Budget, Finance, and Economic Development Committee on 2022-04-25 10:00 AM - Reconvened from 04/21/2022 at 9:00 a.m.

Meeting Time: 04-25-22 10:00

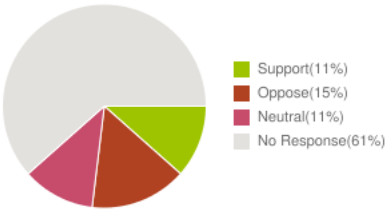
eComments Report

Meetings	Meeting Time	Agenda Items	Comments	Support	Oppose	Neutral
Budget, Finance, and Economic Development Committee on 2022-04-25 10:00 AM - Reconvened from 04/21/2022 at 9:00 a.m.	04-25-22 10:00	5	26	3	4	3

Sentiments for All Meetings

The following graphs display sentiments for comments that have location data. Only locations of users who have commented will be shown.

Overall Sentiment



Budget, Finance, and Economic Development Committee on 2022-04-25 10:00 AM - Reconvened from 04/21/2022 at 9:00 a.m.

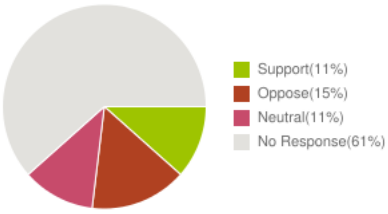
04-25-22 10:00

Agenda Name	Comments	Support	Oppose	Neutral
A G E N D A	11	3	2	3
BFED-1 Reso 22-80 PROPOSED FISCAL YEAR 2023 BUDGET FOR THE COUNTY OF MAUI (BFED-1)	15	0	2	0

Sentiments for All Agenda Items

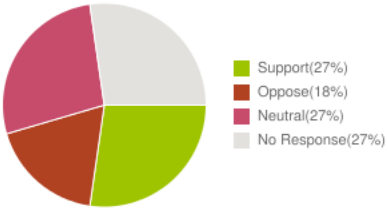
The following graphs display sentiments for comments that have location data. Only locations of users who have commented will be shown.

Overall Sentiment



Agenda Item: eComments for A G E N D A

Overall Sentiment



Ann Pitcaithley
Location:
Submitted At: 11:27pm 04-25-22

Aloha Budget, Finance and Economic Development Committee Chair Rawlines-Fernandez , Vice Chair Paltin and Committee Members,
I am urging the committee to adopt the Mayor Victorino's proposed budget for the provision of designated pickleball courts in Central Maui.
This is greatly appreciated since there are no existing designated pickleball courts in Central Maui. This is compared to the total of 14 tennis courts in Central Maui. (4 at the Wailuku War Memorial, 6 at Wailuku Wells Park, and 4 at Kahului Community Park.

The following references the mayor's proposal for designated pickleball courts in Central Maui
CBS 7245 (page 794)

$150,000 design
$500,000 construction
$46,517 Operation and Maintenance cost

The issue I and other players have is that this will take an estimated time of 2 - 3 years to complete. Just over the last three years, the numbers of pickleball players has been exploding at the Wailuku War Memorial tennis courts, where two upper courts are also marked for pickleball. At any given time, there are at least 30 -35 pickleball players in attendance for those 2 courts which are reserved for Tuesday and Thursday evenings.
Here are some facts about the exponential rise of the pickleball in the US.
"The 2022 Topline Pickleball Participant Report from the Sports & Fitness Industry Association (SFIA), a premier trade association for the nation's top sports and fitness brands, reported that the sport currently has more than 4.8 million players in the US – an increase of 39.3% over the last two years." From the Boston Globe, Pickleball is growing at an almost unprecedented rate in the history of American Sports.https://www.paddlepro.com/news/pickleball-growing-at-an-almost-unprecedented-rate-in-the-history-of-american-sports-/
There have been two recent meetings with the mayor in which an interim solution was considered. This temporary measure would involve the resurfacing of the two upper tennis courts at Wailuku War Memorial and marked for 6 pickleball courts (Note that a pickleball court is one fourth the size of a tennis court). No pickleball nets needed as players will furnish their own portable ones). The tennis nets can be left intact. The diagrams are already available. This would be a low investment which would only require paint for resurfacing and for pickleball lines. Once the mayor's proposed project is completed, the two upper courts at War Memorial can be converted back to two tennis courts.
Thank you for the opportunity to testify,
Ann Pitcaithley, Wailuku

