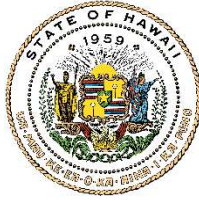


JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

RYAN K.P. KANAKA'OLE
FIRST DEPUTY

CIARA W.K. KAHAHANE
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 WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

November 20, 2024

The Honorable Ronald D. Kouchi,
President
and Members of the Senate
Thirty-Third State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Nadine K. Nakamura,
Speaker and Members of the House of
Representatives
Thirty-Third State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Nakamura, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Hawaii Dam and Reservoir Safety Program Fiscal Year 2024 report, as required by Section 179D-29, Hawaii Revised Statutes. In accordance with Section 93-16, Hawaii Revised Statutes, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at <https://files.hawaii.gov/dlnr/reports-to-the-legislature/2025/EN25-Dam-Safety-Report-FY24.pdf>.

Sincerely,

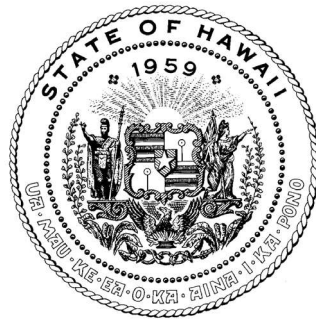
A handwritten signature in black ink, appearing to be "Dawn N.S. Chang".

DAWN N.S. CHANG
Chairperson

Enclosure

Report to the Thirty-Third Legislature
2025 Regular Session

**THE HAWAII DAM AND RESERVOIR SAFETY PROGRAM
STATE FISCAL YEAR 2024**



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

In response to
Section 179D-29, Hawaii Revised Statutes

November 2024

THE HAWAII DAM AND RESERVOIR SAFETY PROGRAM STATE FISCAL YEAR 2024

This report is prepared pursuant to Hawaii Revised Statutes (HRS) Section 179D-29 and covers the period from July 1, 2023 through June 30, 2024.

INTRODUCTION

The Department of Land and Natural Resources' (Department) Engineering Division administers the Hawaii Dam and Reservoir Safety Act of 2007 (Act), codified as HRS Chapter 179D (Dam and Reservoir Safety Program). The Act, in conjunction with Hawaii Administrative Rules (HAR) Chapter 13-190.1, "Dams and Reservoirs", governs the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and their appurtenant works in the State of Hawaii, to protect the health, safety, and welfare of the citizens of the State by reducing the risk of failure of the dams or reservoirs. Pursuant to HRS Section 179D-29, the Department shall submit an annual report to the governor and the legislature by January 5 of each year concerning the activities of the Department relating to this chapter for the preceding fiscal year. The report shall include but not be limited to information on the following:

- (1) Approvals of plans and specifications for the construction of dams and reservoirs and for alterations, modifications, repairs, removal, and enlargements of any dams and reservoirs;
- (2) A listing of dam and reservoir safety inspections made;
- (3) Use of appropriated funds;
- (4) Rules adopted or amended;
- (5) Enforcement orders and proceedings;
- (6) Dam and reservoir failures and department evaluations of the reasons for the failure, if known; and
- (7) Any other available data regarding the effectiveness of the State's dam and reservoir safety program.

This information can be found in the Dam Safety Program Activities section of this report.

BACKGROUND

Historically, dams and reservoirs in Hawaii were predominately developed by the agriculture industry in the early 1900s. Today, dams and reservoirs continue to be used by the agriculture industry, in addition to providing storage for drinking water, fire protection, flood control, ground water recharge, hydro-electric generation, recreation and other purposes.

Only dams that meet a certain jurisdictional size criteria (height and volume) are regulated by the Department. Regulated dams are identified as having artificial barriers which are 25-feet or more in height or have an impounding capacity of 50-acre-feet (~17 million gallons) or more.

At the end of Fiscal Year (FY) 2024 there were 127 regulated dams on the Department's inventory. Figure 1 shows some basic statistics for Hawaii's Regulated Dams.

