

January 2023

Department of Land and Natural Resources

Division of Aquatic Resources

2022 Accomplishments Letter



Hawai'i Division of Aquatic Resources

Aloha from DAR!

As we close-out another calendar year it's a good time to reflect on the past year, and everything that DAR has accomplished collectively with our partners, areas where we've grown, and changes we've experienced to help prepare us for the new year.

The year 2022 marked the transition back to office life, in-person meetings, site visits, and field work. Although the commute and increased parking fees weren't exactly a welcome return, it's been nice interacting in person again and reconnecting with colleagues. The DAR team has continued to progress our mission, moving new management initiatives under our four major pillars: Place-based Planning, Pono Practices, Restoration and Protection, and Ecosystem Monitoring. I'm extremely proud of all of the work that the DAR team has accomplished this past year.

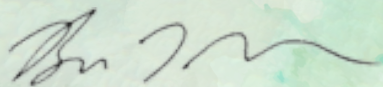
This year we say mahalo and aloha to Mark Sueyasu after 28 years of public service. Mark managed the rainbow trout fishery at Kōke'e and has ensured many seasons of successful trout fishing for families. No surprise, he also holds the State record for rainbow trout from Kōke'e weighing in at 5 lb 10.56 oz (1991). DAR and the Kaua'i community will miss Mark and we wish him a happy retirement (maybe he will have time to beat his trout record).

We also said a mahalo and aloha to Jason Mehlinger who moved on to NOAA this year. Jason is well known by the fishing community as well as many educators around O'ahu. Jason started out on the Aquatic Invasive Species Team, but spent the lion's share of his time at DAR serving as the Education Specialist for O'ahu. He hosted fishing clinics, classroom visits, fishing tournaments, and public meetings. Most big events involving fishing and fishers on O'ahu - Jason was there. Jason is a gifted communicator, and we wish him good luck on his career path at NOAA.

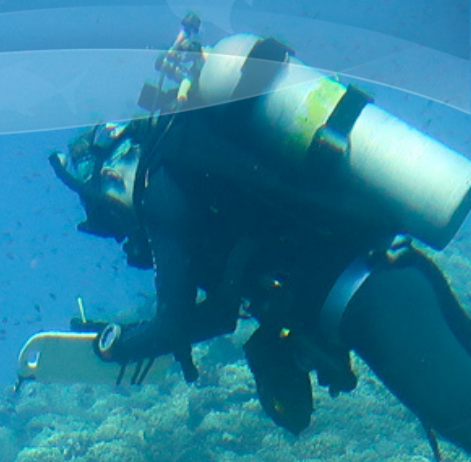
This year we also bid aloha to DLNR Chair Suzanne Case and First Deputy Bob Masuda. We appreciate their great leadership and dedication to building DAR and their support of aquatic resource management during their tenure.

I highlight a few of DAR's major accomplishments of 2022 in the attached document. I'm looking toward a healthy and productive 2023. Mahalo to our DAR staff for their effort and passion and to our partners for their support and kōkua of Hawai'i's aquatic resources and communities.

Sincerely,



Brian Neilson, DAR Administrator



DAR Accomplishments

Administrative

2022 Hawai‘i Legislative Session

- Strengthened administrative and criminal penalties for aquatic resource violations
- Authority to conduct in-lieu fee mitigation
- \$350,000 appropriated for the Fish Aggregation Device (FAD) program
- \$300,000 appropriated for a Pūpūkea Marine Life Conservation District (MLCD) carrying capacity pilot study
- Funding to support fishponds and ‘ama ‘ama production
- Creation of two new Biologist positions to focus on aquaculture and coral restoration
- Passed a resolution urging the US Army Corp of Engineers to work with DLNR to mitigate negative impacts to corals and other important coral reef resources while dredging in state waters
- Banned drone fishing
- Restored operating funds cut in 2020
- Restored Kona Fish Tech position and AIS positions cut/defunded in 2020

