



# HO'ĀLA LOKO I'A

PERMIT APPLICATION GUIDEBOOK



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CONSERVATION  
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HAWAII



NATIONAL MARINE  
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PACIFIC ISLANDS REGION

HŌNUA  
CONSULTING



NOAA FISHERIES  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

PACIFIC ISLANDS REGIONAL OFFICE



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Office of Conservation and Coastal Lands

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OFFICE OF THE GOVERNOR  
STATE OF HAWAII  
STATE CAPITOL  
HONOLULU, HAWAII 96813

Aloha kākou!

We are pleased to present this Ho'āla Loko I'a Application Guidebook created by the Department of Land and Natural Resources.

This Guidebook is intended to help cultural practitioners, landowners and community groups navigate a new streamlined application process for Hawaiian fishpond revitalization. Fishponds along our coastlines have a storied past in feeding Hawai'i's people over many generations. This Guidebook will ensure that these historic and culturally significant sites will continue feeding Hawai'i's people and be outdoor classrooms for our youth long into the future.

We wish to thank all those who contributed to the Ho'āla Loko I'a program and the development of this Guidebook, most especially the Office of Conservation and Coastal Lands, the National Oceanic and Atmospheric Administration, Honua Consulting, Conservation International and Kua'āina Ulu 'Auamo.

Sincerely,

David Y. Ige  
Governor  
State of Hawai'i

Suzanne D. Case  
Chairperson  
Department of Land and Natural Resources



# ACKNOWLEDGEMENTS

In 2012, a dedicated group of individuals and organizations united to overcome difficulties in obtaining approvals to maintain and restore Hawaiian fishponds. This guidebook marks the beginning of what we hope will be a new day in Hawaiian fishpond revitalization. We would like to thank and acknowledge some of those who have contributed to this effort.

U.S. Senator Brian Schatz	Hi'ilei Kawelo
U.S. Representative Tulsi Gabbard	Keli'i Kotubetey
Governor David Y. Ige	Walter Ritte
Representative Jarrett Keohokalole	Alan Everson
Senator Brickwood Galuteria	Dr. Gerry Davis
Senator Laura Thielen	Dr. Jonathan Martinez
Senator Maile Shimabukuro	Dr. Alan Downer
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Representative Sylvia Luke	Esther Kia'aina
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2012 Hawai'i State Legislature	Kanai'a Nakamura
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DLNR Deputy Chair Kekoa Kaluhiwa	Dave Penn
Michael Tosatto	Dr. Damien Cie
Conservation International Hawai'i	Dr. Keiki-Pua Dancil
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Kamehameha Schools	Rosanna Thurman
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ONMS Pacific Islands Region	Dr. Benton Keali'i Pang
Paepae o He'eia	Fred Cachola
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Honua Consulting Staff	Dr. Florence Thomas
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Hawai'i Institute for Marine Biology	Kurt Matsumoto
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Ka Honua Momona	Kulani Boyne
Waipā Foundation	
'Ao'ao O Nā Loko I'a O Maui	
Lāna'i Culture & Heritage Center	
Pūlama Lāna'i	

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In 2015, the State of Hawai'i completed streamlining the permitting process for the repair, restoration, maintenance, and operation of loko i'a (traditional Hawaiian fishponds) throughout the entire pae'āina of Hawai'i. This guidebook navigates you through this new streamlined process.

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# GENESIS AND INTENT OF HO'ĀLA LOKO I'A

Historically, fishponds have been subject to an extensive permitting process that takes large amounts of resources and time to secure. The Department of Land and Natural Resources, Office of Conservation and Coastal Lands (OCCL) and collaborators have developed a master permit for traditional Hawaiian fishponds that encompasses the main permits currently required. This master permitting process and program is called Ho'āla Loko I'a. The program was designed to be in compliance with as many of the federal and state regulations as possible to make the permitting process easier to navigate for fishpond practitioners.

The Ho'āla Loko I'a Program was funded by Conservation International's Hawai'i program and completed by Honua Consulting, a local consulting group, with support from the Department and staff from other state and federal agencies, including the National Oceanic and Atmospheric Administration (NOAA).

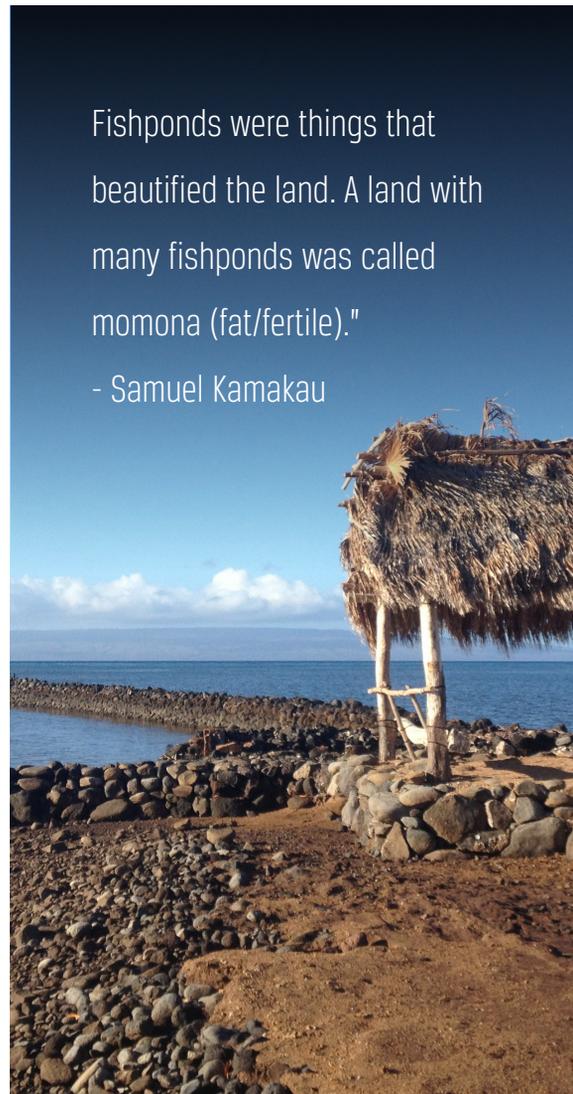
## PROGRAM GOALS

The Ho'āla Loko I'a Program was designed with the following six goals in mind:

1. Create a single permit that complies with the relevant state and federal requirements;
2. Fit the needs of practitioners and community groups;
3. Incorporate enough flexibility to allow for innovation in meeting current environmental challenges while still respecting the integrity of the fishponds;
4. Cover the "big three" activities that practitioners were having difficulty in securing permits for: dredging, removal of invasive species that trigger ground disturbances, and repair of severely damaged walls;
5. Create no additional regulatory burdens or requirements; and
6. Be consistent with the Coastal Zone Management federal consistency general concurrence for minor federal permit activities for Hawaiian fishpond restoration, repair, maintenance, and reconstruction.

Fishponds were things that beautified the land. A land with many fishponds was called momona (fat/fertile)."

- Samuel Kamakau



## PROGRAM ELIGIBILITY

The Ho'āla Loko I'a Conservation District Use Permit (CDUP) ST-3703 is a state-wide programmatic permit for the repair, restoration, maintenance, and operation of traditional fishpond systems in Hawai'i. A Programmatic Environmental Assessment (EA) was also completed to comply with the Hawai'i Environmental Policy Act (HEPA). The CDUP and Programmatic EA were designed to cover all existing traditional fishpond systems in the State. The Board of Land and Natural Resources approved the process in June 2014. Practitioners can now use a simplified Ho'āla Loko I'a Conservation District Use Application (CDUA) to apply for permits under this programmatic permit.



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Few things are as important to food security, community resilience and ecosystem services as loko i'a, or traditional Hawaiian fishpond systems. Loko i'a are essential features of a healthy ahupua'a system

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The State of Hawai'i classifies land under different land use districts: Conservation, Agricultural, Urban, and Rural. The State DLNR through OCCL is responsible for regulating and permitting land uses in the Conservation District; the individual counties are responsible for land uses in the other districts. As Ho'āla Loko I'a is a state-run program, only ponds in the Conservation District can use this process. However, the program was developed to be consistent with the various county coastal zone management regulations, so practitioners should be able to use the information in this guidebook to assist them in securing any necessary county permits.