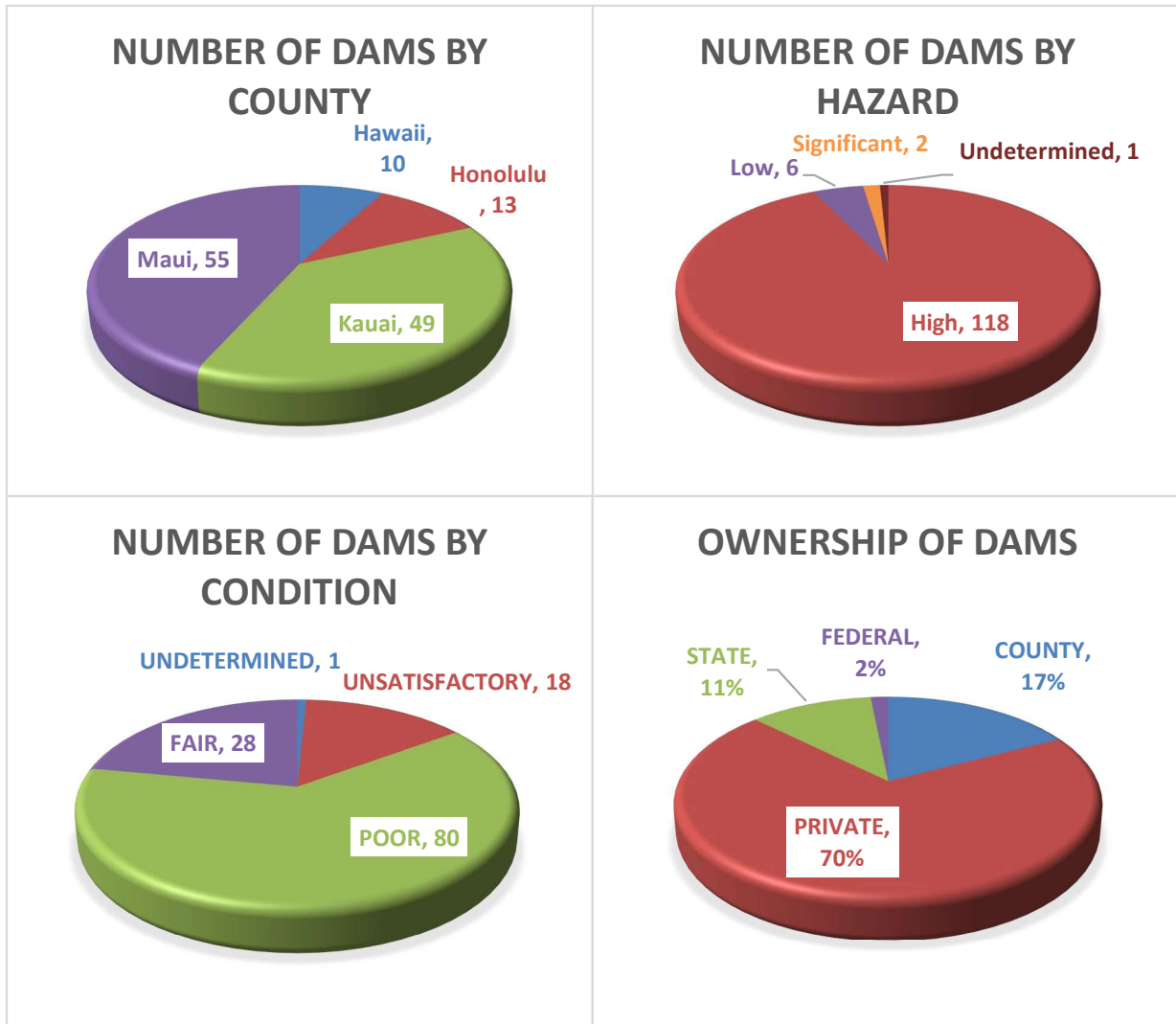


Figure 1: Number of Regulated Dams by County, Hazard Class, and Condition. Percentage of Regulated dams by Ownership.

THE HAWAII DAM AND RESERVOIR SAFETY PROGRAM

The Dam and Reservoir Safety Program is comprised of several core functions as shown in Figure 2.

Dam Safety Construction Permits: A permit from the Board of Land and Natural Resources (Board) is required for all dam construction, alteration, enlargement, modification, or removal work. Dams are uniquely engineered structures that require knowledge and experience in dam safety, particularly how to safely handle water flows in and out of the structure through appurtenant features, as well as mitigating the hazards of water passing through the dam embankment itself (seepage). Dams sustain high hydrostatic water loads, which can result in failure of the embankment if they are not properly designed and constructed. Dam safety permits allow the Department to review and check proposed improvements for concurrence with current dam safety practices and guidelines. Work that is not considered routine maintenance requires prior approval from the Board. Detailed procedures and requirements for this permitting process are provided in HAR Chapter 190.1. A listing of current and closed permits for FY 2024 is listed in Section A of the Dam Safety Program Activities.

Dam Safety Inspections: The Department staff routinely inspects regulated structures statewide and retains consultants as necessary to assist with the assessments. Staff conducted 45 dam safety inspections, construction site visits and informal inspections in FY 2024. The list of the dams inspected in this fiscal year is described in Dam Safety Activities Section B of this report.



Figure 2: Core Functions of Dam and Reservoir Safety Program.