Guest User
Location:
Submitted At: 4:34pm 04-25-22

Pickleball is the fastest growing sport in America. It's a game for all ages. It's a great family activity, and keeps many senior citizens active. The number of players on Maui has quadrupled over the past 3 years. The facilities we have been granted use of by the Parks Dept are much appreciated but have become overwhelmed with players. Please consider funding 8-10 dedicated pickleball courts in each geographic district on island. With the tremendous growth of the game locally, there is little doubt that dedicated pickleball courts would be extremely welcome and well used. In addition to addressing the growing needs of a hugely popular recreational activity here, building quality, dedicated pickleball facilities will give residents courts to be proud of, and will also enhance Maui's reputation as a premiere visitor destination as many pickleball enthusiasts pick travel destinations based on availability of pickleball courts. Lastly, as of now, there are just 16 dedicated pickleball courts on Maui (8 @ Waipuilani Park in Kihei, 4 @ the Lahaina Civic Center, and 4 @ Napili Park). The other public courts we have use of are all shared with the tennis community. They have not been happy about having to share court time/space with pickleball. Nothing would make the tennis community happier than pickleball getting it's own dedicated courts. The pickleball community agrees. Mahalo.

Guest User
Location:
Submitted At: 4:04pm 04-25-22

Maui needs designated pickleball courts. There are none in Central Maui or Kula or Haiku.
Kihei needs more courts and resurfacing of the current court surfaces at Waipuilani. During high season there were 50-60 players every day. The cracks are hazardous. Proper wind protection maintenance would be appreciated, too. My husband and I were practicing pickleball on the Kalama tennis courts two weeks ago. A tennis player yelled at us to get off the courts, even though there were open courts. We assured him and his partners that we would always leave when the courts were full. The group deescalated a bit and we have not encountered him since.

Guest User
Location:
Submitted At: 4:00pm 04-25-22

Aloha Maui County Council. I am Shelley Anne Mack and I thank you for the opportunity to submit written

testimony. I have been a resident of Maui for 38 years. I love my island home and a few years ago got involved in a wonderful sport called Pickleball. It's so much fun and brings people together for play and socializing!! And it's wonderful for we seniors to help us stay young and active. That said, it is a huge disappointment that we have so few Pickleball facilities. I truly don't understand why this is the case. We have several under-utilized gymnasiums, not to mention the scores of under used tennis courts. Please, Maui County Council, please include funding for dedicated pickleball courts. Mahalo.

Guest User
Location:
Submitted At: 3:04pm 04-25-22

It appears the Agenda for the required Public Hearing on property tax rates was submitted on 4.13.22 with specific proposed rates published. If the Council decides today to approve/recommend/propose rates that vary from any of the published rates contained on the Agenda for the Public Hearing on 4.27.2022, the Council may be in violation of the Sunshine Law if the Council persists in holding the hearing on 4.27.22. You should seek an opinion from the Office of Information Practices. Maui County Code Section 3.48.565 requires that the Notice of Public Hearing advertised in a newspaper of general circulation contain the rates to be considered by the Council.

Laurie Loney
Location:
Submitted At: 2:32pm 04-25-22

Thank you for allowing me to testify. This is a request to please budget for dedicated public pickleball courts all over Maui. They are especially needed in Central Maui and Kula. It is important to put in an area with little wind (Kula) or good wind protection is needed. There are a lot of people playing this game every day, mostly on tennis courts. Sometimes we have to tape the courts ourselves and bring portable nets. It is popular with every age group, but especially seniors. It creates good exercise and lots of socializing. I know that you will get 100% of the tennis players support if you get us off their courts and build us our own. Mahalo for any support you can give us.