Once OCCL receives an application, it will be assigned to one of three tiers for processing, as will be explained more in the next section.

## APPLICATION AND REVIEW PROCESS

The Ho'āla Loko I'a Program takes a systemic view of fishponds. Permits that qualify under this program are designed to encompass both the actual fishpond and other land uses and activities traditionally associated with fishponds. These can include but are not limited to landscaping, gardening, stream maintenance, and the building of small hale.

Once an application is submitted to OCCL, the fishpond project is assigned a tier based on the restoration activities proposed. Next, you will find more information on what fishpond restoration activities qualify under the program.

## THE TIERED REVIEW PROCESS

The program identifies three tiers.

		Routine Maintenance
TIER 1		Minor repair, restoration, maintenance, and operation
		Construction/Placement of minor accessory structures
		Stocking & harvesting with traditional method
		Removal of invasive species
TIER 2		Fishpond repair, restoration, maintenance, and operation to 10-50% of original structure
TIER 3		Fishpond repair, restoration, maintenance, and operation to 50% of original structure
		Dredging
		Activity that alters sandy beaches or sediment deposition

## ROUTINE MAINTENANCE ACTIVITIES

Activities that fall under routine maintenance do not require a permit from OCCL, but practitioners are encouraged to secure a letter of acknowledgement from OCCL.

- Basic data collection,
- Stocking and harvesting with traditional methods,
- Removal of invasive species including chemical and mechanical control methods, not to exceed one acre,
- Minor repair, maintenance, and operation to an existing structure, facility, use, land, and equipment, whether it is nonconforming or permitted, that involves mostly cosmetic work or like-to-like replacement of component parts, and that results in negligible change to or impact to land, or a natural and cultural resource,
- Basic land management, including routine weed control, clearing of understory, and tree pruning, utilizing chemical and mechanical control methods, which involves no grubbing or grading,
- Planting of native and endemic plants and fence maintenance, and/or new fence ex-closures for small native plants or wildlife communities, in an area less than one acre,
- Clearing of sand or silt from stream mouths, canals, drainage pipes, or other features for state or county maintenance.

## TIER ONE ACTIVITIES

The first tier of activities will encompass most manual repair and maintenance activities. These include:

- Replacement of small wall sections,
- Replacement of individual rocks or other wall materials
- Repair of gates and 'auwai.
- Minor dredging by non-mechanized means
- Non-routine maintenance of vegetation
- Construction or placement of minor structures (not to exceed 600 square feet) that are accessory to the maintenance and operation of a loko i'a,
- Temporary emergency repair of breaches, and
- Removal of alien species (e.g. mangroves, invasive algae, kiawe, pickleweed, et al.) in an area greater than one acre.

Applicants should fill out the loko i'a application, and develop best management practices based upon traditional environmental and cultural protocols.

OCCL will complete the review of Tier 1 applications within thirty days of receipt.

If OCCL determines that the application is complete and has no concerns regarding the project, they authorize a Tier 1 permit.

The permit will be subject to the standard Conservation District conditions found in Hawai'i Administrative Rules (HAR) Chapter 13-5.

## TIER 2 AND TIER 3 ACTIVITIES

The second and third tiers are those larger projects that require a higher level of review. Tier 2 and 3 activities include but are not limited to:

- Emergency repair of fishponds
- Restoration work that involves a change in excess of ten percent, but not more than fifty percent of the dimensions of the historic structure.
- Repair and restoration work that is in excess of fifty percent of the original fishpond structure,
- Dredging with the use of mechanized equipment,
- Any activity that may moderately affect or alter sandy beaches or sediment deposition,
- Activities that might impact critical species habitat, such as wetlands, sea turtle grazing and nesting areas, sea grass beds, or coral colonies, and
- Activities that might impact near shore water quality.

Applicants should fill out the loko i'a application and develop best management practices that are suited to the project.

Advanced best management practices might include protocols for water quality monitoring and testing, endangered species monitoring, or conducting archaeological surveys.

Once OCCL receives a completed application they will distribute it to select resource and cultural agencies for review.

Tier 2 and Tier 3 reviewers will be able to concur with the standard conditions, request additional information from the applicant, seek additional consultation with subject matter area experts, or identify additional and or site-specific conditions, protocols, and BMPs.

If no concerns or comments are received within thirty days, OCCL will forward the application to the Chair of the Board of Land and Natural Resources, who will have the final authority to authorize a Tier 2 Permit.

Applications that attract significant comments and concerns from resource agencies, or which OCCL deems to need additional consultation because of potential environmental or cultural effects, may be routed as Tier 3 permits. The applicant or cultural group will need to address the issues then modify the project or the best management practices as needed.

Once OCCL is satisfied that the concerns have been addressed, they will forward the application to the Chair, who will have the final authority to authorize a Tier 3 Permit.

Some actions may fall outside the scope of the Loko I'a Program, such as:

1. Activities that are likely to have significant, long-term negative impacts on marine life, water quality, coastal processes, or coastal access;
2. Activities that are likely to result in significant damage to special aquatic sites such as wetlands, vegetated shallows, mudflats, coral reefs, and sea grass beds;
3. The introduction or culture of alien species, and
4. The construction of new loko i'a.

Any best management practices described in the application will be considered to be a condition of the permit.

OCCL reserves the right to issue a stop work order if best management practices or other conditions of the permit are not being followed, or if unanticipated negative effects to the environment are observed.

OCCL planning staff are available to meet with applicants regarding the application.

# COMPLETING THE APPLICATION

The program application is available in fillable form at the Department of Land and Natural Resources Office of Conservation and Coastal Lands Special Projects website: [dlnr.hawaii.gov/occl/hoala-loko-ia](http://dlnr.hawaii.gov/occl/hoala-loko-ia)

The screenshot shows the website for the Department of Land and Natural Resources Office of Conservation and Coastal Lands. The page is titled "Ho'āla Loko I'a". The main content area includes a list of permits issued under the program, such as MO-15-01 for Wehelau'ulu Pond, East 'Ōhia and Manawai, Moloka'i (Tier 1), and HA-15-06 for anchialine ponds at Kekaha Kai, North Kona, Hawai'i (Tier 2). There is also a section for pending applications, including developing a guide book on best management practices. A video player is embedded on the page, showing a man standing by a pond. The website header includes the department name and navigation menus. The contact information for the administrator, Samuel J. Lemmo, is also visible.

## FROM THIS WEBSITE, YOU CAN:

- Access and download the streamlined application form from the link titled "streamlined application form"
- Access and download the Final Environmental Assessment (FEA) for the program for use with ponds outside a Conservation District area but that may still make use of the information in the assessment or finding of no significant impact (FONSI)
- Review the Conservation District Use Application and Permit issued by the Board of Land and Natural Resources
- View other permits that have been issued under this program

# APPLICATION PAGE ONE

## FISHPOND NAME

Applicants may use the common name or traditional name of the pond (i.e., Kahana Pond or Huilua Loko I'a).

## APPLICANT NAME

Name of the hui (group), organization, or company legally responsible for the project should be entered here. It will also be the entity that certifies the application (on page 5 of the application). This entity should have ownership or authorized operation of the pond.

## POND LOCATION

Enter the best location information about the loko i'a available. This may be an address, or it may be a more general description of the loko i'a location.

## AHUPUA'A

The name of the ahupua'a in which the loko i'a is located should be entered here. If you need assistance locating your ahupua'a, you can use the following web resources:

<http://blogs.ksbe.edu/kmslc/2014/11/03/moku-and-ahupuaa-maps/>

<http://www.papakilodatabase.com/main/main.php>

<http://www.avakonohiki.org/>

## DISTRICT

You may enter your current county district or moku here. If you need assistance locating your district, contact your local county zoning office.

## COMMENCEMENT AND COMPLETION DATE

These are the dates for active restoration work, not general maintenance and operations.

## NEAREST TAX MAP KEY(S)

Tax Map Key (TMK) numbers are assigned to each individual piece of property in the state of Hawai'i. The format is (island) district – section – plat: parcel.

If your pond has its own parcel number list it here. If not, list the TMK number of whatever land the pond borders.

Tax Map Key numbers can be found on the various county websites listed at the end of this guide.