Enforcement Actions: The Department is authorized to take enforcement action for both emergencies and any other violations of the Act. The Department has established administrative enforcement action procedures that are initiated by various actions such as the following:

- Failure to timely address unsafe or emergency conditions
- Conducting construction work on a dam without a permit
- Non-compliance with dam safety permit general terms and special conditions
- Failure to furnish requested information or submit required documents or reports
- Failure to submit a required emergency action plan (EAP) or EAP update
- Failure to pay the annual dam owner fee
- Failure to complete corrective actions as ordered by the Board or its agent

The Department has worked with dam owners to set reasonable rehabilitation or compliance schedules for their dam facilities. Enforcement actions pursued by the Department in Fiscal Year 2024 are described in the Dam Safety Program Activities, Section D.

Regulated Dam Inventory and Dam Classifications: The Department maintains a database of regulated structures, including classifications of each regarding size, hazard potential and overall condition. The inventory of regulated dams is continuously updated based on information gathered during inspections or assessments. In FY 2024 one regulated dam added in FY 2023 was assessed, and one new dam was added to the inventory which will be assessed in FY 2025. All other assessment classifications have been updated based on Phase I investigations completed between 2018-2023.

Emergency Preparedness: HRS Chapter 179D requires that all dam owners of High and Significant Hazard Potential dams complete and submit an Emergency Action Plan (EAP) to the Department. The Department developed guidelines and an EAP template for dam owners to utilize in formulating and executing a plan of action should a possible threat or deficiency occur on their dam facilities. The Department provides training and technical assistance to dam owners and emergency management officials to assist them in their roles and implementation of the EAPs.

In FY 2024, the Department took part in the Federal Emergency Management Agency (FEMA) Collaborative Technical Assistance (CTA) program which is a multi-agency collaborative effort to improve emergency preparedness. More details about this program are discussed in Dam Safety Activities Section G.

Certificate of Approval to Impound: The Certificate of Approval to Impound (CAI) water requirement was included in the Hawaii Dam and Reservoir Safety Act of 2007. After developing guideline procedures and sending CAI applications to all owners of regulated dams, it became evident that with the average age of the dams in our inventory being 91 years, the dams were all constructed before the development of any modern dam safety standards and would not meet the conditions of the CAI. Therefore, the Department is working with owners to establish a reasonable improvement schedule for these facilities to meet current regulations. In the interim period, the Department is working with owners to mitigate these deficiencies through operational restrictions or other types of mitigative actions.

Technical Assistance, Training and Outreach: The Department provides technical assistance to the dam owners, operators, and consultants, as well as to the broader community of hazard mitigation partners and agencies. The Department is a member of the Association of State Dam Safety Officials, (ASDSO) and collaborates on public outreach and national awareness of the importance of dam and reservoir safety programs. In FY 2024, the Department focused on trainings with targeted groups of Dam Owners including the CTA program and Dam Screening Level Risk Assessment (SLRA) and Failure Modes Analysis Workshops discussed in Dam Safety Activities Section G.

The Department maintains an online inventory of regulated dams in the state and makes this inventory available to the public at dams.hawaii.gov. This website continues to be improved to offer more information and easier use for the public, emergency managers, owners, and the Department employees.

Additional information on highlights of technical assistance offered by the Department can be found in Dam Safety Activities Section G.

DAM SAFETY PROGRAM ACTIVITIES:

- A. Approvals of plans and specifications for the construction of dam and reservoirs and for alterations, modifications, repairs, removals, and enlargements of any dams and reservoirs. The following is a listing of active permits and permit reviews in FY 2024 and their status:

Permit No.	State ID	Dam Name	Description of Improvements	Status / Comments
39	KA-0113	Omao Reservoir	Dam removal	Construction work began at the end of FY 2024
53	HA-0042	Waimea 60 MG Reservoir (Puukapu)	Dam improvement - lining, outlet slip-line, upstream control, subdrain	Construction completed, pending repair of outlet valve and permit close-out.
59	HA-0040	Waikoloa Reservoir No. 1	Major repair.	Construction restart pending funding resourcing.
66	OA-0001	Nuuanu No. 4 Res.	Repair and improvement	Construction completion pending resolution of construction contract dispute.
68	OA-137	Oahu Reservoir 155	Improvement	Permit issued and construction to begin in 2025.
71	KA-0061	Lower Kapahi Reservoir	Removal	Owner resubmitting with new project scope
77	MA-0140	Ukumehame Reservoirs	Removal	Approved; Construction started in August, should be completed by November.
83	OA-0129	Waimanalo 60 MG - Crest Modifications	Repair and improvement	Construction completed, close-out pending.
84	KA-0065	Upper Anahola Reservoir	Removal	Removal completed. Permit closeout pending final documentation.
85	KA-0118	Manuhonuhonu	Removal/Reduction	Review pending owner revisions to plans based on comments.
86	KA-0024	Kalihiwai Reservoir	Removal	Final permit submission pending USACE.
87	HA-0049	Keaiwa Reservoir	Removal / Reduction	Permit application under review.
88	MA-0094	Kapalaalaea	Removal	Approved, Construction should be completed by January 2025
89	MA-0058	Honokowai Dam	Reduction	Permit Application under Review.
91	MA-0126	Kahana Nui Dam	Repair	Preliminary permit review.
92	MA-0070	Maui Reservoir 20	Removal	Permit Application under Review.
93	KA-0067	Field 1 Kealia Reservoir	Removal	Removal completed. Permit closeout pending final documentation.
94	KA-0010	Waiakalua Reservoir	Spillway capacity and stability	Scope of work being considered by owners.
95	OA-0021	Kemoo 5 Reservoir	Removal	Permit application under review.