Guest User
Location:
Submitted At: 1:44pm 04-25-22

Aloha. My name is Kai Duponte. I am very concerned by the lack of transparency with discussing fiscal issues that affect residents. For example, just last week, fees for residents to use some public facilities were doubled, without any notice to residents that this was going to be discussed or the ability to see documents. In addition, the County Council has given our Mayor full discretion on the spending of Federal money, which will not go at all well for residents. Our Mayor has made it clear that he supports the tourism industry over the best interest of residents--the most recent examples being his vetoes of the moratorium on tourist accommodations and on affordable housing. Please add transparency to your operating strategy. Residents need to know how our taxes are being spent!

Guest User
Location:
Submitted At: 12:41pm 04-25-22

My name is Joy Kaaz and I am a full time Maui resident. I am disturbed by the fact that during the last 2 years of the fiscal budget process, the County Council added a clause allowing the mayor to autonomously spend budget monies as he pleased, without consulting with the public or the council. I am writing to request that the County Council refrain from adding that clause again to the General Budget Provisions for FY 23.
Mahalo for your consideration.

Thomas Croly
Location:
Submitted At: 11:05am 04-25-22

Error in Registration Fees
The County Council established a $100/year registration fee for Electric vehicles (EV) during their 2018 budget session, the reasoning behind this fee was that EVs do not use any gasoline or diesel fuel and therefore do not contribute to the highway fund thru the taxes assessed to gasoline. The rational was sound and this fee helps provide greater fairness in taxation policy. At the same time a $50/year fee was established for hybrid vehicles,

but I believe it was the Council's intent not to assess a fee to all hybrid vehicles but only to Plug-in Hybrid Electric Vehicles (PHEV). I believe it was a mistake in practice to apply this fee to conventional hybrid vehicles.

The difference between a conventional hybrid and a Plug-in Hybrid is that Plug-in Hybrid Electric Vehicles (PHEV) get their electric power via plugging them into the electrical grid and this power allows these vehicles to drive for some limited range (usually 10-40 miles) before the gasoline engine would turn on to provide a greater range. Where conventional hybrid vehicles get all of their energy from gasoline and the hybrid aspect is just a small electric motor and small battery designed to recover some of the power that is lost in a non hybrid engine while it is coasting or braking. Conventional hybrids have a very small battery usually less than 2kWh and typically cannot operate at all, or for more than a mile, on the power from the battery alone. The electric motor only helps them use slightly less gasoline by turning off the gas engine while the car is sitting at a stop and by recovering engine braking power and using it to help the car accelerate.

I suggest that the fee created in 2018 only apply to EVs and PHEVs. and specifically not to conventional hybrids, that do use gasoline or diesel fuel and in some cases actually use more fuel than non hybrid vehicles.

This policy is codified in MCC 3.25.025
3.25.025 - Highway improvement fees.

There shall be established a highway improvement fee for electric vehicles and hybrid electric vehicles. The fees shall be deposited into the highway fund. For purposes of this section, electric vehicles shall mean vehicles that derive all of their power from electricity, and hybrid electric vehicles shall mean vehicles that derive part of their power from electricity and part of their power from an internal combustion engine running on gasoline.

This would need to be change to:
3.25.025 - Highway improvement fees.

There shall be established a highway improvement fee for electric vehicles (EV) and Plug-in hybrid electric vehicles (PHEV). The fees shall be deposited into the highway fund. For purposes of this section, electric vehicles shall mean vehicles that derive all of their power from electricity, and Plug-in hybrid electric vehicles shall mean vehicles that derive part of their power from plugging them into electricity and [part of their power] can also be driven from an internal combustion engine running on gasoline.