Other Administrative

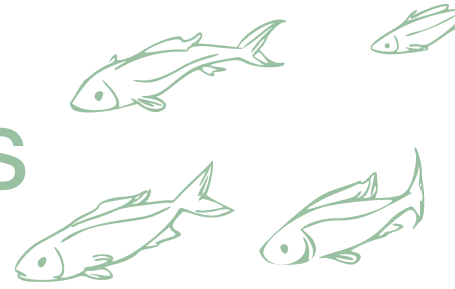
- Filled nine critical civil service positions
- Proposed Re-organization submitted to Budget and Finance for review

New Funding

- Congress funded three stewardship projects, which included \$2,100,000 for West Hawai‘i Resilient Reefs Initiative, \$415,000 for Waikīkī Snorkeling Enhancement Pilot Project, and \$286,000 for DAR’s Rare Coral Ark
- U.S. Economic Development Administration selected two of DAR’s proposals to pilot a Waikīkī Snorkel Restoration Trail for \$750,000 and develop and support the State’s Day-Use Mooring program in collaboration with DOBOR for \$800,000
- Environmental Protection Agency Wetland Development Program awarded \$352,170 in grants to develop a Protection and Voluntary Restoration Strategy for Wetlands of Focus: Marshes and Anchialine Pools in collaboration with the Division of Forestry and Wildlife
- Hawaii Community Foundation Grant for \$686,660 to support the Holomua Initiative
- Congress passed the Restoring Resilient Reefs Act which will provide State Block Grants to support coral stewardship projects

DAR Accomplishments

Pono Practices



Protected Species

- Conducted protected species monitoring surveys on O'ahu, Maui, Hawai'i Island, Kaua'i, Moloka'i, Lāna'i, and Ni'ihau
- Conducted marine animal (whales, seals, turtles) stranding response operations across the State
- Hosted derelict net marine debris removal program and hotline state-wide
- Received Sec. 6 Federal Grant to fund partners and began hiring new staff and expanding the program
- Provided education and outreach on protected marine species: public meetings, in-person discussions, social media, webpage postings, attending fishing tournaments and public events
- Expanded new grade-school level education curriculum and lesson plan program for schools across the State
- Continued work on the State Management Plan for Marine Protected Species and the DAR Protected Species Program webpage

Permitting

- Provided timely support in issuing Special Activity Permits (SAPs) for research and education needs, while protecting and stewarding Hawai'i's aquatic resources
- Continued to develop DAR's new permitting portal to streamline the SAP application and management process
- Implemented Coral Restoration permitting framework
- Established a cultural review process for permits
- Established a review process for permits including activities for aquarium purposes

Education & Outreach

- Participated in Division of Conservation and Resources Enforcement (DOCARE) Academy
- Collaborated with Outside Hawai'i to develop a series of short videos highlighting DAR
- Developed Herbivore Coloring and Activity Book for keiki
- Printed and distributed Fishing Regulations Handbooks, pono fishing rack cards, and other education and outreach materials developed by DAR
- Designed signage for the Miloli'i CBSFA
- Continuously updated DAR and Holomua websites
- Aired 30-second television spot promoting pono fishing practices
- Conducted fisher outreach at fishing tournaments and other public events

DAR Accomplishments

Pono Practices

Fisheries Management

Rulemaking Initiatives:

- Lay net rule amendments (including lay net permit requirement) – Adopted by BLNR
- Statewide bag and size limits for key herbivorous reef fish – Held statewide scoping meetings and initial BLNR meeting (requesting approval for public hearing)
- West Hawai'i Pāku'iku'i Adaptive Management Rules – Adopted by BLNR

Other Actions:

- Finalized plans to implement a new creel survey design in January 2023 for the HMRFS project
- Opened the remaining eight Bottomfish Restricted Fishing Areas (BRFA's) for fishing
- Developed partnership with Wai'anae High School to support aquaculture and fishpond education program

Enforcement Actions

- Coral and live rock damage cases (administrative enforcement actions taken to BLNR)