Permit No.	State ID	Dam Name	Description of Improvements	Status / Comments
96	OA-0017	Wahiawa	Removal	Permit application to be amended in Nov 2024.
97	KA-0015	Kaneha	New spillway, stability improvements, seepage drain, outlet improvements	Initial permit review complete. Waiting for owner response for comments
98	HA-0123	Puu Pulehu	New spillway, embankment stability, new parapet wall, new outlet works, new liner	Updating spillway design to incorporate new DLNR flood standard.
99	OA-0154	Nuuanu 1	Spillway improvements, new outlet works, and new toe drain system.	Permit application under review.

Additional permit applications under review:

State ID	Dam Name	Description of Improvements	Status / Comments
MA-0073	HC&S Reservoir 24 - Removal	Removal / Reduction	Preliminary Review
MA-0095	Haiku Reservoir Remediation	Remediation	Preliminary Review
OA-0022	Upper Helemano	Remediation	Preliminary review.
OA-0023	Helemano 6	Removal / Reduction	Preliminary review
MA-0151	Wailuku Water 10	Removal	Reviewing preliminary documents.

Permits closed or cancelled in FY 2024:

Permit No.	State ID	Dam Name	Description of Improvements	Status / Comments
19	MA-0141	Kehalani Retention Basin	New Construction	Variance request accepted by the BLNR. Permit Closed. Owner will submit new permit application.
51	KA-0063	Aahoaka Reservoir	Improvement	Permit cancelled due to inactivity. Owner to submit a new permit.
54	HA-0131	Paauilo Reservoir	Dam improvement - upstream control, vegetation	Project completed and permit closed.
82	MA-0093	Kaupakalua Reservoir	Removal	Permit Closed
90	HA-0051	Hawi No. 5 Reservoir	Removal	Dam removed and permit closed

B. Listing of dam and reservoir safety inspections.

In FY 2024, Dam and Reservoir Safety Program staff conducted 32 visual dam safety inspections, eight construction inspections, three informal inspections and two post flood inspections all on regulated dams (with one exception), for a total of 45 inspections. The

rules require that all regulated dams be inspected every 5 years, and at the end of FY 2024 all regulated dams had been inspected within a 3-year period. A listing of the inspections is provided below:

State ID	Dam Name	Inspection Type	Inspection Date
KA-0158	PINAU RESERVOIR	Informal	07/19/2023
KA-0117	ELUA RESERVOIR	Visual Dam Safety	07/19/2023
KA-0145	KAUAI LAGOONS	Visual Dam Safety	08/02/2023
HA-0042	WAIMEA 60 MG RESERVOIR	Construction	08/16/2023
KA-0120	PAPUAA RESERVOIR	Visual Dam Safety	09/06/2023
KA-0121	HALENANAHU RESERVOIR	Visual Dam Safety	09/06/2023
UHA-6030	WAIAHA RESERVOIR NO. 1	Visual Dam Safety	10/19/2023
KA-0112	AEPOEHA RESERVOIR	Visual Dam Safety	11/01/2023
KA-0104	HUINAWAI RESERVOIR	Visual Dam Safety	11/01/2023
KA-0118	MANUHONUHONU RESERVOIR	Visual Dam Safety	11/01/2023
OA-0017	WAHIAWA DAM	Informal	11/09/2023
KA-0060	WAILUA RESERVOIR	Visual Dam Safety	11/29/2023
KA-0061	LOWER KAPAHI RESERVOIR	Visual Dam Safety	11/29/2023
KA-0006	WAIKAIA RESERVOIR	Visual Dam Safety	12/06/2023
KA-0007	KEPANI RESERVOIR	Visual Dam Safety	12/06/2023
HA-0051	HAWI NO. 5 RESERVOIR (REMOVED 2024)	Construction	12/27/2023
HA-0051	HAWI NO. 5 RESERVOIR (REMOVED 2024)	Construction	01/22/2024
KA-0063	AAHOAKA RESERVOIR	Visual Dam Safety	01/24/2024
HA-0157	PA AALII RESERVOIR	Phase I	02/16/2024
MA-0128	NAPILI 2-3 DESILTING BASIN	Visual Dam Safety	02/21/2024
HA-0049	KEAIWA RESERVOIR	Visual Dam Safety	02/21/2024
MA-0153	PLANTATION RESERVOIR	Visual Dam Safety	02/21/2024
MA-0127	NAPILI 4-5 DESILTING BASIN	Visual Dam Safety	02/21/2024
MA-0130	HONOKOWAI - STRUCTURE #8	Visual Dam Safety	02/28/2024
MA-0134	KAOPALA BASIN	Visual Dam Safety	02/28/2024
KA-0065	UPPER ANAHOLA RESERVOIR	Construction	03/11/2024
KA-0113	OMAO RESERVOIR	Construction	03/11/2024
KA-0067	FIELD 1 KEALIA RESERVOIR	Construction	03/11/2024
KA-0101	HUKIWAI RESERVOIR	Visual Dam Safety	03/13/2024
KA-0100	KAPA RESERVOIR	Visual Dam Safety	03/13/2024
KA-0119	MAUKA RESERVOIR	Visual Dam Safety	03/27/2024
KA-0107	PUU O HEWA RESERVOIR	Visual Dam Safety	03/27/2024

