)

Listed below are reports and studies gathered for this and further generations of the AMP. The document will be updated regularly throughout the life of the current project and be augmented in future generations of the AMP. CWRM invites additional contributions and especially values accessible published reports and studies that can be available electronically or through libraries or resource collections. These will help inform and sustain high functioning adaptive management plan for the Keauhou aquifer system area ("KASA"). Suggested additions should be sent by email to:

Peter S. Adler, PhD,
padleraccord@gmail.com

Stephanie Sang, MA
Tian.sang33@gmail.com

Articles with overlapping relevance are repeated within respective categories

I. Background Information

Adler, P. S., & Ranney, K. (2018). *Adaptive Management Symposium on Groundwater Dependent Ecosystems at Kaloko-Honokōhau National Historical Park (KHNHP): Meeting record and summary*. The Accord 3.0 Network. [Link]

-Participant comments to report

Honokōhau Study Advisory Commission & National Park Service. (1974). *The Spirit of Kaloko-Honokōhau: A proposal for the establishment of a Kaloko-Honokōhau National Cultural Park, Island of Hawai'i, State of Hawai'i*. U.S. Department of the Interior. [Link]

II. Indicator Species / Ecology

U.S. Fish and Wildlife Service. 2022. Recovery plan for 50 Hawaiian Archipelago Species. Portland, Oregon. xvii + 166 pp. + Appendices [Link]

U.S. Fish and Wildlife Service. 2011. Recovery Plan for Hawaiian Waterbirds, Second Revision. U.S. Fish and Wildlife Service, Portland, Oregon. xx + 233 pp. [Link]

Bremer, L., Mandle, L., Trauernicht, C., Pascua, P., McMillen, H., Burnett, K., Wada, C., Kurashima, N., Quazi, S., Giambelluca, T., Chock, P., & Ticktin, T. (2018). Bringing multiple values to the table: Assessing future land-use and climate change in North Kona, Hawai‘i. *Ecology and Society*, *23*(1), Article 1. https://doi.org/10.5751/ES-09936-230133

Delevaux, J.M.S., Stamoulis, K.A., Kurashima, N. *et al.* Scaling biocultural initiatives can support nature, food, and culture from summit to sea. *npj Ocean Sustain* **4**, 5 (2025). https://doi.org/10.1038/s44183-024-00090-6

Gibson, V. L., Bremer, L. L., Burnett, K. M., Lui, N. K., & Smith, C. M. (2022). Biocultural values of groundwater dependent ecosystems in Kona, Hawai‘i. *Ecology and Society*, *27*(3), Article 3. https://doi.org/10.5751/ES-13432-270318

Gibson, V. L. (2022). *Ecohydrology of Macroalgae and Submarine Groundwater Discharge on Hawaiian Reefs* [Ph.D., University of Hawai’i at Manoa]. https://www.proquest.com/docview/2777774800/abstract/205B53A7166140FAPQ/1

Grossman, E. E., Marrack, L., & vanArendonk, N. R. (2021). Nearshore water quality and coral health indicators along the west coast of the Island of Hawai‘i, 2010–2014. In *Open-File Report* (Nos. 2020–1128; Issues 2020–1128). U.S. Geological Survey. https://doi.org/10.3133/ofr20201128

Havird, J. C., Brannock, P. M., Yoshioka, R. M., Vaught, R. C., Carlson, K., Edwards, C., Tracy, A., Twining, C. W., Zheng, Y., Chai, D., Wilson, A. E., Hairston, N. G., & Santos, S. R. (2022). Grazing by an endemic atyid shrimp controls microbial communities in the Hawaiian anchialine ecosystem. *Limnology and Oceanography*, *67*(9), Article 9. https://doi.org/10.1002/lno.12184

Keliipuleole, K. (2022). *Aia Ke Kumu Waiwai Ma Makalawena: Analysis of the Natural Resources within the Makalawena Loko Wai‘ōpae Complex* [M.S., University of Hawai’i at Manoa]. https://www.proquest.com/docview/2731729070/abstract/F684362660F141A2PQ/1

Marrack, L. C., & Beavers, S. C. (2023). Anchialine pool shrimp (Halocaridina rubra) as an indicator of sewage in coastal groundwater ecosystems on the island of Hawai‘i. *PLOS ONE*, *18*(8), Article 8. https://doi.org/10.1371/journal.pone.0290658