Fisheries Co-Management

- Gained fisher insight into management by participating in Fishers Working Group Meetings, Lawai'a Pono meetings, SAFE Meetings, Holoholo Fisher Talk Story Sessions, Kaua'i Public Meeting (hosted by Hawai'i Fishermen's Alliance for Conservation and Tradition (HFACT)), and the Kāne'ohe Bay Regional Council
- Conducted the 5-Year review of the Hā'ena Community-Based Subsistence Fishing Area (CBSFA) including co-hosing an event to showcase successes and challenges
- Facilitated Holomua Marine Initiative Talk Story Sessions on Maui
- Participated in scoping meetings for the Miloli'i CBSFA
- Worked with fishers and community members to develop a management plan and associated fisheries regulations for Maunalua Bay, O'ahu
- Participated in co-management panel discussion at the U.S. Coral Reef Task Force
- Collaborated with the Community-Based Monitoring Hui, including workshops and developing monitoring priorities
- Worked with fishers to develop new approaches to gather essential fisheries data
- Worked with fishpond practitioners to improve fishpond productivity



DAR Accomplishments

Place-Based Planning



- Adopted Miloli'i CBSFA rules
- Molokini Marine Life Conservation District Amendment amendments scoping and planning, in collaboration with DOBOR
- Launched the Holomua Community Engagement Pilot – Including the Maui Talk Story webpage, informational materials, and online nomination portal for the Maui Navigation Team
- Participated in planning meetings and conducted scoping meetings for the proposed Kīpahulu CBSFA, the proposed Maunalua Bay Fisheries Management Area (FMA), and the proposed Statewide Herbivore rules – Kīpahulu is finalizing their management plan following public scoping, Maunalua Bay submitted a revised management plan, and the herbivore rules were presented to BLNR
- Planned and scoped amendments to the Molokini Marine Life Conservation District day-use mooring rules, in collaboration with DOBOR
- Conducted the Hā'ena CBSFA 5-Year Review
- Established and convened a multi-disciplinary scientific and cultural advisory group

DAR Accomplishments

Place-Based Planning

Hawaiian Islands Humpback Whale Sanctuary

- Co-established a series of monitoring buoys to collect climate and reef condition data within the sanctuary
- Created new educational materials with cultural advisors
- Distributed 1000 marine science and Hawaiian cultural education packets to schools and libraries across five islands
- Co-developed best boating practices around whales outreach materials entitled "Boating with whales"
- Responded and coordinated whale entanglement events
- Participated on the Sanctuary Advisory Council (SAC)

Papahānaumokuākea Marine National Monument

- Worked with partners to fulfill Hawaii Environmental Policy Act (HEPA) requirements, including developing a Cultural Impact Assessment, as part of the joint federal/state Environmental Impact Statement for proposed sanctuary designation
- Worked to ensure bio-secure best management practices were developed and followed for *Chondria tumulosa*, (invasive algae found in PMNM) concerning marine debris removal in *Chondria tumulosa* infested areas to reduce the risk of spread when returning to the Main Hawaiian Islands for disposal
- Governor issued proclamation recognizing the 15th Anniversary of Papahānaumokuākea Marine National Monument and UNESCO World Heritage Site
- Responded to *Chondria* invasion to protect from spread within PMNM and the main Hawaiian Islands
- Chaired the PMNM Management Board for the year 2022