Here is an article about PHEVs https://www.caranddriver.com/features/g15377500/plug-in-hybrid-car-suv-vehicles/

Travis Liggett
Location:
Submitted At: 2:53pm 04-22-22

Aloha Chair Rawlins-Fernandez and Committee Members,

First, I want to thank the Council for their vote to approve Member King's Ma'alaea Regional Wastewater Reclamation System budget amendment. The important project will eliminate 79% of all Maui Underground Injection Control Program permittees by phasing out injection wells in Ma'alaea. Bravo!

The second out of two urgent injection well related needs for attention and investment is the lack of disinfection for municipal injection well discharges in Kahului. Lahaina already has it, Kihei is getting it this summer, and only Kahului has no present effort to install disinfection of injection well discharges.

The solution is clear -- ultraviolet wastewater disinfection, a reef-safe technology that uses high frequency light to kill harmful pathogens in effluent without any chemical residue.

In a previous FOIA response, Department of Environmental Management manager Scott Rollins cited a $6 mil cost to install UV for injection well discharges in Kahului, then clarified that no Preliminary Engineering Report (PER) has been developed to map out and cost out UV installation in Kahului. On 4/13/22 DEM stated in an email "A Preliminary Engineering Report (PER) / cost estimate to use UV disinfection prior to injection well discharge has not been done." On 4/15/22, Scott Rollins stated, "in order to make sure all the pieces fit in the

end, a PER [for UV disinfection of injection well discharges in Kahului] with an approximate cost of $100,000 would need to be completed."

As such, I implore Chair Rawlins-Fernandez to allow in Committee any Council Member to motion for a last-minute budget amendment to pay for such a PER, so that we can make an affordable incremental step forward toward 100% municipal wastewater disinfection in Maui.

Such an amendment might read:

"The County of Maui shall allocate in the FY2023 budget for the Department of Environmental Management the sum of $100,000.00 to pay for a Preliminary Engineering Report that will characterize and cost out the installation of ultraviolet light wastewater disinfection capability for injection well discharges at the Kahului Wastewater Reclamation Facility."

Included please find a third revision of my case for UV disinfection in Kahului, in the context of 100% municipal wastewater disinfection in Maui.

Long overdue action to fix injection wells is finally happening. Now a moderate investment in a Kahului UV PER will seize the moment to close the final gap on 100% municipal wastewater disinfection in Maui. A PER will enable us to raise funding, public or private, to pay for the needed UV upgrades.

Mahalo for your long hours of careful attention and work.

Sincerely,
Travis Liggett
President, Reef Power LLC

info@reefpowermaui.com
(808) 757-5984

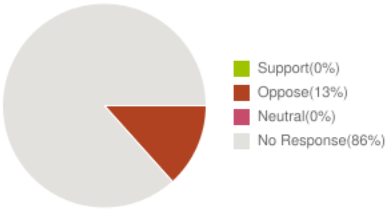
reefpowermaui.com
Instagram.com/reefpowermaui

flushaware.com
Instagram.com/flushaware

Guest User
Location:
Submitted At: 11:15pm 04-21-22

Please widen the all the road to Hana Highway to allow ample parking for visitors, and please stop putting hundreds of "No Parking" signs on the road. Maui has become a land of "No Parking" signs! Hideous. This is not the Maui I know. How can locals enjoy the beauty of Maui if we also can't park? This is ridiculous! Have you seen all the "No Parking" signs along the road near Twin Falls? Why so many? It doesn't make sense. Was the Twin Falls property owners had a hand in this so that all visitors should pay the $10 parking fee on their property??? Is the parking lot they are charging they own? As far as I know the parking space is not owned by them, especially the one along the road. Please have a look into this. I cannot accept that my tax dollars are being spent on hundreds of hideous "No Parking" signs so that the Twin Falls property owners can just make a killing with the parking fees they charge!