Marrack, L., Wiggins, C., Marra, J. J., Genz, A., Most, R., Falinski, K., & Conklin, E. (2021). Assessing the spatial–temporal response of groundwater-fed anchialine ecosystems to sea-level rise for coastal zone management. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *31*(4), Article 4. https://doi.org/10.1002/aqc.3493

Mathews, L., Cole, K., & Rhode, T. (2025). Insights into the Phylogeography and Demographic History of the Native and Invasive Amphidromous Prawns of Hawai'i. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *35*(1), e70048. https://doi.org/10.1002/aqc.70048

Okuhata, B. K., Delevaux, J. M. S., Richards Donà, A., Smith, C. M., Gibson, V. L., Dulai, H., El-Kadi, A. I., Stamoulis, K., Burnett, K. M., Wada, C. A., & Bremer, L. L. (2023). Effects of Multiple Drivers of Environmental Change on Native and Invasive Macroalgae in Nearshore Groundwater Dependent Ecosystems. *Water Resources Research*, *59*(7), Article 7. https://doi.org/10.1029/2023WR034593

Okuhata, B. K., Delevaux, J. M. S., Richards Donà, A., Smith, C. M., Gibson, V. L., Dulai, H., et al. (2023). Effects of multiple drivers of environmental change on native and invasive macroalgae in nearshore groundwater dependent ecosystems. Water Resources Research, 59, e2023WR034593. https://doi.org/10.1029/2023WR034593

Okuhata, B.K., A.I. El-Kadi, H. Dulai, J. Lee, C.A. Wada, L.L. Bremer, K.M. Burnett, J.M.S. Delevaux, C.K. Shuler (2022). A density-dependent multi-species model to assess groundwater flow and nutrient transport in the coastal Keauhou aquifer, Hawai'i, USA. Hydrogeology Journal, 30 (1), 231-250. https://doi.org/10.1007/s10040-021-02407-y

Pongkijvorasin, S., Wada, C. A., & Burnett, K. M. (2020). Optimal multi-instrument management of interrelated resources and a groundwater dependent ecosystem. *Journal of Environmental Management*, *269*, 110723. https://doi.org/10.1016/j.jenvman.2020.110723

Richards Donà, A., Smith, C. M., & Bremer, L. L. (2023). Divergent responses of native and invasive macroalgae to submarine groundwater discharge. *Scientific Reports*, *13*(1), Article 1. https://doi.org/10.1038/s41598-023-40854-7

Seidel, B., Brasher, A., Auerswald, K., & Geist, J. (2016). Physicochemical characteristics, community assemblages, and food web structure in anchialine pools along the Kona Coast on the Island of Hawaii, USA. *Hydrobiologia*, *770*(1), Article 1. https://doi.org/10.1007/s10750-015-2594-5

Tango, L. K. K. (2010). *The effect of salinity and temperature on survival of the orange-black Hawaiian damselfly, Megalagrion xanthomelas* [M.S., University of Hawai'i at Hilo]. https://www.proquest.com/docview/304663905/abstract/D2665F55F3034308PQ/1

Rosenthal, W. C., McIntyre, P. B., Lisi, P. J., Prather Jr, R. B., Moody, K. N., Blum, M. J., ... & Schoville, S. D. (2021). Invasion and rapid adaptation of guppies (Poecilia reticulata) across the Hawaiian Archipelago. *Evolutionary Applications*, *14*(7), 1747-1761. https://doi.org/10.1111/eva.13236

Watson, S. J., Arisdakessian, C., Petelo, M., Keliipuleole, K., Tachera, D. K., Okuhata, B. K., & Frank, K. L. (2024). Groundwater microbial communities reflect geothermal activity on volcanic island. *Geobiology*, *22*(2), e12591. https://doi.org/10.1111/gbi.12591
Watson, S. J., Arisdakessian, C., Petelo, M., Keliipuleole, K., Tachera, D. K., Okuhata, B. K., Dulai, H., & Frank, K. L. (2023) Geology and land use shape nitrogen and sulfur cycling groundwater microbial communities in Pacific Island aquifers. ISME Communications 3(1): 58. https://doi.org/10.1038/s43705-023-00261-5

Weaver, R. J., Gonzalez, B. K., Santos, S. R., & Havird, J. C. (2020). Red coloration in an anchialine shrimp: carotenoids, genetic variation, and candidate genes. *The Biological Bulletin*, *238*(2), 119-130. https://doi.org/10.1086/708625

III. Native Hawaiian and ʻOhana Traditional and Customary Practices / Kilo

Bremer, L., Mandle, L., Trauernicht, C., Pascua, P., McMillen, H., Burnett, K., Wada, C., Kurashima, N., Quazi, S., Giambelluca, T., Chock, P., & Ticktin, T. (2018). Bringing multiple values to the table: Assessing future land-use and climate change in North Kona, Hawaiʻi. *Ecology and Society*, *23*(1), Article 1. https://doi.org/10.5751/ES-09936-230133

Brock, R. E. (with Environmental Assessment Co & Transcontinental Development Co). (1985). *An assessment of the conditions and future of the anchialine pond resources of the Hawaiian Islands*. Environmental Assessment Co.