**HO'ALA LOKO I'A APPLICATION**

**FISHPOND NAME:**

**APPLICANT NAME:**

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Pond location:  
Nearest Tax Map Key(s):  
Ahupua'a: District:  
Island:  
Commencement Date: Completion Date:  
Wall length: Pond surface area:

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**WORK SUMMARY**

Operations only

Construction of accessory structures

Minor repair and restoration of pond walls, 'auwai, mākāhā, etc.

Moderate repair and restoration (10% to 50% damage)

Major repair and restoration (greater than 50% damage)

Linear feet of wall to be repaired (rocks on site):  
Linear feet of wall to be restored (new rock):  
Source of new rock:  
Amount of "fill" (expansion beyond original footprint):

Dredging using mechanized equipment  
Estimated volume of dredging:

Vegetation removal using mechanized equipment  
Estimated acreage:

Emergency repair

## WALL LENGTH

The full length in feet of the proposed wall at completion.

## POND SURFACE AREA

The Pond Surface Area in square feet at completion.

## WORK SUMMARY

OCCL staff can assist you if you are unsure which Tier your project falls into.

# APPLICATION PAGE TWO

## APPLICANT

Fill in Applicant name, Street Address, Contact Person & Title, Phone, Fax, Email, Interest in Property, sign and date.

## LANDOWNER

Fill in Landowner name, Street Address, Contact Person & Title, Phone, Fax, Email, sign and date.

Private Ponds – For private ponds, the land owner should sign the application. Alternatively, you can attach a Memorandum of Agreement between the hui and the landowner.

State Ponds – Applicants should consult with DLNR's Land Division for the use of state-owned ponds. If Land Division approves of the work, OCCL will work to secure the Chair's signature.

Projects in lands owned by the Department of Hawaiian Homelands (DHHL) do not need Conservation District Use Permits. However, practitioners managing DHHL-owned ponds can still apply for a Loko I'a permit in order to qualify for the water quality certification waiver.

REQUIRED SIGNATURES	
<b>Applicant</b>	
Name / Hui: Street Address:	
Contact Person & Title: Phone: Email: Interest in Property:	
Signature:	Date:
<i>Signed by an authorized officer (if for a Corporation, Partnership, Agency or Organization)</i>	
<b>Landowner (if different than the applicant)</b>	
Name: Title, Agency: DLNR Mailing Address:	
Phone: Email:	
Signature:	Date:
<i>For State-owned ponds, the government entity with management control over the parcel shall sign as landowner.</i>	
<b>Agent</b>	
Agency: Contact Person & Title: Mailing Address:	
Phone: Email:	
Signature:	Date:
<b>For DLNR Managed Lands</b>	
State of Hawai'i Chairperson, Board of Land and Natural Resources Department of Land and Natural Resources P.O. Box 621 Honolulu, Hawaii 96809-0621	
Signature:	Date:

## AGENT

This application has been designed so that practitioners can use it without the need for hiring private consultants, planners, or contractors. If you are filling out the form yourself you can leave this section blank. If you are working with a consultant, their name and contact information should go here.

## APPLICATION PAGE THREE

The following questions are designed to help guide you in your responses.

### DESCRIPTION OF THE LOKO I'A:

This is your chance to describe the physical, environmental, and cultural characteristics of your pond.

#### *Physical characteristics:*

What type of pond is this? What are its dimensions?

What is the condition of the walls, mākāhā, 'auwai, fish pens, & other associated structures?

#### *Environmental conditions:*

What are the fresh water inputs? Are there any rivers or known springs that feed the pond? What is their condition?

What is the pond basic (rock, sand, mud, sediment, etc.?)

Is there invasive vegetation in the pond ecosystem (mangroves, red algae, California grass, pickleweed, et al.)?

Is there native or Polynesian vegetation associated with the pond ecosystem?

Are there native birds, turtles, monk seals, or fresh and salt water fish species that use the pond?

How would you describe the current water quality?

Maps, aerial photos, and Google Earth images are all helpful here.

### HISTORY OF THE LOKO I'A

If known, talk about who built the pond and when. Discuss the history of the pond's ownership, and how it fell into disrepair.

**DESCRIPTION OF THE LOKO I'A**  
Please discuss the current physical and environmental conditions of the loko i'a. Please also note if any endangered or threatened species are found in the pond.

**HISTORY OF THE LOKO I'A**

**PROPOSED WORK PLAN**  
Please provide a summary of the work that is being proposed under this permit. Please note any use of mechanized equipment.

**PROPOSED OPERATIONS PLAN**  
Please discuss what species you intend to raise in the pond, and your proposed methods of stocking, raising, and harvesting these species.

## PROPOSED WORK PLAN

- Discuss the work you will be doing to repair and maintain the pond.
- What work will be done on the pond walls, mākāhā, 'auwai, etc?
- Will the project require any dredging?
- Will the project require importing rock? If so, how much and from what source?
- Will the work be done by hand or with machines?
- Who will do the work: family, volunteers, or employees? How will they be supervised?
- How will invasive species be removed? Will there be any landscaping?
- Will there be any support structures (lua, hale, etc.?)
- What is the project timeline?
- A site plan will help in showing where the repairs on the pond are needed.

## OPERATIONS PLAN

If the pond is going to be put back into production, discuss what species will be cultivated, and how they will be recruited, nurtured, and harvested.

## APPLICATION PAGE FOUR

### CONSISTENCY WITH THE HO'ĀLA LOKO I'A PROGRAM

State the permit tier that you are applying for, and provide a one to two sentence summary of the project. Examples of how this can be written are below:

#### **Waia'ōpae Fishpond, Lāna'i**

Lāna'i Culture & Heritage Center is seeking a tier one permit for the manual repair of the fishpond walls and manual removal of sedimentation from the internal of the pond area. The base of the kuapā is intact and all rocks are on sight. No new material will be used and only rocks from within the pond area will be used to restore the wall. There will be expansion of the wall's original footprint. (Permit LA-15-03)

#### CONSISTENCY WITH HO'ĀLA LOKO I'A PROGRAM

Please discuss how this proposal is consistent with Conservation District Use Permit (CDUP) ST-3703 (available online at [dlnr.hawaii.gov/special-projects](http://dlnr.hawaii.gov/special-projects)) and which tier-level the project falls under.

#### BEST MANAGEMENT PRACTICES

Please discuss the BMPs that will be followed to protect both the environment and the integrity of the pond (users' guide forthcoming).

### **Huilua Fishpond, Kahana, O'ahu**

State Parks is seeking a tier one permit for the manual repair of the fishpond walls, and manual removal of sediment. The base of the wall is intact, and there will be no expansion of the original wall's footprint. (Permit OA-15-02)

### **Wehelau'ulu Fishpond, Moloka'i**

This application is for the stocking and harvesting of ogo by traditional means, and so is a Tier 1 permit. The proposal does not involve the creation of discharge or fill, and does not involve any construction in navigable waters. (Permit MO-15-01)

## **BEST MANAGEMENT PRACTICES TIER 1**

Best Management Practices for Tier 1 permits are designed by practitioners, and are based upon traditional protocols, indigenous knowledge and practice, and environmental science.

Some examples are:

### Huilua Fishpond, Kahana, O'ahu – Wall Restoration

- Rocks to be used in the wall will consist only of those presently on-site or within the pond basin.
- No mechanized equipment will be used to retrieve rocks from the pond basin. All gathering will be done by hand or using an o'o.
- Setting of rock wall facings will be conducted under the direction of cultural practitioners with training and experience in traditional Hawaiian dry-stacked masonry techniques.
- Cultural protocols will be established by the masons or other appropriate designated cultural practitioners.
- Wall building will be performed on days with calm seas, low wind conditions and at low tide.
- Work supervisors will visually monitor any sediment plumes that develop, and will record the size and duration if the plume lasts more than 12 hours.
- Restoration and revitalization will take place in identified zones and according to a sequence designed to protect the adjacent stream, bay, springs, and pond biota. The zones and sequence are described in an environmental assessment prepared for State Parks in 1995.

### Waia'opae Fishpond, Lāna'i – Wall Restoration

- Only rocks and materials from on sight will be used in wall reconstruction. No new materials will be used.
- No mechanized equipment will be used. All activities will be conducted by hand or hand tools. Environmental monitoring will be followed to check daily for protected species, even though no protected species have been seen in the area.