Overall Sentiment



Guest User
Location:
Submitted At: 1:16pm 04-25-22

Aloha. You are discussing General Budget Provisions today at 2:45, yet the public has nor been informed of this in advance and has not had the opportunity to review the documents. You folks recently made a decision on permit fee increases, doubling them, that will affect residents. You are not being transparent with financial decisions that affect residents. In addition, giving the Mayor a blanket discretion for spending appropriations is not in the benefit of residents at all. Our Mayor prioritizes the tourism industry over resident welfare and has consistently tried to stop all efforts at controlling over-tourism by controlling accommodations and has vetoed all efforts at facilitating affordable housing for residents. Please increase transparency for budgetary matters!

Guest User
Location:
Submitted At: 12:06pm 04-25-22

Dear Council Members, I just noticed that based on the Detailed corrected Schedule for today that was just submitted today at 10:08 am after this meeting started, you are scheduled to discuss the General Budget Provisions at 2:45pm yet I do not see anything in the BFED file on Granicus regarding the General Budget Provisions. If this Council is committed in any way to transparency you should not be discussing any item for which the public has not had an advance opportunity to review the documents on this issue. You did the same thing last week when you discussed the proposed Recreation and Park permit fee increases. Council Member Paltin submitted these proposed increases at 11:08 am on 4.20.22, well after public testimony had closed for the day. The Council subsequently began discussin the proposed fee increases at 10 pm that night. This is not transparent. This same process occurred a few years ago when CM Hokama proposed massive last minute increases to the Recreation and Park permit fees. The Council passed them and then a few months later when the impacted residents discovered the increases the public backlash was so strong that many of the increases were reduced. Why do you conduct the public's business in this manner? Please stop it. I mentioned in an ecomment last week, I strongly advise against the Council including any General Budget Provision that attempts to give the Mayor general blanket discretion to spend appropriations in his "best judgment." This is neither necessary, required or advisable. The Council, on BFED Chair Rawlins-Fernandez suggestion, has added a blanket mayoral spending discretion clause to the General Budget Provisions for FY 21 and FY 22 with disastrous results. Please do not do this again.

Guest User
Location:
Submitted At: 8:08am 04-25-22

Maui County Regional Wastewater Initiative

My wife and I have owned our property in the Ma'alaea Village for 13+ years. I want to go on record in strong support of revisiting and approving the Ma'alaea Regional Wastewater Initiative. Before the window for funds through the federal government closes to get support for Maui's efforts for this urgently needed infrastructure and return Ma'alaea Bay to the pristine level it once was, please reconsider and support this initiative. Using today's technology, we must reverse the decisions from the past that are causing this eco impact.

Mahalo

Richard and Jackie Smith
70 Hauoli St. Apt. 110
Wailuku, HI 96793

Guest User
Location:
Submitted At: 8:06am 04-25-22

Injection wells

My name is,
Tom Vellani
50 Hauoli St. #310
Wailuku, Hawaii 96793

I am a year round resident in the Ma'alaea condo area. I would like to encourage you to include the $9.5 million dollars in the county's budget that is under consideration for injection wells in the Ma'alaea neighborhood.

I am retired, and a huge assessment for condo owners to pay for injection wells would drive me from my home.

Ma'alaea harbor and shoreline is a treasure for the entire county not just the condo owners on Hauoli Street. Yes, many of the condos on Hauoli are used as tourist rentals, but these owners pay the necessary guest property taxes for their busines, taxes that benefit the entire county.

Again, I respectfully ask that you include the money for the injection wells in your budget.

Sincerely,
Tom Vellani

Guest User
Location:
Submitted At: 8:00am 04-25-22

Aloha Maui County Council Members,

Please vote YES to fund a wastewater treatment plant in the 2023 budget.

Mahalo,

Cynthia Hager
50 Hauoli St., Suite 108
Wailuku, HI 96793
808.986.8109
cindy.gma@hawaiiantel.net

Guest User
Location:
Submitted At: 12:38pm 04-22-22

Maalaea

As a condo owner in Maalaea, I highly support the passage of the regional wastewater system under consideration.

Thank you, David Aines

Guest User

Location:
Submitted At: 12:37pm 04-22-22

Maalaea

I am an owner of a condo in Maalaea and absolutely support the regional wastewater system that is up for reconsideration.