Chai, D. K. (1993). *Biophysical Inventory and Assessment of Anchialine Pools Along the Waiakea Coast, Hilo, Hawai'i* [M.A., University of Hawai'i at Manoa]. https://www.proquest.com/docview/2461017381/abstract/5F88D758CA7C4183PQ/1

Delevaux, J.M.S., Stamoulis, K.A., Kurashima, N. *et al.* Scaling biocultural initiatives can support nature, food, and culture from summit to sea. *npj Ocean Sustain* **4**, 5 (2025). https://doi.org/10.1038/s44183-024-00090-6

Delevaux, J. M., Stamoulis, K. A., Whittier, R., Jupiter, S. D., Bremer, L. L., Friedlander, A., … & Ticktin, T. (2019). Place-based management can reduce human impacts on coral reefs in a changing climate. *Ecological Applications*, *29*(4), e01891. https://doi.org/10.1002/eap.1891

Gibson, V. L., Bremer, L. L., Burnett, K. M., Lui, N. K., & Smith, C. M. (2022). Biocultural values of groundwater dependent ecosystems in Kona, Hawaiʻi. *Ecology and Society*, *27*(3), Article 3. https://doi.org/10.5751/ES-13432-270318

Gould, R. K., & Lincoln, N. K. (2017). Expanding the suite of Cultural Ecosystem Services to include ingenuity, perspective, and life teaching. *Ecosystem services*, *25*, 117-127. https://doi.org/10.1016/j.ecoser.2017.04.002

Honokōhau Study Advisory Commission & National Park Service. (1974). *The Spirit of Kaloko-Honokōhau: A proposal for the establishment of a Kaloko-Honokōhau National Cultural Park, Island of Hawai'i, State of Hawai'i*. U.S. Department of the Interior. [Link]

KaʻohuhaʻaheoināKuahiwiʻekolu. (2023). *Nā Hoʻonanea o ka Manawa: Pleasurable Pastimes*. University of Hawaii Press.

Keliipuleole, K. (2022). *Aia Ke Kumu Waiwai Ma Makalawena: Analysis of the Natural Resources within the Makalawena Loko Wai'ōpae Complex* [M.S., University of Hawai'i at Manoa]. https://www.proquest.com/docview/2731729070/abstract/F684362660F141A2PQ/1

Maciolek, J. A., Brock, R. E. (1974). *Aquatic survey of the Kona coast ponds, Hawaii Island.* [Honolulu]: University of Hawaii Sea Grant Program. [Link]

Maly, K., & Maly, O. (2003). *Ka Hana Lawai'a A Me Nā Ko'a O Nā Kai 'Ewalu: A history of fishing practices and marine fisheries of the Hawaiian Islands* (Vols. I and II) . Hilo: Kumu Pono Associates. Prepared for the Nature Conservancy. [Links: Vol. I and Vol. II]

Morishige, K., Andrade, P., Pascua, P., Steward, K., Cadiz, E., Kapono, L., & Chong, U. (2018). Nā Kilo 'Āina: Visions of biocultural restoration through indigenous relationships between people and place. *Sustainability*, *10*(10), 3368. https://doi.org/10.3390/su10103368

Pascua, P. A., McMillen, H., Ticktin, T., Vaughan, M., & Winter, K. B. (2017). Beyond services: A process and framework to incorporate cultural, genealogical, place-based, and indigenous relationships in ecosystem service assessments. *Ecosystem Services*, *26*, 465-475. https://doi.org/10.1016/j.ecoser.2017.03.012

Scheuer, J. L., & Isaki, B. (2015, May 29). *Response to the Commission on Water Resource Management Request for Information on Traditional and Customary Practices*. U.S. Department of the Interior, National Park Service. [Link]

Titcomb, M. (1978). Native Use of Marine Invertebrates in Old Hawaii. *PACIFIC SCIENCE*, *32*. [Link]