- Cultural and archaeological monitors will be on site during activities and students and workers will give orientations about the historical and cultural significance of the pond and area. All historic preservation regulations will be strictly adhered to.
- Water quality will be monitored for sediment plumes.

### Ko'ie'ie Fishpond, Maui - Historic Resources Protection

- Restoration of walls should, when possible, make use of stones from the existing walls and rubble, and that all imported materials should resemble these original stones.
- No stones should be collected from adjacent fishponds or other historic sites. Portable artifacts may be removed with adequate documentation prior to removal.
- All nineteenth and twentieth century artifacts may be left in place, awaiting "coordinated conservation" efforts.
- The pond should be open to periodic monitoring by State Historic Preservation Division staff to document newly discovered finds, provide additional interpretation, and assure that the previous conditions are being met.

## APPLICATION PAGE FIVE

**CERTIFICATION**

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.

\_\_\_\_\_

*Signature of authorized agents or of an agent, signature of applicant*

**AUTHORIZATION OF AGENT**

I hereby authorize \_\_\_\_\_ to act as my representative and to bind me in all matters concerning this application.

\_\_\_\_\_

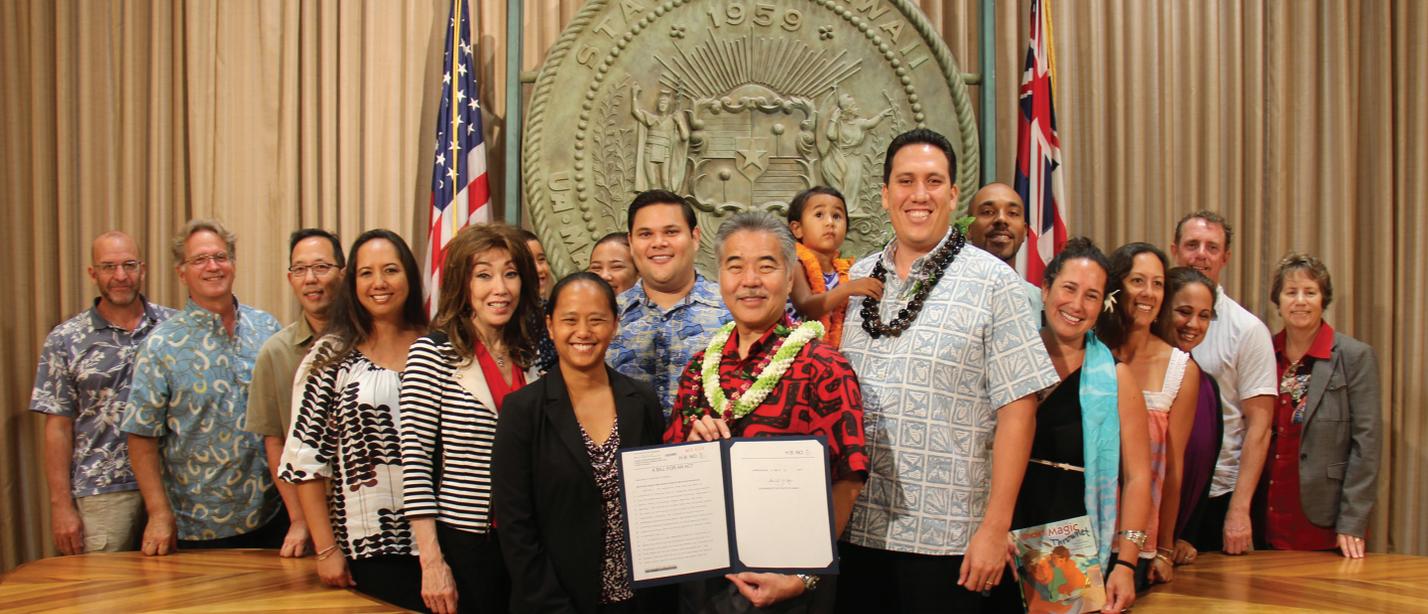
*Signature of applicants*

### CERTIFICATION

The applicant should read the final statement of certification and sign and date the document.

## CONGRATULATIONS ON FINISHING THE APPLICATION!

Please continue reading for further information about monitoring and regulations pertaining to Ho'āla Loko I'a.



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"Fishponds are important to Hawai'i and we recognized traditional Hawaiians had a different way of caring for their resources." - Governor Ige at the signing of Act 230

.....

## **BILL 230 AND THE WAIVER OF WATER QUALITY CERTIFICATION**

Recognizing the tremendous contributions traditional Hawaiian fishponds make to the cultures and ecosystems throughout Hawai'i, in July 2015, Governor Ige signed Bill 230, which waived the need for loko i'a restoration projects that obtain permits under the Ho'āla Loko I'a program to obtain water quality certifications for their activities.

*This waiver is only available to projects that obtain permits through the OCCL program.*

This landmark legislation means that Ho'āla Loko I'a programs are waived from having to complete the water quality certification application with the Hawai'i Department of Health or obtain a water quality certification from that agency.

*It does not mean that restoration projects are exempt from complying with state and federal water quality laws and standards.*

Under the Master Conservation District Use Permit that all Ho'āla Loko I'a permits are authorized under, projects are all still required to have water quality monitoring, mitigation and best management practices in place. Keeping Hawai'i's waters clean and our reefs healthy are all our responsibilities.

# OUTSIDE PERMITS

Although this streamlined permitting program covers many of the authorizations you will require to restore your loko i'a, in some cases, additional permits or authorizations may still be required.

## **DLNR LAND DIVISION**

Projects using State-owned ponds might require a Right of Entry agreement from the Land Division.

## **STREAM CHANNEL ALTERATION PERMIT (SCAP)**

This permit covers leaning debris, sediment, and vegetation from existing 'auwai. Proposals to construct new 'auwai or other types of stream diversions should consult with the Commission on Water Resource Management (CWRM).

## **SPECIAL MANAGEMENT AREA (SMA) PERMIT**

Anyone proposing work mauka of the shoreline should consult with their local county planning department on the need for an SMA permit.

The State Office of Planning issued a Coastal Zone Management Consistency Statement regarding fishpond restoration in April 2013.

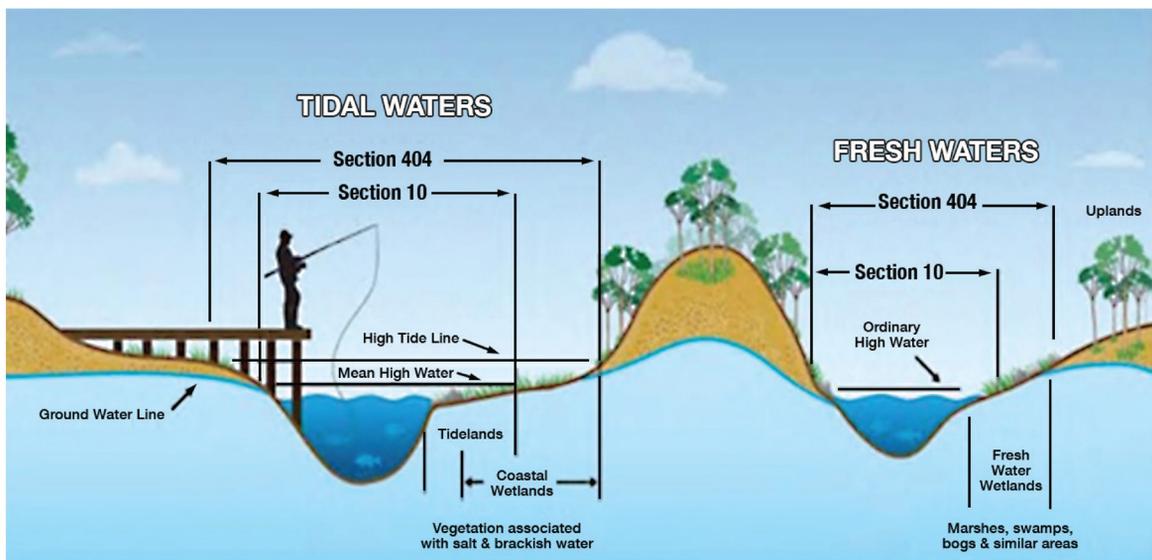
## **US ARMY CORPS OF ENGINEERS**

The placement of structures, and certain types of work in waters of the United States (U.S.), including activities that involve dredging or filling, might also need to obtain a Section 10 of the Rivers and Harbors Act ("Section 10") and/or a Section 404 of the Clean Water Act ("Section 404") permit from the U.S. Army Corps of Engineers (Corps) before conducting the work. Waters of the U.S. include, but are not limited to, the territorial seas, navigable waters (tidally influenced), rivers, streams, ponds, lakes, and adjacent wetlands. Examples of "fill material" include, but are not limited to: rock, sand, clay, plastics, construction debris, wood chips, and soil.