State ID	Dam Name	Inspection Type	Inspection Date
KA-0115	PIA MILL RESERVOIR	Visual Dam Safety	03/27/2024
OA-0001	NUUANU DAM NO. 4	Visual Dam Safety	04/03/2024
OA-0154	NUUANU RESERVOIR NO. 1	Visual Dam Safety	04/03/2024
KA-0158	PINAU RESERVOIR	Post Flood	04/14/2024
KA-0065	UPPER ANAHOLA RESERVOIR	Construction	04/22/2024
KA-0102	IOLEAU RESERVOIR	Post Flood	04/22/2024
KA-0158	PINAU RESERVOIR	Visual Dam Safety	04/22/2024
OA-0137	OAHU RESERVOIR 155	Visual Dam Safety	05/08/2024
KA-0002	PUU LUA RESERVOIR	Visual Dam Safety	05/29/2024
KA-0158	PINAU RESERVOIR	Informal	05/29/2024
KA-0067	FIELD 1 KEALIA RESERVOIR	Construction	05/29/2024
MA-0132	UPPER FIELD 14 RESERVOIR	Visual Dam Safety	06/05/2024
OA-0149	MAUNAOLU RESERVOIR	Visual Dam Safety	06/05/2024

C. Use of Appropriated Funds:

Appropriated funds for the dam and reservoir safety program are authorized under the LNR810 program. These operating funds for the LNR 810 Program support multiple sub-programs which include the State oversight of the National Flood Insurance Program, the State General Flood Control Plan and the Dam and Reservoir Safety Program. Some assumptions were taken to separate costs between these programs for this report. The Dam and Reservoir Safety Program was awarded one federal grant from the United States Department of Homeland Security, Federal Emergency Management Agency (FEMA).

No State general funds are appropriated for the LNR810 program in FY 2024.

The dam and reservoir safety special fund has an annual appropriation ceiling spending limit of \$1,300,000 although no state funds were allocated to this fund. The following is a breakdown of available funds to the Department for its dam safety activities in FY 2024:

Dam Safety Program – Appropriated funding for FY 2024

State of Hawaii – Special Land and Development Fund (Payroll & Operating)	\$ 713,000
State of Hawaii – Dam & Reservoir Safety Special Fund	\$ 0
FEMA National Dam Safety Program Grant (Fed FY 2023)	\$ 49,680
Total Appropriated Funding from All Sources	\$ 762,680

FY 2024 expenditures from the various funding sources were made as follows:

	LNR810 Dam Safety Funds	Dam and Reservoir Safety Special Fund S328	Federal Funds	Total
Personnel Services	\$ 602,500	\$ 0	\$ 0	\$ 602,500
Consultant Services		\$ 771,500	\$ 0	\$ 771,500
Inspections Costs		\$ 29,000	\$ 0	\$ 29,000
Training Expense		\$ 3,300	\$25,400	\$ 28,700
Other Expenses (Supplies, Operating & Equipment)		\$ 46,500	\$ 16,930	\$ 63,430
B&F Management Fee	\$ 56,700	\$ 88,200	\$ 0	\$ 144,900
	\$ 659,200	\$ 938,500	\$ 42,330	\$ 1,640,030

Federal funds are awarded on a federal fiscal calendar. Some adjustments were made in expenditures to match the state fiscal year.