Titcomb, M. (2021). *Native Use of Fish in Hawaii*. University of Hawaii Press. https://doi.org/10.1515/9780824846473

Winter, K. B., Lincoln, N. K., Berkes, F., Alegado, R. A., Kurashima, N., Frank, K. L., ... & Toonen, R. J. (2020). Ecomimicry in Indigenous resource management: Optimizing ecosystem services to achieve resource abundance, with examples from Hawaii. https://doi.org/10.5751/ES-11539-250226

IV. Hydrology

Attias, E., Constable, S., Sherman, D., Ismail, K., Shuler, C., & Dulai, H. (2021). Marine Electromagnetic Imaging and Volumetric Estimation of Freshwater Plumes Offshore Hawai'i. *Geophysical Research Letters*, *48*(7), Article 7. https://doi.org/10.1029/2020GL091249

Attias, E., Thomas, D., Sherman, D., Ismail, K., & Constable, S. (2020). Marine electrical imaging reveals novel freshwater transport mechanism in Hawai'i. *Science Advances*, *6*(48), Article 48. https://doi.org/10.1126/sciadv.abd4866

Bremer, L.L., DeMaagd, N., Wada, C. A., & Burnett, K. M. (2021). Priority watershed management areas for groundwater recharge and drinking water protection: A case study from Hawai ‘i Island. Journal of Environmental Management, 286 , 111622. https://doi.org/10.1016/j.jenvman.2020.111622

Brock, R. E. (with Environmental Assessment Co & Transcontinental Development Co). (1985). *An assessment of the conditions and future of the anchialine pond resources of the Hawaiian Islands*. Environmental Assessment Co.

Cantonati, M., Stevens, L. E., Segadelli, S., Springer, A. E., Goldscheider, N., Celico, F., ... & Gargini, A. (2020). Ecohydrogeology: The interdisciplinary convergence needed to improve the study and stewardship of springs and other groundwater-dependent habitats, biota, and ecosystems. *Ecological indicators*, *110*, 105803. https://doi.org/10.1016/j.ecolind.2019.105803

Chai, D. K. (1993). *Biophysical Inventory and Assessment of Anchialine Pools Along the Waiakea Coast, Hilo, Hawai‘i* [M.A., University of Hawai'i at Manoa]. https://www.proquest.com/docview/2461017381/abstract/5F88D758CA7C4183PQ/1

Elshall, A. S., Arik, A. D., El-Kadi, A. I., Pierce, S., Ye, M., Burnett, K. M., Wada, C. A., Bremer, L. L., & Chun, G. (2020). Groundwater sustainability: A review of the interactions between science and policy. *Environmental Research Letters*, *15*(9), Article 9. https://doi.org/10.1088/1748-9326/ab8e8c

Fackrell, J. K. (2016). *Geochemical evolution of Hawaiian groundwater* [Ph.D., University of Hawai'i at Manoa]. https://www.proquest.com/docview/1847953349/abstract/50D9FEC166AF4BE4PQ/1

Fackrell, J. K., Glenn, C. R., Thomas, D., Whittier, R., & Popp, B. N. (2020). Stable isotopes of precipitation and groundwater provide new insight into groundwater recharge and flow in a structurally complex hydrogeologic system: West Hawai'i, USA. *Hydrogeology Journal*, *28*(4), Article 4. https://doi.org/10.1007/s10040-020-02143-9

Gibson, V. L., Bremer, L. L., Burnett, K. M., Lui, N. K., & Smith, C. M. (2022). Biocultural values of groundwater dependent ecosystems in Kona, Hawai‘i. *Ecology and Society*, *27*(3), Article 3. https://doi.org/10.5751/ES-13432-270318

Hudson, C. Y. (2018). *The Source and Magnitude of Submarine Groundwater Discharge Along the Kona Coast of the Big Island, Hawaii.* http://hdl.handle.net/10125/62462

Kelly, J. L., & Glenn, C. R. (2015). Chlorofluorocarbon apparent ages of groundwaters from west Hawaii, USA. Journal of Hydrology, 527, 355–366. https://doi.org/10.1016/j.jhydrol.2015.04.069

Khorrami, M., & Malekmohammadi, B. (2021). Effects of excessive water extraction on groundwater ecosystem services: Vulnerability assessments using biophysical approaches. *Science of The Total Environment*, *799*, 149304. https://doi.org/10.1016/j.scitotenv.2021.149304