DAR Accomplishments

Restoration & Protection

Limu Restoration

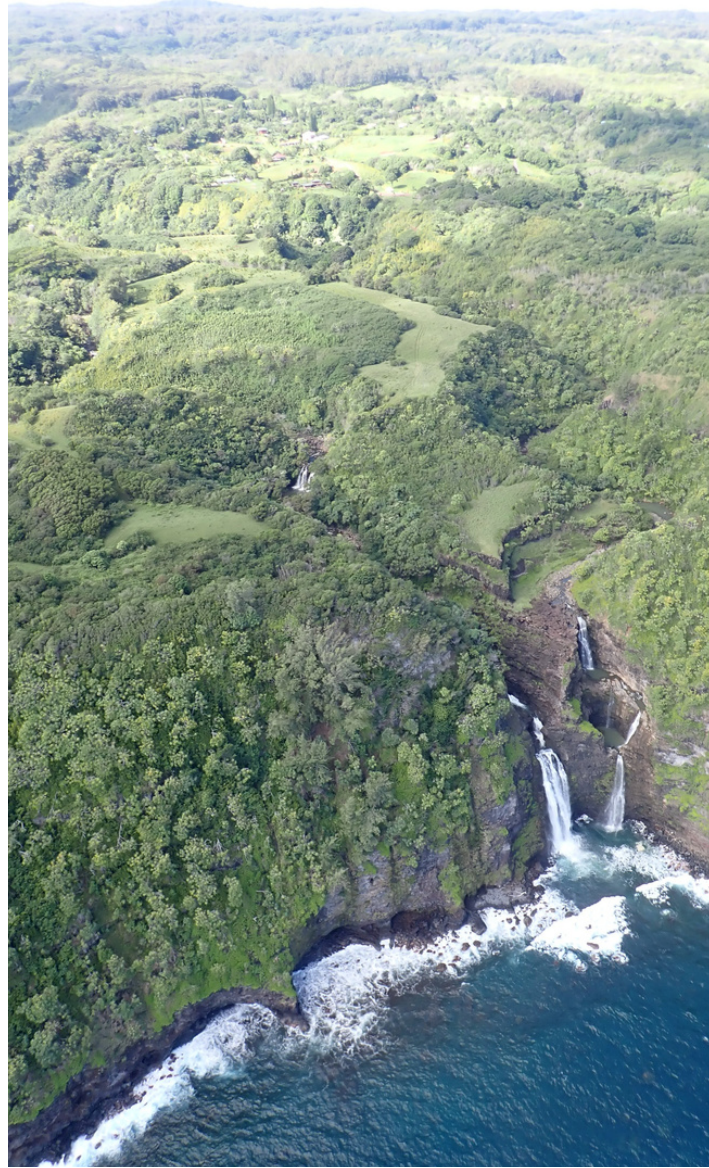
- Supported community-based partners in planning the “Year of the Limu, 2022” planning and events lead by Kua’āina Ulu ‘Auamo (KUA)
- Expanded community-based limu cultivation tanks for restoration
- Produced 3,566 lbs. of limu for limu and urchin restoration
- Worked with partners to produce more limu species (such as huluhuluwaena) at DAR’s Sand Island facility

Estuarine Restoration

- Provided support and funding with partners to restore over 10 acres of aquatic habitat at Honouliuli and He’eia
- Collected eDNA from 10 streams and their estuaries on Maui to support management decision by the Commission on Water Resource Management (CWRM)
- Customized DAR database into dashboards for monitoring data collected statewide
- Developed cast net and eDNA monitoring collaboration ahead of restored groundwater flow to Kalauha’iha’i fishpond, which will in turn reestablish freshwater flow from its mā kāhā into Maunaloa Bay’s productive juvenile fish habitat.

Sea Urchin Hatchery

- Out-planted 150,000 hatchery-raised native sea urchins (990,000 out-planted to date)