Deborah Aines

Guest User
Location:
Submitted At: 10:13am 04-22-22

Maalaea Waste Treatment

I fully support your efforts to protect the marine environment at Maalaea Bay by eliminating injection wells. It would also be an amazing environmental improvement to use reclaimed water for irrigation instead of fresh water. Thank you for your efforts!

Gale B. Uhl

Guest User
Location:
Submitted At: 10:12am 04-22-22

Wastewater Treatment Plant

Hello,
I am righting to ask that you consider building the Waste Water Treatment Plant in the Maalaea area. The need is for environmental and future planning. I believe a municipal owned facility has the ability for funding from Enterprise funds, Government matches and grants that private facility don't have an opportunity to achieve. The facility will take care of an age old problem with injection wells failing and bring forth new technology far more advanced. Investing in the future is a good road map for future generations to enjoy a legacy built now. I am will aware of a collection system as I hold Waste Water Collection certs hear in Washington State and work for a municipality.
In closing, please consider moving forward with the build out of the facility that will provide continued income and sustainability for the residents and visitors to a great County and State.

Thank you for taking the time to listen to the statement as a condo owner at Hono Kai A 16

Sincerely,
Todd and Renee Klein

Guest User
Location:
Submitted At: 10:10am 04-22-22

WWTR for Consideration

Hello Council- PLEASE, Please reconsider the decision on the waste water treatment plant for Maalaea.

We are part owners of Hona Kai A-7. Our Family has had this unit for over 40 years. I feel like I grew up on Maui and feel very lucky for that.
Over the past 30 years I've personally seen the Maalaea Bay deteriorate into a murky mess. The clear water of the 80's has become a kitchen sink of dirty water with visibility almost at 0 feet.
The coral I've also watched go from gorgeous reds and greens, to a grey filmy muck.

The damage to Maalaea is very evident over the years. I've been hearing about this Treatment plant now for what seems 15 years, and what seems like endless discussion has gone no where.
Yet, one of the crown jewels of Maui, Maalaea Bay, has had very little urgency to fix the problem.

Please end the bureaucracy and Let's start this treatment plant. I can't imagine a Maui 30 years from now if this not done.
On this Earth Day with the opportunity to fix this, we should. We all should be concerned.
This is our chance to preserve a crown jewel of the island.
Let's take it! If we don't take this chance to fix it, we will all regret it.

Thank You Council. I know you will do the right thing for the island, the people, the future, the environment and Maalaea Bay.

Eric, Merrell and Axel Emken
714-6515312

Guest User
Location:
Submitted At: 10:09am 04-22-22

Urgent: The Regional wastewater initiative is up for reconsideration

My wife and I own 300 Hauoli St #B4 in Maalaea and we strong encourage you to vote yes on this.
Best,
Jacob and Kimberly Christfort

Guest User
Location:
Submitted At: 10:07am 04-22-22

Please Support Maalaea Wastewater Project

We are writing to express our support for including the Maalaea Regional Wastewater Reclamation System in the 2023 budget. Your consideration for this much needed project would be appreciated.

Barbara and John Pile
70 Hauoli Street Apt. 104
Wailuku, Hawaii 96793

Guest User
Location:
Submitted At: 10:02am 04-22-22

We support funding for the Ma'alaea wastewater system

My Fiancé and I have owned our home here in Ma’alaea since 2007. We strongly support the Council Member Kelly King’s proposal to include $9.5 million for a Ma’alaea Regional Wastewater Reclamation System in the 2023 budget.

Sincerely,

Carey Clenchy and Kenneth Johnson
50 Hau’oli St. Apt 405
Wailuku, HI 96793

Guest User
Location:
Submitted At: 10:00am 04-22-22

Please include $9.5 million on the County budget to build a Maalaea regional plant and fix the injection well problem

To the County Council,

Please include $9.5 million on the County budget to build a Maalaea regional plant and fix the injection well.