Kreyns, P., Geng, X., & Michael, H. A. (2020). The influence of connected heterogeneity on groundwater flow and salinity distributions in coastal volcanic aquifers. *Journal of Hydrology*, *586*, 124863. https://doi.org/10.1016/j.jhydrol.2020.124863

Luijendijk, E., Gleeson, T., & Moosdorf, N. (2020). Fresh groundwater discharge insignificant for the world's oceans but important for coastal ecosystems. *Nature Communications*, *11*(1), Article 1. https://doi.org/10.1038/s41467-020-15064-8

Moosdorf, N., Stieglitz, T., Waska, H., Dürr, H. H., & Hartmann, J. (2015). Submarine groundwater discharge from tropical islands: A review. *Grundwasser*, *20*(1), Article 1. https://doi.org/10.1007/s00767-014-0275-3

National Park Service. (2015). *Response to the Commission on Water Resource Management Request for Specific Information on the Quantity of Water Needed to Support Natural and Cultural Resources in Kaloko-Honokōhau National Historical Park*. [Link]

Oki, D. S. (2021). *Numerical simulation of the effects of groundwater withdrawal and injection of high-salinity water on salinity and groundwater discharge, Kaloko-Honokōhau National Historical Park, Hawai'i* (Scientific Investigations Report 2021-5004). U.S. Geological Survey. https://doi.org/10.3133/sir20215004

Okuhata, B. K., & Oki, D. S. (2024). *Correlation analysis of groundwater and hydrologic data, Kaloko-Honokōhau National Historical Park, Hawai 'i* (Scientific Investigations Report 2024-5084). U.S. Geological Survey. https://doi.org/10.3133/sir20245084

Okuhata, B. K. (2022). *Assessment of Groundwater Age and Transport in West Hawai'i Aquifers* [Ph.D., University of Hawai'i at Manoa]. https://www.proquest.com/docview/2692088854/abstract/867FDA6019BF439CPQ/8

Okuhata, B. K., Thomas, D. M., Dulai, H., Popp, B. N., Lee, J., & El-Kadi, A. I. (2022). Inference of young groundwater ages and modern groundwater proportions using chlorofluorocarbon and tritium/helium-3 tracers from West Hawai'i Island. *Journal of Hydrology*, *609*, 127755. https://doi.org/10.1016/j.jhydrol.2022.127755

Pongkijvorasin, S., Wada, C. A., & Burnett, K. M. (2020). Optimal multi-instrument management of interrelated resources and a groundwater dependent ecosystem. *Journal of Environmental Management*, *269*, 110723. https://doi.org/10.1016/j.jenvman.2020.110723

Tachera, D. (2022). *A hydrogeochemical examination of West Hawai'i's water cycle* [University of Hawaii at Manoa]. https://hdl.handle.net/10125/102218

Tachera, D. K., Lautze, N. C., Torri, G., & Thomas, D. M. (2021) Characterization of the

isotopic composition and bulk ion deposition of precipitation from Central to West Hawai‘i Island between 2017 and 2019. Journal of Hydrology: Regional Studies 34. https://doi.org/10.1016/j.ejrh.2021.100786

Tillman, F. D., Oki, D. S., & Johnson, A. G. (2014). *Water-chemistry data collected in and near Kaloko-Honokohau National Historical Park, Hawaii, 2012-2014*. http://hdl.handle.net/10125/50772

Tillman, F. D., Oki, D. S., Johnson, A. G., Barber, L. B., & Beisner, K. R. (2014). Investigation of geochemical indicators to evaluate the connection between inland and coastal groundwater systems near Kaloko-Honokōhau National Historical Park, Hawai‘i. *Applied Geochemistry*, *51*, 278–292. https://doi.org/10.1016/j.apgeochem.2014.10.003

Viti, T. (2019). *A Magnetotelluric Investigation of Hawaiian Groundwater Systems in Kona, Hawai‘i Island, Hawai‘i, Including Uncertainty Quantification* [M.S., University of Hawai’i at Manoa]. https://www.proquest.com/docview/2383608056/abstract/1A50FC8AECA144F5PQ/1

V. Contamination and Pollution

Downs, C. A., Diaz-Cruz, M. S., White, W. T., Rice, M., Jim, L., Punihaole, C., ... & Bagshaw, J. (2022). Beach showers as sources of contamination for sunscreen pollution in marine protected areas and areas of intensive beach tourism in Hawaii, USA. *Journal of hazardous materials*, *438*, 129546. https://doi.org/10.1016/j.jhazmat.2022.129546