D. Rules adopted or amended.

No Dam Safety rules were adopted or amended in FY 2024.

E. Enforcement orders and proceedings.

In FY 2024, fines were issued to two owners for multiple dams via the Civil Resources Violation System (CRVS). In addition, the Department issued two penalty fines for delinquent action after completing contested cases which were begun in FY 2023. The table below shows the fines issued:

State ID	Dam Name	Fine Amount	Description
KA-0119	Mauka Reservoir	\$15,000	Failure to submit technical studies by NOD deadline. (Contested Case Completed.)
KA-0107	Puu O Hewa Reservoir	\$5,000	Failure to comply with NOD Scheduled Requirements. (Contested Case Completed.)
MA-0059	Reservoir 140	\$522.00	Late payment fee and interest on dam fees
MA-0132	Upper Field 14 Reservoir	\$561.60	Late payment fee and interest on dam fees
MA-0133	Puu Koa Reservoir	\$568.40	Late payment fee and interest on dam fees
MA-0139	Maui Field 290 Reservoir	\$390.00	Late payment fee and interest on dam fees
MA-0142	Middle Field 14 Reservoir	\$535.20	Late payment fee and interest on dam fees
MA-0143	Kaili Ili Reservoir	\$390.00	Late payment fee and interest on dam fees
MA-0144	Plantation Reservoir	\$469.20	Late payment fee and interest on dam fees
KA-0006	Waikaia Reservoir	\$5,000	Failure to submit technical studies by NOD deadline
KA-0007	Kepani Reservoir	\$5,000	Failure to submit technical studies by NOD deadline
KA-0008	Waikaloi Reservoir	\$5,000	Failure to submit technical studies by NOD deadline
KA-0009	Kaawanui Reservoir	\$5,000	Failure to submit technical studies by NOD deadline

The Department issued 7 Notice of Deficiency (NOD) Letters during FY 2024, putting dam owners on a specific schedule for improvements. These were all follow-ups to previously issued NODs where clarification was needed due to missed deadlines or changing status. In addition, 5 dams were taken before the Board of Land and Natural Resources (BLNR) this year which were all follow-ups to previous NODs or BLNR actions where updated schedules for improvements were required due to changing status. The dam structures receiving NODS in FY 2024 are listed below:

State ID	Dam Name	Action Type
KA-0006	WAIKAIA RESERVOIR	NOD
KA-0007	KEPANI RESERVOIR	NOD
KA-0008	WAIKOLOI RESERVOIR	NOD
KA-0009	KAAWANUI RESERVOIR	NOD
OA-0017	WAHIAWA DAM	BLNR
KA-0107	PUU O HEWA RESERVOIR	BLNR (Contested Case Finalization)
KA-0010	WAIKALUA RESERVOIR	BLNR
KA-0119	MAUKA RESERVOIR	BLNR (Contested Case Finalization)
MA-0140	UKUMEHAME RESERVOIRS	BLNR
HA-0123	PUU PULEHU RESERVOIR	NOD
MA-0140	UKUMEHAME RESERVOIRS	NOD
KA-0118	MANUHONUHONU RESERVOIR	NOD

The Department also maintained the following dam restrictions issued in previous years. As we have evaluated risk for our various dams (see section G), we have found that level restrictions are a very important part in effectively reducing risk of catastrophic failure.

State ID	Dam Name	Deficiency	DLNR Restriction
HA-0049	Keaiwa Reservoir	Earthquake Damage	Keep Empty
KA-0002	Puu Lua Reservoir	No Spillway	Keep Below 59 ft. (Top of Dam = 111 ft.)
KA-0003	Puu Opaе Reservoir	Abandoned Condition	Keep Empty
KA-0005	Mana Reservoir	No Spillway	Keep Empty
KA-0010	Waiakalua Reservoir	Spillway undersized and stability concerns	Keep below 9 ft (Top = 19 ft)
KA-0014	Okinawa Reservoir	Spillway Undersized	Keep 10-ft Below Top of Dam
KA-0015	Kaneha Reservoir	Spillway Undersized and stability concerns	Keep Below 22' (Spillway = 42')
KA-0016	Mimino Reservoir	Spillway Undersized	Keep Below 26' (Spillway = 36')
KA-0024	Kalihiwai Reservoir	Spillway undersized and outlet needs repair	Keep Below 10.2' (Top = 18.6')
KA-0030	Kaloko Reservoir	Partially Breached - No Permanent Repair	Keep Below 21.0' (Spillway = 22.7') (Top >40')
KA-0061	Lower Kapahi Reservoir	No Defined Spillway/Abandoned Condition	Keep Empty
KA-0062	Twin Reservoirs	Spillway Undersized / Abandoned Condition	Keep Empty
KA-0063	Aahoaka Reservoir	No Functioning Outlet / Spillway Undersized	Keep at Outlet Elevation (426.8)
KA-0065	Upper Anahola Reservoir	Abandoned Condition	Keep Empty
KA-0067	Field 1 Kealia Reservoir	Abandoned Condition	Keep Empty
KA-0100	Kapa Reservoir	Requires Hydraulic and Stability Studies	Keep Below 6' (Spillway = 11')
KA-0101	Hukiwai Reservoir	No Spillway	Keep Below 12' (Top =17')
KA-0102	Ioleau Reservoir	Spillway Undersized	Keep Below 25'
KA-0105	Elima Reservoir	Spillway Undersized	Keep Below 7' (Spillway = 22')
KA-0106	Kumano Reservoir	No Spillway	Keep Empty