In most cases, Corps-regulated activities that are associated with the restoration and/or maintenance of fishponds can be authorized under a type of general permit, referred to as nationwide permits (NWP). NWPs provide for a streamlined permitting process for categories of activities that on a national level have been determined to result in no more than minimal impacts on the aquatic environment. To be eligible for a NWP, the proposed fishpond activity(s) must meet the specific terms of a particular NWP and fall within or under established thresholds. The fishpond activities must also comply with nationally established general conditions as well as regional conditions that have been developed by the Honolulu District Regulatory Office to ensure the work will result in minimal adverse impacts, individually and cumulatively. The most commonly used and appropriate NWP for fishpond restoration and maintenance activities is NWP #3 (Maintenance).

Site-specific fishpond restoration and maintenance proposals that do not fit or comply with the NWP terms and conditions will require evaluation under an individual permit, which is a type of Corps permit that is more involved and necessitates agency and public input.

For all types of Corps permits, the Corps is required to comply with applicable federal laws and regulations in making its permit decisions. This means the Corps must assess the effects of the proposed activity on federally-listed endangered and/or threatened species; designated critical habitat for endangered and/or threatened species; historic properties, including cultural resources; and essential fish habitat. In doing so, the Corps often consults with other federal and state agencies and as a result, may require practitioners to provide site-specific information, including archeological surveys and biological data, such as coral reef surveys. Additional information required by the Corps may be the same information that practitioners have already collected and provided to the State as part of a Tier 2 or Tier 3 Permit. In such cases, it is acceptable for practitioners to utilize the same data or information previously submitted to OCCL to fulfill the Corps' information request.

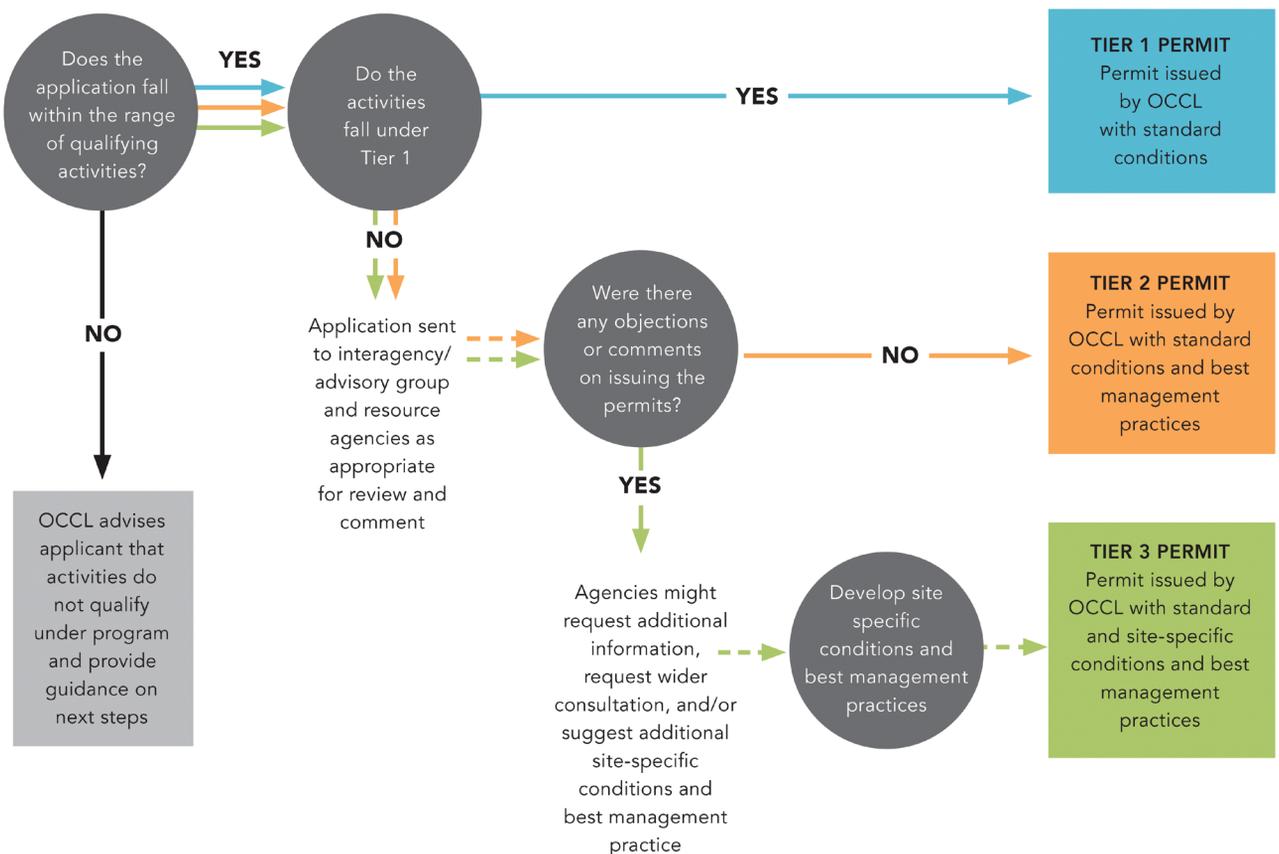


Practitioners should contact the Corps to schedule a pre-application meeting if the project might involve dredging, the placement of structures, or the discharge of fill material into waters of the U.S. Practitioners who are not certain whether the waterbody where they propose to do work is regulated under Section 10 or Section 404 should contact the Corps Regulatory Office for a jurisdictional determination. More information, including a downloadable permit application, is available at [www.poh.usace.army.mil](http://www.poh.usace.army.mil).

# THE REVIEW PROCESS

Upon submission of your application to the State of Hawai'i, Department of Land and Natural Resources Office of Coastal and Conservation Lands, your application will be processed through the above standards.

## WHAT HAPPENS TO YOUR APPLICATION AFTER YOU SUBMIT TO OCCL FOR PRELIMINARY REVIEW?





## CONDITIONS, BEST MANAGEMENT PRACTICES, AND MONITORING

The State recognizes how important loko i'a are to the health of Hawai'i's ecosystems. Therefore, the Ho'āla Loko I'a program has developed unique conditions, best management practices (BMPs), and monitoring standards that help to protect Hawai'i's environmental and cultural resources while supporting the need for communities and practitioners to care for loko i'a. All loko i'a activities are required to adhere to environmental standards.



# OVERVIEW OF CONDITIONS



## ROUTINE MAINTENANCE

Maintenance activities are not subject to program conditions.



## TIER ONE ACTIVITIES

Tier One Activities should follow the standard conditions outlined in this guide, which are designed to be manageable for community groups.