Gibson, V. L., Bremer, L. L., Burnett, K. M., Lui, N. K., & Smith, C. M. (2022). Biocultural values of groundwater dependent ecosystems in Kona, Hawai‘i. *Ecology and Society*, *27*(3), Article 3. https://doi.org/10.5751/ES-13432-270318

Kamau, I. (2024). *Predicting Sea Level Rise Impacts to Coastal Wastewater Infrastructures and Water Quality Along the Kailua-Kona Shoreline* (Master's thesis, University of Hawai'i at Hilo) https://hdl.handle.net/10790/43924

Marrack, L. C., & Beavers, S. C. (2023). Anchialine pool shrimp (Halocaridina rubra) as an indicator of sewage in coastal groundwater ecosystems on the island of Hawai‘i. *Plos one*, *18*(8), e0290658. https://doi.org/10.1371/journal.pone.0290658

Wada, C. A., Burnett, K. M., Okuhata, B. K., Delevaux, J. M. S., Dulai, H., El-Kadi, A. I., Gibson, V., Smith, C., & Bremer, L. L. (2021). Identifying wastewater management tradeoffs: Costs, nearshore water quality, and implications for marine coastal ecosystems in Kona, Hawai‘i. *PLOS ONE*, *16*(9), Article 9. https://doi.org/10.1371/journal.pone.0257125

VI. Climate Change

Bremer, L., Mandle, L., Trauernicht, C., Pascua, P., McMillen, H., Burnett, K., Wada, C., Kurashima, N., Quazi, S., Giambelluca, T., Chock, P., & Ticktin, T. (2018). Bringing multiple

values to the table: Assessing future land-use and climate change in North Kona, Hawai‘i. *Ecology and Society*, *23*(1), Article 1. https://doi.org/10.5751/ES-09936-230133

Cheng, C. L., Izuka, S. K., Kennedy, J., Frazier, A. G., & Giambelluca, T. W. (2020). *Water-resource management monitoring needs, State of Hawai‘i* (Scientific Investigations Report 2020-5115). U.S. Geological Survey. https://doi.org/10.3133/sir20205115

Delevaux, J. M., Stamoulis, K. A., Whittier, R., Jupiter, S. D., Bremer, L. L., Friedlander, A., ... & Ticktin, T. (2019). Place-based management can reduce human impacts on coral reefs in a changing climate. *Ecological Applications*, *29*(4), e01891. https://doi.org/10.1002/eap.1891

Frazier, A.G., Giardina, C.P., Giambelluca, T.W., Brewington, L., Chen, Y.-L., Chu, P.S., Fortini, L.B., Helweg, D.A., Keener, V., Longman, R.J., Lucas, M.P., Mair, A., Oki, D., Reyes, J.J., Yelenik, S., and Trauernicht, C. (2022). A century of spatial and temporal patterns of drought in Hawai'i across hydrological, ecological, and socioeconomic scales. Sustainability 14, 12023, https://doi.org/10.3390/su141912023

Frazier, A. G., & Giambelluca, T. W. (2016). Spatial trend analysis of Hawaiian rainfall from 1920 to 2012. *Journal of Climate*, *29*(24), 8827–8841. https://doi.org/10.1002/joc.4862

Friedrich, T., Powell, B. S., Gunnarson, J. L., Liu, G., Giardina, S. F., Stuecker, M. F., ... & Stock, C. A. (2024). Submesoscale-permitting physical/biogeochemical future projections for the main Hawaiian Islands. *Journal of Advances in Modeling Earth Systems*, *16*(2), e2023MS003855. https://doi.org/10.1029/2023MS003855

Huang, Y. F., Tsang, Y., Strauch, A. M., & Clilverd, H. M. (2021). Shifting magnitude and timing of streamflow extremes and the relationship with rainfall across the Hawaiian Islands. *Journal of Hydrology*, *600*, 126424. http://dx.doi.org/10.1016/j.jhydrol.2021.126424

Kamau, I. (2024). *Predicting Sea Level Rise Impacts to Coastal Wastewater Infrastructures and Water Quality Along the Kailua-Kona Shoreline* (Master's thesis, University of Hawai'i at Hilo) https://hdl.handle.net/10790/43924

Mair, A., Oki, D. S., Kāne, H. L., Johnson, A. G., & Rotzoll, K. (2024). *Effects of drought and cloud-water interception on groundwater recharge and wildfire hazard for recent and future climate conditions, Kaua‘i, O‘ahu, Moloka‘i, Maui, and the Island of Hawai‘i* (No. 2023-5141). US Geological Survey. https://doi.org/10.3133/sir20235141