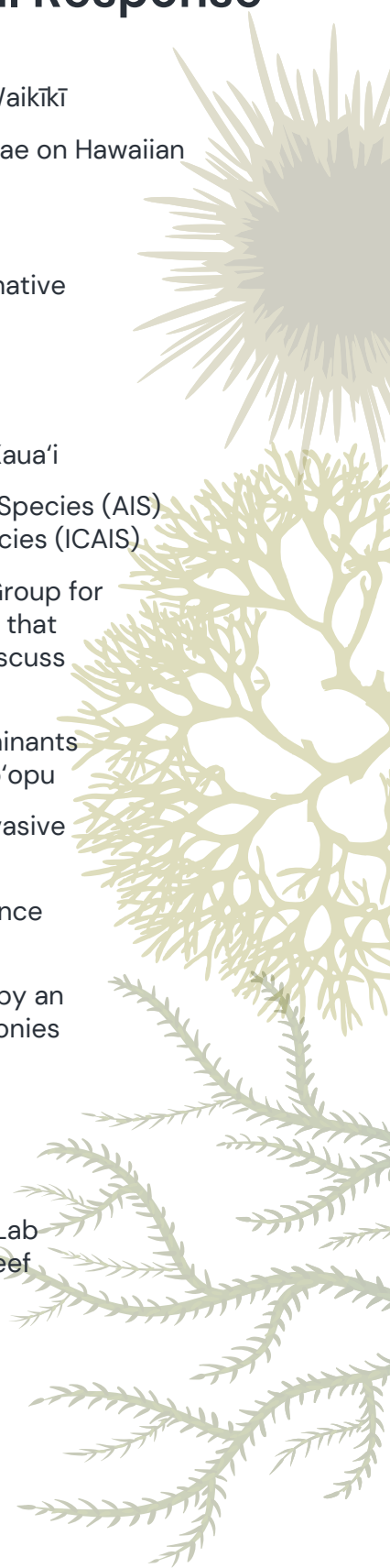


DAR Accomplishments

Restoration & Protection

Aquatic Invasive Species & Environmental Response

- Continued native urchin biocontrol of invasive algae in Kāneʻohe Bay and Waikīkī
- Provided field support for the collection of spectral signatures of macroalgae on Hawaiian reefs to better manage invasive algae
- Eradicated introduced coral on Kauaʻi
- Developed and implemented a risk screening tool and procedure for non-native freshwater species
- Monitored *Avrainvillea erecta* (invasive algae) pilot control study sites in collaboration with UH
- Monitored and recorded progression of coral disease in the reef at ʻAnini, Kauaʻi
- Presented on Vessel Incidental Discharge Act (VIDA) and Aquatic Invasive Species (AIS) threats at the April 2022 International Conference on Aquatic Invasive Species (ICAIS)
- Created the Stony Coral Tissue Loss Disease (SCTLD) Response Working Group for Hawaii and hosted an Alien Aquatic Organism Task Force (AAOTF) Meeting that brought multiple agencies, organizations, and businesses from Hawaii to discuss the threat of ballast water as a vector of SCTLD
- Co-authored peer-reviewed scientific article on the occurrence of contaminants of emerging concern in Hawaiian streams and potential effects on native ʻoʻopu
- Co-authored a peer-reviewed scientific article examining the drivers of invasive algae decline in Kāneʻohe Bay
- Relocated of 77 coral colonies from the west side of Honolulu Harbor entrance channel to avoid impact from ongoing maintenance dredging operations
- DAR-West Hawaiʻi responded to reports of a swath of coral reef damaged by an anchor in Kailua Bay in October 2022, assessment estimated 231 coral colonies were damaged
- DAR-West Hawaiʻi responded to a dead whale in North Kohala along with representatives from NOAA and UH Mānoa and to a live Green Sea Turtle abduction at Waikoloa
- Joined with UH Hilo's Multiscale Environmental Graphical Analysis (MEGA) Lab and HIMB's Madin Lab to begin long-term monitoring of emergency coral reef restoration in Honolulu Harbor channel using Structure for Motion high-resolution monitoring.



DAR Accomplishments

Restoration & Protection

Coral Restoration

- Out-planted 69 coral modules, including the first modules of the rare Hawaiian endemic Purple Rice Coral (*Montipora dilatata*) and the first modules of Porkchop Coral (*Pavona duerdeni*)
- Expanded coral restoration efforts to include a new restoration site, for a total of five sites on O'ahu
- Developed and scoped the Hawai'i Coral Reef Strategy 2023 Makai Restoration Action Plan for Bleaching with stakeholders from five priority geographic areas
- Engaged in new and continued collaborations with researchers at University of Hawai'i (UH), Hawai'i Institute of Marine Biology (HIMB), Kewalo Marine Laboratory
- Continued to develop and test new coral reef restoration techniques, including testing biotic and abiotic coral larvae settlement cues, polyp bailout techniques, crustose coralline algae fast-growth and "paint," oyster water quality indicators, asexual planula reaggregation and production
- Co-developed an evaluation framework for coral reef restoration projects under the division's SAP program, which will be beta tested and introduced in 2023
- Continued maintenance of the Rare Coral Ark, which maintains over 50 species of Hawaiian corals
- Expanded production and out-planting of large coral modules (1-yard) in diameter