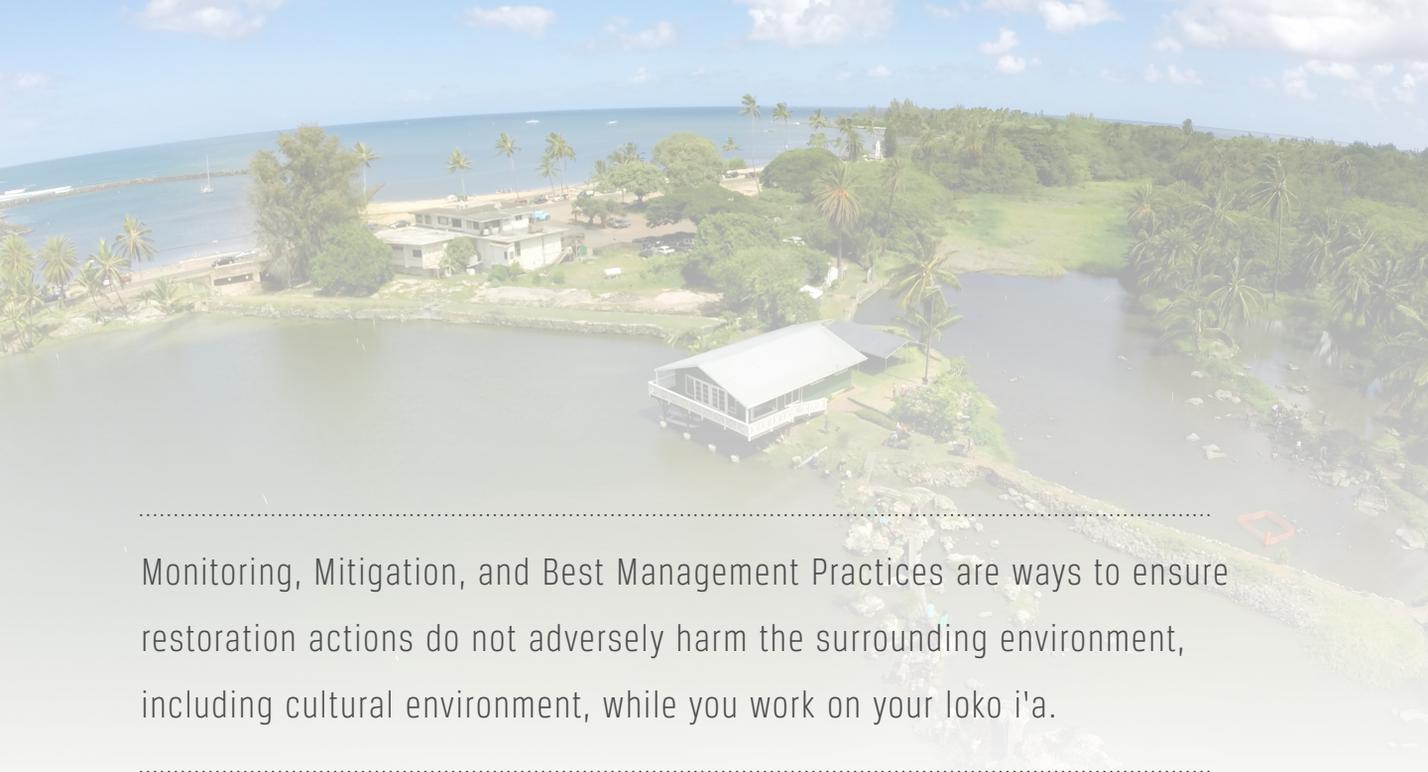
## TIER TWO ACTIVITIES

Tier Two Activities will need to follow standard conditions and use BMPs as specified, including water quality and endangered species monitoring.



## TIER THREE ACTIVITIES

Tier Three Activities will have unique conditions and BMPs that address the specific resources identified within their loko i'a.



Monitoring, Mitigation, and Best Management Practices are ways to ensure restoration actions do not adversely harm the surrounding environment, including cultural environment, while you work on your loko i'a.

## WATER QUALITY TESTING

Water Quality Testing is essentially measuring the health of a body of water.

Just as a doctor uses instruments like thermometers and stethoscopes to measure the health of a patient, practitioners must use instruments like Secchi (sek'-ee) disks, probes, nets, gauges, and meters to determine how healthy the water is. These instruments take measurements of the physical and chemical condition of the water and the health of the critters that live in it.

It is important that practitioners regularly measure the physical, chemical and biological conditions of the water surrounding their ponds to ensure that the ecosystem is in good or improving health and facilitate sustainable and productive ponds.

Water samples are not the only thing

practitioners collect. All practitioners should take photos and make visual observations about what's happening along streams and coastlines in order to get an overall sense of the health of the water.

In total, a good water quality test will include nine measurements:

1. Temperature
2. Dissolved Oxygen
3. pH
4. Nutrients
5. Toxic Substances
6. Turbidity
7. Bacteria
8. Salinity
9. Biological Sampling

In the following section we will outline exactly what these conditions are and how to properly measure them.

## WATER QUALITY INDICATORS

**TEMPERATURE** - Water temperature has a direct link with toxic absorption, salinity and dissolved oxygen. Some organisms cannot reproduce if water is not at the correct temperature, for example, coral polyps reproduce well in a narrow temperature range above 26° C. Altitude and proximity to coasts will influence natural water temperature; eg: water in the Snowy Mountains may be 3° C, but this is its natural state, not necessarily poor quality. Keep this in mind when measuring.

<b>How do I test it?</b>	Use a thermometer to test water in a range of locations. Surface water, shallow water, and stagnant water will generally be warmer. Hold the thermometer in the water for at least 10 seconds before recording the reading.	
<b>Unit</b>	Degrees Celsius (° C)	
<b>Quality</b>	0 – 9° C	poor
	10 – 14° C	fair
	15 – 25° C	good
	26 – 36° C	fair
	> 37° C	poor



**DISSOLVED OXYGEN** - Dissolved oxygen, or DO, tells them how much oxygen is available in the water for fish and other aquatic organisms to breathe. Healthy waters generally have high levels of DO; however, some areas, like swamps, naturally have low levels of DO. Just like human beings, aquatic life needs oxygen to survive. Several factors can affect how much DO is in the water. These include temperature, the amount and speed of flowing water, the plants and algae that produce oxygen during the day and take it back in at night, pollution in the water, and the stream bottom.

<b>How do I test it?</b>	You will need a dissolved oxygen kit to do this. Collect your sample of water (approx. 10mL), add one tablet and swirl until dissolved. Wait 3 minutes and match the colour of the sample to your chart	
<b>Unit</b>	Parts per million	
<b>Quality</b>	0.0 – 4.0	poor
	4.1 – 7.9	fair
	8.0 – 12.0	good
	>12	Check results (too high)



pH - pH measures the concentration of hydrogen in the water; the p stands for "potential of" and the H is hydrogen. pH ranges from 0 (very acidic) to 14 (very basic), with 7 being neutral. Most waters range from 6.5 to 8.5. Metals tend to become more toxic at a lower pH because they are more soluble.

<b>How do I test it?</b>	Collect a sample (approx 10 mL) of water from your fieldwork site. Hold the pH meter into sample and wait until a reading appears. Record the pH and compare it to the pH scale	
<b>Unit</b>	pH	
<b>Quality</b>	< 5.5	poor
	5.5 – 6.5	average
	6.5 – 8.0	good
	8.1 – 8.5	average
	> 8.6	poor

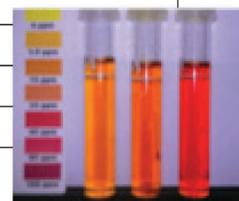


NUTRIENTS - Nutrients are critical to plants and animals. The two major nutrients scientists measure are nitrogen and phosphorus, which occurs naturally in minerals and rocks. All plants and animals need phosphate but too much can cause eutrophication (eg, algal blooms). The concentration reflects particular land uses and human activities. Soil erosion and fertilizers can increase the amount of phosphate and nitrogen in the water. Nutrients can also affect pH, water clarity and temperature, and cause water to smell and look bad.

<b>How do I test it?</b>	You will need a nitrate test tablet to do this. Collect your sample of water (approx 10 mL), add one tablet and swirl until dissolved. Wait 3 minutes and match the colour of the sample to your chart.	
<b>Unit</b>	mg/L	
<b>Quality</b>	< 0.4	poor
	< 0.2	fair
	< 0.1	good
	< 0.05	excellent



<b>How do I test it?</b>	You will need a phosphate test tablet to do this. Collect your sample of water (approx 10 mL), add one tablet and swirl until dissolved. Wait 3 minutes and match the colour of the sample to your chart.	
<b>Unit</b>	mg/L	
<b>Quality</b>	< 0.15	poor
	0.05 – 0.15	fair
	0.02 – 0.05	good
	< 0.02	excellent



**TOXIC SUBSTANCES** - All Practitioners should also test for many harmful (toxic) things like metal, pesticides, and oil. For example, scientists are finding mercury in certain types of fish, especially in lakes and estuaries. Mercury comes from mining, natural sources and air pollution from power plants and incinerators, and can be harmful to people in high concentrations.