McMillen, H., Ticktin, T., & Springer, H. K. (2017). The future is behind us: traditional ecological knowledge and resilience over time on Hawai ‘i Island. *Regional Environmental Change*, *17*, 579-592. https://doi.org/10.1007/s10113-016-1032-1

Okuhata, B. K., Delevaux, J. M. S., Richards Donà, A., Smith, C. M., Gibson, V. L., Dulai, H., El-Kadi, A. I., Stamoulis, K., Burnett, K. M., Wada, C. A., & Bremer, L. L. (2023). Effects of Multiple Drivers of Environmental Change on Native and Invasive Macroalgae in Nearshore Groundwater Dependent Ecosystems. *Water Resources Research*, *59*(7), Article 7. https://doi.org/10.1029/2023WR034593

Richardson, C. M., Davis, K. L., Ruiz-González, C., Guimond, J. A., Michael, H. A., Paldor, A., ... & Paytan, A. (2024). The impacts of climate change on coastal groundwater. *Nature Reviews Earth & Environment*, *5*(2), 100-119. https://doi.org/10.1038/s43017-023-00500-2

VII. Miscellaneous (outside geographic scope of Keauhou but possibly helpful)

Bremer, L. L., Elshall, A. S., Wada, C. A., Brewington, L., Delevaux, J., El-Kadi, A. I., ... & Burnett, K. M. (2021). Effects of land-cover and watershed protection futures on sustainable groundwater management in a heavily utilized aquifer in Hawai ʻi (USA). *Hydrogeology journal*. https://doi.org/10.1007/s10040-021-02310-6

Bremer, L. L., Nathan, N., Trauernicht, C., Pascua, P., Krueger, N., Jokiel, J., ... & Daily, G. C. (2021). Maintaining the many societal benefits of rangelands: the case of Hawai'i. *Land*, *10*(7), 764. https://doi.org/10.3390/land10070764

Burnett, K. M., Elshall, A. S., Wada, C. A., Arik, A., El-Kadi, A., Voss, C. I., ... & Bremer, L. L. (2020). Incorporating historical spring discharge protection into sustainable groundwater management: a case study from Pearl Harbor Aquifer, Hawai ʻi. *Frontiers in water*, *2*, 14. https://doi.org/10.3389/frwa.2020.00014

Cheng, C. L., Izuka, S. K., Kennedy, J., Frazier, A. G., & Giambelluca, T. W. (2021). *Water-resource management monitoring needs, State of Hawai ʻi* (No. 2020-5115). US Geological Survey. https://doi.org/10.3133/sir20205115

Dacks, R., Ticktin, T., Mawyer, A., Caillon, S., Claudet, J., Fabre, P., ... & Wongbusarakum, S. (2019). Developing biocultural indicators for resource management. *Conservation Science and Practice*, *1*(6), e38. https://doi.org/10.1111/csp2.38

Dulai, H., Smith, C. M., Amato, D. W., Gibson, V., & Bremer, L. L. (2023). Risk to native marine macroalgae from land-use and climate change-related modifications to groundwater discharge in Hawai'i. *Limnology and Oceanography Letters*, *8*(1), 141-153. https://doi.org/10.1002/lol2.10232

Elshall, A. S., Arik, A. D., El-Kadi, A. I., Pierce, S., Ye, M., Burnett, K. M., ... & Chun, G. (2020). Groundwater sustainability: A review of the interactions between science and policy. *Environmental Research Letters*, *15*(9), 093004. 10.1088/1748-9326/ab8e8c

Friedrich, T., Powell, B. S., Stock, C. A., Hahn-Woernle, L., Dussin, R., & Curchitser, E. N. (2021). Drivers of phytoplankton blooms in Hawaii: A regional model study. *Journal of Geophysical Research: Oceans*, *126*(5), e2020JC017069 https://doi.org/10.1029/2020JC017069

Mezzacapo, M., Donohue, M. J., Smith, C., El-Kadi, A., Falinski, K., & Lerner, D. T. (2020).