State ID	Dam Name	Deficiency	DLNR Restriction
KA-0107	Puu O Hewa Reservoir	Requires Hydraulic and Stability Studies	Keep Below Lower Spillway Elevation
KA-0108	Kaupale Reservoir	Spillway Undersized	Keep Empty
KA-0109	Ipuolono Reservoir	Spillway Undersized	Keep Below 25' (Spillway = 45')
KA-0111	Aepoekolu Reservoir	Spillway Undersized	Keep Empty
KA-0112	Aepoeha Reservoir	Spillway Undersized	Keep Below 27' (Spillway = 37')
KA-0113	Omao Reservoir	Spillway Undersized	Keep Empty
KA-0114	Piwai Reservoir	Spillway Undersized	Keep Empty
KA-0115	Pia Mill Reservoir	Requires Hydraulic and Stability Studies	Keep 5 ft. Below Spillway
KA-0116	Mau Reservoir	Spillway Undersized	Keep Empty
KA-0117	Elua Reservoir	Spillway Undersized	Keep Below 16' (Spillway = 26.6')
KA-0118	Manuhonuhonu Reservoir	No Spillway	Keep Empty
KA-0119	Mauka Reservoir	Spillway undersized	Keep 5 ft. Below Spillway
KA-0121	Halenanahu Reservoir	Spillway undersized	Keep 20 ft. Below Spillway
KA-0146	Halaula Reservoir	Requires Hydraulic and Stability Studies	Keep Below Spillway
MA-0054	Horner Reservoir	Requires Hydraulic and Stability Studies	Keep Below 300" Gage (Spillway = 360" Gage)
MA-0068	Maui Reservoir 14	Reservoir Overtops from Design rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0070	Maui Reservoir 20	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0073	HC&S Reservoir 24	Reservoir Overtops from Design Rainstorm event	Keep and maintain empty under normal conditions, alert / coordinate downstream population notification with Maui EMA.
MA-0074	Maui Reservoir 25	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0076	Maui Reservoir 33	Requires H&H and stability study	Maintain water level at least 5' below spillway elevation
MA-0078	Maui Reservoir 42	Poor condition, requires H&H and stability study	Maintain water level at least 5' below spillway elevation

State ID	Dam Name	Deficiency	DLNR Restriction
MA-0079	Maui Reservoir 52	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0080	Maui Reservoir 60	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0081	Maui Reservoir 61	Reservoir does not have required safety freeboard	Maintain water level at least 5' below spillway elevation
MA-0082	Maui Reservoir 70	Repairs needed, requires H&H, topo & stability study	Maintain water level at least 5' below spillway elevation
MA-0083	Maui Reservoir 73	Repairs needed, requires H&H and stability study	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0084	Maui Reservoir 74	Reservoir Overtops from Design Rainstorm event	Maintain Empty
MA-0085	Maui Reservoir 80	Requires H&H and stability study	Maintain water level at least 5' below spillway elevation
MA-0086	Maui Reservoir 81	Requires H&H and stability study	Maintain water level at least 5' below spillway elevation
MA-0087	Maui Reservoir 82	Poor Condition, require Freeboard Buffer	Maintain water level at least 5' below spillway elevation
MA-0088	Maui Reservoir 84	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0089	Maui Reservoir 90	Requires H&H and stability study	Maintain water level at least 5' below spillway elevation
MA-0090	Maui Reservoir 92	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0091	Peahi Reservoir	Reservoir Overtops from Design Rainstorm event	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0092	Papaaea Reservoir	Repairs needed, requires H&H, topo & stability study	Maintain Empty, unless water required, coordinate safe level with DLNR
MA-0094	Kapalaalaea Reservoir	Reservoir Overtops from Design Rainstorm event and has piping along outlet	Maintain Empty
MA-0095	Haiku Reservoir	Reservoir Overtops from Design Rainstorm event and has piping along outlet	Drain and maintain empty, alert Maui EMA of potential hazard
MA-0096	Pauwela Reservoir	Reservoir Overtops from Design Rainstorm event	Drain and maintain water at outlet works elevation, alert / coordinate downstream population notification with Maui EMA.
MA-0140	Ukumehame Reservoirs	Spillway Undersized	Res 2: Keep Below 2' Res 3: Keep Below 10'
MA-0151	Wailuku Water Reservoir 10	Requires Hydraulic and Stability Studies	Keep Below 9' (Spillway = 11.6')