**TURBIDITY** - The clarity of water, turbidity, is measured to determine how many particulates are floating around. If you're sitting on a dock in a pond on a warm summer day, you might be able to see to the bottom. That's low turbidity. On the other hand, if you visit the dock after a rainstorm when all the muck has been stirred up, you won't be able to see the bottom; that's high turbidity. Scientists use turbidity measurements to calculate the inputs from erosion and nutrients.

<b>How do I test it?</b>	<p>You will need clear tube (approx 4.5cm x 120 cm) with a painted disk (or wavy lines) at the bottom acting as a cap, a scale marked up the tube in centimeters.</p> <p>Collect a water sample from your field work site. Pour the sample into turbidity tube, until you can no longer see the disk.</p>	
<b>Unit</b>	Nephelometric Turbidity Units (NTU)	
<b>Quality</b>	< 0.10	good
	11 – 29	fair
	> 30	poor



**BACTERIA** - It is important to sample for certain types of bacteria that are found only in the intestinal tract of animals and humans. These bacteria, called fecal coliforms, are not necessarily harmful, but they usually hang out with some bad characters like viruses and pathogens, which can make you sick. The major sources of fecal coliforms are failing septic systems, wastewater treatment plant discharges, and animal waste.

<b>How do I test it?</b>	Use a Coliscan Easygel Kit. All materials are included. It is a good idea to wear gloves and avoid interfering with the sample. Collect your water sample (20cm below surface) and follow the process back at school to mix with gel as it takes approximately 2-3 days to culture. Full instructions are available Apps Laboratories. You then need to count the number of dots (E.coli colonies are the darkest) according to their colour using a colour guide	
<b>Unit</b>	Colony forming units (CFU) /100 mL	
<b>Quality</b>	< 1	Very good - i.e. for drinking
	1 – 35	Good - Primary contact, e.g. swimming
	35 – 230	Fair - Secondary contact e.g. fishing, boating
	< 700	Poor - No contact



**SALINITY** - High levels of salt affect plant growth, water quality and soil quality. An increased reading can mean human activities have caused a negative impact on the environment.

<b>How do I test it?</b>	Collect a sample (approx 10 mL) of water from your fieldwork site.  Use an electrical conductivity meter. Hold the meter in the sample until a reading appears on the screen. Salty water conducts more electricity than fresh water	
<b>Unit</b>	Microsiemens (µS) appreviated to electrical conductivity (EC)	
<b>Quality</b>	0 – 100	Excellent (30 - rainfall)
	500	Fair
	> 750	Poor (840 - sewage effluent)
	1600	Upper limit for drinking
	5000	Upper limit for drinking
	8000	Upper limit for drinking
	50 000	Seawater



VISUAL SURVEYS - Not all measurements are chemical or physical. Practitioners should take measurements of the landscape surrounding a pond to determine things like the amount of trees and shrubs, the amount of shade that is created by trees overhanging the pond, and woody debris (sticks and leaves) in the pond. The more vegetation, tree cover, and woody debris, the more habitat is created for wildlife and fish. Vegetation can even trap pollutants before they enter the pond. Tree cover also helps regulate water temperature, which is important to fish that need cold water to survive.

BIOLOGICAL SAMPLING - Scientists determine the health of waters by taking samples of fish, plants and smaller organisms called macroinvertebrates. Macroinvertebrates include things like snails, worms, fly larvae, and crayfish ("crawdads"). You find them under rocks in the water. These critters tell a health story of the pond. Practitioners should occasionally collect samples of organisms and record the types of species that live in the pond ecosystem.

THESE AND ADDITIONAL RESOURCES ARE AVAILABLE FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AT:  
<http://water.epa.gov/learn/resources/measure.cfm>

# STANDARD BEST MANAGEMENT PRACTICES FOR TIERS TWO AND THREE

## WATER QUALITY MONITORING

1. Turbidity and sediment from project-related work, including work relating to system structures, must be minimized and contained to the immediate vicinity of the authorized activity through the appropriate use of effective sediment containment devices.
2. To the extent practicable, the work must be conducted in the dry season or when any affected stream has minimal to no flow. The site must be stabilized to prevent erosion and runoff, and work must stop during flooding, intense rainfall, storm surge, or high surf conditions. To the extent practicable, work must be done during low tides.
3. No project-related materials (fill, revetment rock, pipe, etc.) shall be stockpiled in the aquatic environment (intertidal zones, reef flats, stream channels, wetlands, etc.) or in close proximity such that materials could be carried into waters by wind, rain, or high surf.
4. All debris and material removed from the marine/aquatic environment shall be disposed of at an approved upland or alternative disposal site.
5. No contamination (by trash, debris sediment, non-native species introductions, attractions of non-native pests, etc.) of adjacent waters of the United States, including special aquatic sites, shall result from project-related activities. Special attention must be paid to the fouling level on barges, vessels, and equipment whereas to minimize the transport and potential introduction and spread of aquatic non-native species. In addition, if dredged or excavated material or structural members are removed from the water or placed in the water, measures must be taken to prevent the spread or introduction of any aquatic nonnative species. Additional conditions may be utilized to help meet this condition or related conditions.
6. Silt fences, silt curtains, or other appropriate containment structures shall be installed to contain sediment and turbidity at the work site
  - (a) parallel to, and within 10 feet of, the toe of any fill or exposed soil which may introduce sediment to an adjacent aquatic site; and
  - (b) adjacent to any fill placed or soil exposed within an aquatic site.
7. All silt fences, curtains, and other structures shall be installed properly and permanently stabilized, be self-sustaining, and remain in place until any turbidity levels elevated due to construction have returned to ambient levels.

8. Erosion controls must be properly installed before any alteration of the area may take place. All disturbed areas must be immediately stabilized following cessation of activities for any break in work longer than 4 days.

## ENDANGERED SPECIES MONITORING

1. All on-site personnel shall be apprised that they are working in an environmentally sensitive area and that endangered or threatened Hawaiian waterbirds, turtles, and monk seals may be in the vicinity of the project.
2. Each authorization will contain the requirement that the authorized entity document and report to DLNR OCCL (and thereby the Corps, NMFS and FWS) all interactions with listed species, including the disposition of any listed species that are injured or killed. Should an ESA-listed species be adversely affected, all work must stop pending reinitiation and completion of consultation between DLNR OCCL, the Corps, NMFS PRD and/or FWS for that action.
3. Constant vigilance shall be kept for the presence of ESA-list species during all aspects of the permitted and/or authorized action(s)
  - a. A responsible party, i.e., site manager I project supervisor, shall designate a competent observer to survey work sites and the areas adjacent to the authorized work area for ESA-listed marine species;
  - b. Surveys shall be made prior to the start of the work each day, including prior to resumption of work following any break of more than one-half hour. Periodic additional surveys throughout the work day are strongly recommended;
  - c. If any federally protected waterbird species appears within 100 feet (30.5 meters) of ongoing, in-water work, work activity shall be temporarily suspended until the bird species leaves the area of its own accord.
  - d. If a waterbird nest, turtle nest, or monk seal pup or pregnant monk seal is discovered, all work shall cease and DLNR OCCL should be contacted immediately, who shall then notify FWS and/or NOAA immediately.
  - e. All in-water work will be postponed or halted when ESA-listed marine species are within 50 yards of the proposed work, and will only begin/resume after the animal(s) have voluntarily departed the area, with the following exemption: if ESA-listed marine species are noticed within 50 yards after work has already begun, that work may continue only if, in the best judgment of the responsible party, the activity is unlikely to disturb or harm the animal(s); and
  - f. No one shall attempt to feed, touch, ride, or otherwise intentionally interact with any protected species.

4. Project footprints must be limited to the minimum area necessary to complete the project.
5. The project area must be flagged to identify sensitive resource areas, such as seagrass beds, coral resources, listed terrestrial plants, and turtle nests.
6. Work located makai of the Mean Higher High Tide Line of a navigable water or makai of the upward limits of adjacent wetlands must be timed to minimize effects on ESA-listed species and their habitats.
7. Project operations must cease under unusual conditions, such as large tidal events and high surf conditions, except for efforts to avoid or minimize resource damage.
8. Additional conditions may be required based on a site-specific analysis of potential biological resources in the area and potential impacts.