Sport Fish Enhancement

- Stocked 50,716 trout for the Kōke'e Public Fishing Area (PFA), Kaua'i
- Continued to support public fishing at Wahiawā PFA, O'ahu and Waiākea PFA, Hawai'i Island
- Partnered with Wahiawā Middle School to release 1,024 largemouth bass into the Wahiawā PFA
- Replaced 15 anchored FADs
- Continued to support public fishing at Waiākea PFA
- Completed the Fish and Wildlife Coordination Act (FWCA) report for the potential expansion of the Maunalua Bay and Wai'anae artificial reefs, with more than 60 surveys completed by DAR staff




DAR Accomplishments

Ecosystem Monitoring

- Conducted and expanded statewide stream, estuarine, creel, and reef surveys
- Collaborated with the Hawai'i Fisheries Cooperative Unit to review fishing effort and catch survey program and look at ways to improve data collection to better serve DAR's management data needs
- Added all Hawai'i Island Coral Reef Assessment and Monitoring (CRAMP) sites to DAR's annual survey program; these sites will now be surveyed by DAR staff every year on Maui, Kaua'i, Hawai'i Island and O'ahu
- Partnered with NOAA, UH Hilo, and Arizona State University for a large-scale biodiversity survey across West Hawai'i that included visual fish surveys, 3D habitat mapping, and eDNA sampling
- Established an East Hawai'i Coral Reef Monitoring Program
- Greatly expanded fish and benthic monitoring in West Hawai'i to cover a broader range of depths and habitats as well as align our methods with other districts
- Continued to work with CWRM in monitoring streams and estuaries to determine the influence of stream flow management actions on aquatic resources
- FY 2022: Collected eDNA data from 10 streams and their downstream estuaries on Maui to gather baseline species diversity in watersheds before CWRM considers new permitting for water diversions
- Facilitated restoration of ground water flows at Kalauha'iha'i fishpond allowing its mākāhā to flow again with freshwater into Maunalua Bay, reestablishing a productive juvenile fish habitat. Anticipating this, the DAR Estuary Team, in collaboration with Maunalua Bay Fishpond Heritage Center, monitored before-restoration conditions in the estuary, using cast nets and eDNA sampling methods, to document changes.
- Finalized plans to implement a new creel survey design in January 2023 for the HMRFS project
- Conducted over 2,660 reef surveys in three districts (Kaua'i, Maui, O'ahu, and East and West Hawai'i Island)
- Continued to improve a centralized monitoring database to house ecosystem survey data
- Launched data dashboards that summarize monitoring data collected statewide in streams, estuaries, and coral reefs

& Other Accomplishments

- Hosted the 45th U.S. Coral Reef Task Force in Keauhou with over 100 coral reef managers, scientists, and community stewards coming together to discuss and prioritize conservation for coral reefs across 10 U.S. states, territories, commonwealths, and Freely Associated States. Highlights: <https://vimeo.com/showcase/9789556>
- Co-organized the 5th International Symposium on Anchialine Ecosystems (ISAE) in Kailua-Kona, Hawai'i Island; the first ISAE held in the Pacific and in the US
- Reviewed and began updates to the Hawai'i State Wildlife Action Plan (SWAP) in preparation for the 2025 national update. The SWAP details the biology, ecology, and conservation and management priorities of every aquatic species of greatest conservation need statewide.