Hawai ‘i's Cesspool Problem: Review and Recommendations for Water Resources and Human Health. *Journal of Contemporary Water Research & Education*, *170*(1), 35-75. https://doi.org/10.1111/j.1936-704X.2020.03339.x

Kang, S., Kroeger, T., Shemie, D., Echavarria, M., Montalvo, T., Bremer, L. L., ... & Zhang, H. (2023). Investing in nature-based solutions: Cost profiles of collective-action watershed investment programs. *Ecosystem Services*, *59*, 101507. https://doi.org/10.1016/j.ecoser.2022.101507

Kretschmer, D., Wachholz, A., & Reinecke, R. (2023). Chapter 21 - Global groundwater in the Anthropocene. In *Groundwater Ecology and Evolution* (Second Edition, pp. 483–500). https://doi.org/10.1016/B978-0-12-819119-4.00021-4

Sterling, E. J., Filardi, C., Toomey, A., Sigouin, A., Betley, E., Gazit, N., ... & Jupiter, S. D. (2017). Biocultural approaches to well-being and sustainability indicators across scales. *Nature ecology & evolution*, *1*(12), 1798-1806. https://doi.org/10.1038/s41559-017-0349-6

VIII. Adaptive Management and Adaptive Management Planning

Elshall, A. S., Arik, A. D., El-Kadi, A. I., Pierce, S., Ye, M., Burnett, K. M., Wada, C. A., Bremer, L. L., & Chun, G. (2020). Groundwater sustainability: A review of the interactions between science and policy. *Environmental Research Letters*, *15*(9), Article 9. https://doi.org/10.1088/1748-9326/ab8e8c

Gutheil, L. (2020). Why adaptive management will not save us: Exploring management directives' interaction with practice. *Public administration and development*, *40*(2), 129-140. https://doi.org/10.1002/pad.1888

IBC Consultants via GUILD Consultants. (2025, June 23). *Adaptive Management Roundup. GUILD Consultants contracted with a back-office support and research firm in Hyderabad to undertake a roundup of successful and partially successful natural resource AMPs. Judgements have not been verified by GUILD but may be of interest and use for organizations interested in adaptive management planning.*

Månsson, Johan, Louise Eriksson, Isla Hodgson, Johan Elmberg, Nils Bunnefeld, Rebecca Hessel, Maria Johansson et al. "Understanding and overcoming obstacles in adaptive management." *Trends in ecology & evolution* 38, no. 1 (2023): 55-71. https://doi.org/10.1016/j.tree.2022.08.009

McLain, R. J., & Lee, R. G. (1996). Adaptive management: promises and pitfalls. *Environmental management*, *20*, 437-448. https://doi.org/10.1007/BF01474647

Mysiak, J. (Ed.). (2010). *The adaptive water resource management handbook*. Earthscan. https://doi.org/10.4324/9781315065984

National Research Council, Division on Earth, Life Studies, Ocean Studies Board, Water

Science, Technology Board, ... & Panel on Adaptive Management for Resource Stewardship. (2004). *Adaptive management for water resources project planning*. National Academies Press. https://doi.org/10.17226/10972

Rohde, M. M., Froend, R., & Howard, J. (2017). A global synthesis of managing groundwater dependent ecosystems under sustainable groundwater policy. *Groundwater*, *55*(3), 293-301. https://doi.org/10.1111/gwat.12511

Saito, L., Christian, B., Diffley, J., Richter, H., Rohde, M. M., & Morrison, S. A. (2021). Managing groundwater to ensure ecosystem function. *Groundwater*, *59*(3), 322-333. https://doi.org/10.1111/gwat.13089

Thomann, J. A., Werner, A. D., Irvine, D. J., & Currell, M. J. (2020). Adaptive management in groundwater planning and development: A review of theory and applications. *Journal of Hydrology*, *586*, 124871. https://doi.org/10.1016/j.jhydrol.2020.124871

Thomann, J. A., Werner, A. D., & Irvine, D. J. (2022). Developing adaptive management guidance for groundwater planning and development. *Journal of Environmental Management*, *322*, 116052. https://doi.org/10.1016/j.jenvman.2022.116052

Williams, B. K., Szaro, R. C., & Shapiro, C. D. (2009). Adaptive management: the US Department of the Interior technical guide. *USGS Report*, 62. https://pubs.usgs.gov/publication/70194537

Williams, B. K., & Brown, E. D. (2014). Adaptive management: from more talk to real action. *Environmental Management*, *53*, 465-479. https://doi.org/10.1007/s00267-013-0205-7

Williams, B. K., & Brown, E. D. (2016). Technical challenges in the application of adaptive management. *Biological Conservation*, *195*, 255-263. https://doi.org/10.1016/j.biocon.2016.01.012