## CULTURAL MONITORING

1. All on-site personnel shall be apprised that they are working in a culturally sensitive area and that cultural artifacts and landscapes may be in the vicinity of the project.
2. Each authorization will contain the requirement that the authorized entity document and report to DLNR OCCL all interactions with cultural artifacts. Should a cultural artifact be adversely affected, all work must stop pending reinitiation and completion of consultation between DLNR OCCL for that action.
3. Constant vigilance shall be kept for the presence of cultural landscapes during all aspects of the permitted and/or authorized action(s)
  - a. A responsible party, i.e., site manager I project supervisor, shall designate a competent observer to survey work sites and the areas adjacent to the authorized work area for cultural artifacts;
  - b. If a cultural artifact is discovered, all work shall cease and DLNR OCCL and SHPD should be contacted immediately.

## ARCHAEOLOGICAL MONITORING

1. Restoration of walls should, when possible, make use of stones from the existing walls and rubble, and all imported materials should resemble these original stones.
2. No stones should be collected from adjacent fishponds or other historic sites.

3. Portable artifacts may be removed with adequate documentation prior to removal.
4. All nineteenth and twentieth century artifacts may be left in place, awaiting "coordinated conservation" efforts.
5. The pond should be open to periodic monitoring by State Historic Preservation Division staff to document newly discovered finds, provide additional interpretation, and assure that the previous conditions are being met.

## SPECIAL CONDITIONS

If the project involves mechanical dredging or mechanical removal of vegetation, then Pollution and Erosion Control Plan for the project might be required. At a minimum, this plan shall include:

1. The Best Management Practices that will be followed;
2. Proper installation and maintenance of silt fences, saudades, equipment diapers, and/or drippans;
3. A contingency plan to control and clean spilled petroleum products and other toxic materials;
4. Appropriate materials to contain and clean potential spills will be stored at the work site, and be readily available;
5. All project-related materials and equipment placed in the water will be free of pollutants;
6. Daily pre-work inspections of heavy equipment for cleanliness and leaks, with all heavy equipment operations postponed or halted until leaks are repaired and equipment is cleaned;
7. Fueling of project-related vehicles and equipment will take place at least 50 feet away from the water, preferably over an impervious surface;
8. A plan will be developed to prevent trash and debris from entering the marine environment during the project; and
9. All construction discharge water must be treated before discharge.

## STATE DEPARTMENT OF LAND AND NATURAL RESOURCES (DLNR)

Office of Conservation and Coastal Lands (OCCL)  
1151 Punchbowl, Room 131  
Honolulu, HI 96813  
587-0377  
[dlnr.hawaii.gov/occl](http://dlnr.hawaii.gov/occl)  
[occl@hawaii.gov](mailto:occl@hawaii.gov)

Land Division Main Office - O'ahu  
1151 Punchbowl Street, Room 220  
Honolulu, HI 96813  
(808) 587-0419  
[dlnr.land@hawaii.gov](mailto:dlnr.land@hawaii.gov)

Kaua'i District Office  
3060 Eiwa Street, Room 208  
Lihue, HI 96766  
(808) 274-3491

Maui District Office  
54 High Street, Room 101  
Wailuku, HI 96793  
(808) 984-8103

Hawai'i Island District Office  
75 Aupuni Street, Room 204  
Hilo, HI 96720  
(808) 961-9590

## COMMISSION ON WATER RESOURCE MANAGEMENT

1151 Punchbowl, Room , 227  
Honolulu, HI 96813  
587-0214  
[dlnr.cwrm@hawaii.gov](mailto:dlnr.cwrm@hawaii.gov)

## U.S. ARMY CORPS OF ENGINEERS

Honolulu District, Regulatory Office  
Bldg. 230, Attn: CEPOH-RO  
Ft. Shafter, Hawaii 96858-5440  
[www.poh.usace.army.mil](http://www.poh.usace.army.mil)  
[CEPOH-RO@usace.army.mil](mailto:CEPOH-RO@usace.army.mil)  
808.835.4303

## COUNTY PLANNING OFFICES

Honolulu: 808.768.8000  
Maui: 808.270.7735  
Kaua'i: 808.241.4050  
Hawai'i: 808.961.8288

## COUNTY TAX OFFICES

(TMK Information)  
Honolulu: [www.qpublic.net/hi/honolulu](http://www.qpublic.net/hi/honolulu)  
Maui: [www.mauipropertytax.com](http://www.mauipropertytax.com)  
Kaua'i: [www.qpublic.net/hi/kauai](http://www.qpublic.net/hi/kauai)  
Hawai'i: [www.hawaiipropertytax.com](http://www.hawaiipropertytax.com)

## KUA'ĀINA ULU 'AUAMO

47-200 Waihe'e Road  
Kāne'ohe, HI 96744  
808.672.2545  
[kuahawaii.org](http://kuahawaii.org)

## CATEGORIZATION OF HAWAIIAN FISHPONDS

**Type I** – Loko I’a Kuapā: A fishpond of littoral water whose side or sides facing the sea consist of a stone or coral wall, usually containing one or more sluice gates.

**Type II** – Loko I’a Pu’uone: An isolated shore fishpond usually formed by the development of barrier beaches building a single, elongated sand ridge parallel to the coast and containing one or more ditches and sluice gates.

**Type III** – Loko I’a Wai: An inland freshwater fishpond which is usually either a natural lake or swamp, which can contain ditches connected to a river, stream, or the sea, and which contain sluice gates.

**Type IV** – Loko I’a Kalo: An inland fishpond utilizing irrigated taro plots.

**Type V** – Loko I’a ‘Ume’iki: A fishtrap, similar to a Type I – loko i’a kuapā, which has various combinations of inward and outward leading lanes.

**Type VI** – Kaheka and Hapunapuna: A natural pool or holding pond.

## ESSENTIAL TERMS

**kuapā** - seawalls

**’auwai** – water channel

**mākāhā** – sluice gate

**pu’uone** – pond near the shore, as connected to the sea by a stream or ditch

**niho** – wall foundation stones

**mo’o** – pond guardian

## CREDITS

### PHOTOGRAPHY

**Loko Ea** courtesy of Malama Loko Ea Foundation || **Kaloko aerial** Adam Johnson || **Ko’ie’ie** Joylynn Paman || **Kaloko** Uncle Peter - Tyler Paikuli-Campbell. “Peter Keka, master mason, led work on the kuapa for nearly 12 years. Uncle Peter was born and raised in the Kona area and remembered working on the kuapa as a youth.” || **Alekoko (aka Menehune) Fish Pond, Kauai** • Hawaii Tourism Authority (HTA) / Tor Johnson • Content Creator Company: Hawaii Tourism Authority (HTA) • Content Creator Email: info@hawaiiitourismauthority.org || **Paepae ‘o He’eia** Honua Consulting & Liz Foote || **Huilua** (both aeriels) John Johnson || **Kaloko aerial** Adam Johnson || **Fish on a reef** Hawaii Island • Hawaii Tourism Authority (HTA) / Kirk Lee Aeder • Content Creator Company: Hawaii Tourism Authority (HTA) • Content Creator Email: aederkla@aol.com || **Sunset falls on a pair fishing** Molokai, Kaunakakai • Hawaii Tourism Authority (HTA) / Dana Edmunds • Content Creator Company: Hawaii Tourism Authority (HTA) • Content Creator Email: info@hawaiiitourismauthority.org || **Alii Fishpond wall** Molokai, Kaunakakai Credit Requirements: Hawaii Tourism Authority (HTA) / Dana Edmunds • Content Creator Company: Hawaii Tourism Authority (HTA) • Content Creator Email: info@hawaiiitourismauthority.org || **Plant** Molokai, Kaunakakai • Hawaii Tourism Authority (HTA) / Dana Edmunds • Content Creator Company: Hawaii Tourism Authority (HTA) • Content Creator Email: info@hawaiiitourismauthority.org || **Mākāhā at Paepae ‘o He’eia** Shawn Kahoolemana Naone

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<http://dlnr.hawaii.gov/occl/hoala-loko-ia/>