DAR Accomplishments

2023 Priorities

Pono Practices

- Engage in rulemaking to implement non-resident marine recreational fishing license, marine vessel license, and dealer license
- Establish Ocean Stewardship Users Fee
- Engage in species-specific and statewide fisheries management planning

Fisheries Co-Management

- Continue to work with fishers and the fishing community to co-develop fisheries management plans, stewardship projects, and ecosystem monitoring projects

Place-Based Planning

- Advance the Holomua Marine Initiative
- Establish island-based multi-disciplinary advisory groups
- Initiate a community engagement process to participate in the development of fisheries management plans
- Continue scoping process for the Kīpahulu CBSFA and Maunalua Bay FMA
- Obtain approval from BLNR to conduct public hearings for statewide herbivore rules; Plan and carry out the public hearings once approved
- Build trust with fishing community by facilitating opportunities for DAR staff to talk story with fishers
- Complete HEPA requirements for PMNM sanctuary designation proposal

DAR Accomplishments

2023 Priorities

Restoration & Protection

- Develop a Restoration Plan for Fisheries Habitat and Shoreline Protection
- Implement a harbor eDNA monitoring project to detect non-native species
- Replicate 2009 recreational vessel biofouling surveys in boat harbors across the main Hawaiian Islands
- Support testing of Stony Coral Tissue Loss Disease effects on Hawaiian corals
- Collaborate with other Western states on ballast water data management and sharing
- Continue to develop and expand the risk screening framework for understanding the risk of invasion of non-native species in Hawaiian waters
- Upgrade the Rare Coral Ark facility
- Update the Aquatic Invasive Species strategic plan
- Begin planning for a potential 2024 Hilo Invasive Species Fishing Tournament
- Partner and coordinate with local organizations, communities, NGOs on potential community events and projects (e.g., kanda mullet workshop and education event in Hilo, limu 'ele'ele cultivation and pua 'ama'ama production at Kaunani Fishpond in Keaukaha, Hawai'i Island)
- Expand Coral Nursery grow-out production
- Pilot coral restoration projects at Waikiki, O'ahu and Kona, Hawai'i Island
- Work with partners in developing a new coral nursery in Kona, Hawai'i Island
- Carry out in-water coral stabilization work at pilot sites in West Hawai'i including tracking of past stabilization efforts following multiple anchor damage cases
- The Coral Nursery will foster new collaborations and projects with Kewalo Marine Laboratory, Scripps Institution of Oceanography, University of Hawai'i, Hawai'i Institute of Marine Biology
- Finalize field monitoring standard operating procedures for the Coral Nursery
- Continued to respond to and remove non-native coral from Kauai's reefs

Administrative

- Rebuild and grow DAR's budget
- Finalize the DAR re-organization and fill new District Biologist positions and other vacancies
- Modernize Administrative Processes
- Improve and expand infrastructure

DAR Accomplishments

2023 Priorities

Ecosystem Monitoring

- Continue to expand and improve on our Fisheries-Dependent Creel Data Collection program and use the data from these surveys to conduct better fisheries stock assessments on various highly targeted species.
- Continue to expand the East Hawai'i Monitoring program to include fish and habitat surveys in addition to CRAMP surveys.
- Incorporate eDNA surveys in Kaua'i estuarine systems
- Develop capacity to conduct structure from motion surveys in areas with coral disease and permanent CRAMP sites
- Incorporate standardized small unmanned aerial system (drones) surveys into monitoring protocols for estuary and anchialine ecosystems
- Develop a draft statewide anchialine management plan under Wetland Program Development Grant
- Expand eDNA sampling efforts in estuaries
- Pilot eDNA sampling methods in anchialine pools to enhance our current biological survey techniques
- Enhance eDNA methodology for estuaries and streams with forward-looking technology.
- Expand monitoring database to include both eDNA data and Hawaiian aquatic species DNA library as well as revamp the marine monitoring data structure to improve efficiency.
- Implement larger-scale photogrammetry studies and begin monitoring for volumetric change in coral
- Further develop East Hawai'i Marine Monitoring Program – Expand fish and habitat utilization surveys
- Continue anchialine monitoring on Hawai'i Island in Puna (at Kapoho and Pohoiki) and Ka'u (at Manukā) and partner with the National Park Service to assist with new mapping and inventory of anchialine pools at Pōhue
- Continue documenting how juvenile fish respond to restoration of freshwater at Kalauha'iha'i fishpond after restoration of the artesian water source, which is scheduled for completion in 2023.
- Waimea River Estuary on Kauai has been added as a new site to the statewide estuary monitoring project