State ID	Dam Name	Deficiency	DLNR Restriction
OA-0017	Wahiawa Dam	Spillway Undersized	Keep Below 65' (Spillway = 80')
OA-0022	Upper Helemano Reservoir	Spillway erosion	Keep Below 44'
OA-0023	Helemano 6 Reservoir	Spillway erosion	Keep 15' below top of dam
OA-0025	Ku Tree Reservoir	Abandoned Condition	Keep Empty
OA-0154	Nuuanu Reservoir No. 1	No Functioning Outlet / Spillway Undersized	Keep Below 381.5
OA-0156	Koolau Reservoir	Abandoned Condition	Keep Empty

F. Dam and reservoir failures and department evaluations of the reasons for the failure, if known;

There were no known dam failures in FY 2024.

Flooding on Kauai in April, 2024 led to spillways of many dams on the island operating for the first time in several years, and resulted in minor damage to some structures.

G. Other available data regarding the effectiveness of the State’s Dam and Reservoir Safety Program.

Screening Level Risk Analysis (SLRA) were performed on 16 select dams across the state inventory, bringing the total SLRAs completed in FY 2024 to 49 regulated dams. The objectives of the SLRA were to provide the Department with an overview of the risk profile for the selected high hazard dams and to assist in prioritizing future actions to manage and reduce risk for their dam inventory. The SLRAs are conducted as a daylong facilitated workshop that includes owners, operators, staff from Department dam safety and consultant experts in dam safety. SLRAs completed in FY 2024:

STATE ID	DAM NAME	STATE ID	DAM NAME
KA-0009	Kaawanui Reservoir	MA-0074	Maui Reservoir 25
KA-0011	Aii Reservoir	MA-0083	Maui Reservoir 73
KA-0098	Alexander Reservoir	MA-0084	Maui Reservoir 74
KA-0099	Waita Reservoir	MA-0089	Maui Reservoir 90
KA-0100	Kapa Reservoir	MA-0133	Puu Koa Reservoir
KA-0104	Huinawai Reservoir	MA-0141	Kehalani Offsite Retention Basin
KA-0117	Elua Reservoir	MA-0144	Mahinahina Reservoir
MA-0047	Piiholo 50 MG Reservoir	MA-0150	Wailuku Reservoir

This year, the Dam Safety Program and Kauai Emergency Management Agency (KEMA) received a grant from the FEMA CTA program. This program aims to enhance the emergency preparedness of communities with dams through a variety of targeted training sessions and resources. The dam safety team in collaboration with KEMA, National Weather Service (NWS), other emergency agencies and a select group of Kauai dam owners went through several in person and online training sessions over a year-long period which clarified

the understanding of the roles and responsibilities of each agency during a dam emergency, and how each group could improve response during these emergencies.

The Dam and Reservoir Safety Program has been working with dam owners in the preparation of their Emergency Action Plans (EAP) for their facilities for several years. EAPs are required by Statute for all high and significant hazard potential classifications of dams. All regulated dams except one low hazard dam and two newly added dams have EAPs on file with the Department. The CTA program helped to identify some areas of improvements for the EAPs as well as additional outreach that could be done by the dam safety program. Though the time invested in the CTA program for all stakeholders was substantial, the lessons learned were invaluable, and the lesson learned can be applied statewide to enhance emergency preparedness.

In FY 2024 the department finalized Seismic Hazard Assessments for 118 high and significant hazard dams in the State and provided this information to the owners for use in assessments and design of their dam facilities. Doing this study was important to understanding and quantifying the risk posed to Hawaii dams by earthquakes.

In FY 2024, the Department completed an update of the statewide Probable Maximum Precipitation (PMP) data through a two-year study that used methods that reflect the current dam safety industry standard of practice in defining PMP data, including comprehensive meteorological data and processes to ensure the best estimate of natural maximum rainfall. The Study is proposed to be the new standard for statewide PMP data, replacing the current standard, the HMR-39 which was developed more than 60 years ago. In conjunction with the PMP study, the department started developing guidelines to assist owners of regulated dams to use the results of the study to meet requirements for spillway designs. The guidelines are expected to be finalized in FY 2025.