Thanks,

Makani A Kai B2

Wenji Sun

Guest User
Location:
Submitted At: 9:58am 04-22-22

We support funding for the Ma'alaea wastewater system

My husband and I have owned our home here in Ma’alaea since 2011. We strongly support the Council Member Kelly King’s proposal to include $9.5 million for a Ma’alaea Regional Wastewater Reclamation System in the 2023 budget.

Nancy and John Norman
70 Hau’oli St. Apt. 205
Wailuku, HI 96793

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Nancy Norman, Education Consultant
Alaska Commissioner, Education Commission of the States: www.ecs.org
Email: Norman.Nancy@gmail.com
Mobile: 612-618-9999

UPDATED v3 - Appeal for County of Maui Fiscal Year 2023 Investment
Preliminary Engineering Report (PER) Design Study
Kahului Wastewater Reclamation Facility Ultraviolet Light Disinfection System Installation

April 22, 2022

Summary

This document comprises a formal request by the people of Maui to the County of Maui for FY2023 funding of approximately $100,000 to pay for a Preliminary Engineering Report (PER) design study to establish an actionable cost to install ultraviolet light wastewater disinfection capability to treat all of the secondary effluent discharging into nearshore injection wells next to Kanaha Beach Park from the Kahului-Wailuku Wastewater Reclamation Facility, to mitigate the risk of infected wastewater currently flowing into nearshore recreation areas during a present or future global pandemic.

Kahului is the largest population center in Maui and is located on the island's north shore. As one of the last places to find affordable housing, Maui's largest town is known to be a place of many hard working locals, whose closest beach is at **Kanaha Beach Park**, which is directly adjacent to the injection well plume mapped in a **2016 publication by Dr. Amato et al** from UH Manoa. In 2018, the County of Maui Department of Environmental Management ceased chlorine disinfection of injected secondary wastewater at the Kahului-Wailuku municipal Wastewater Reclamation Facility. Since 2018, the approximately 5,000,000 gallons per day of effluent discharged into nearshore injection wells near Kanaha Park has routinely been measured to have fecal *coliform* counts of colony forming units to exist at levels above the detection limit for the test, or greater than 2419.6 Most Probable Number of colony forming units with the ability to infect per 100 mL of water. See Appendix C for detailed injected fecal *coliform* data, which indicates that the over 30 disease forming pathogens associated with wastewater **identified by the U.S. National Institutes of Health** may be present in the effluent. High bacteria levels are routinely measured in bodies of water near the injection well plume, such as **Kahului Harbor** and **Kanaha Beach Park**. In the publication by Dr. Early, **Risk Factors for Community-Associated Staphylococcus aureus Skin Infection in Children of Maui**, the authors noted that, "Children and Pacific Islanders are particularly vulnerable to CA-MRSA infection." Councilmember Kelly King has developed draft legislation Bill 52 shown in Appendix A that would require disinfection of all municipal wastewater discharged. A FY2023 budgetary allocation by the County of Maui for DEM to develop a Preliminary Engineering Report on installing UV at Kahului WWRF to mitigate the biohazard risk of infected wastewater would pair nicely with new County legislation Bill 52 requiring 100% disinfection. On 4/13/22 DEM stated in an email "A Preliminary Engineering Report (PER) / cost estimate to use UV disinfection prior to injection well discharge has not been done. " On 4/15, Scott Rollins stated, "in order to make sure all the pieces fit in the end, a PER [for UV disinfection of injection well discharges in Kahului] with an approximate cost of $100,000 would need to be completed."

The people of Maui would like to see 100% disinfection of municipal wastewater discharged into nearshore recreation areas via injection wells and ground water. The County FY2023 budget is the appropriate mechanism to invest in an incremental step toward realizing the capability with a $100k budget allocation for a Preliminary Engineering Report to establish a solid cost for installation of UV disinfection in Kahului.

The general target population to be served is the population of individuals who spend time swimming or surfing, exposed to infected effluent near Kanaha and Kahului Harbor, and all the beneficiaries of a healthy, sustainable and thriving 'Aina and Kai.

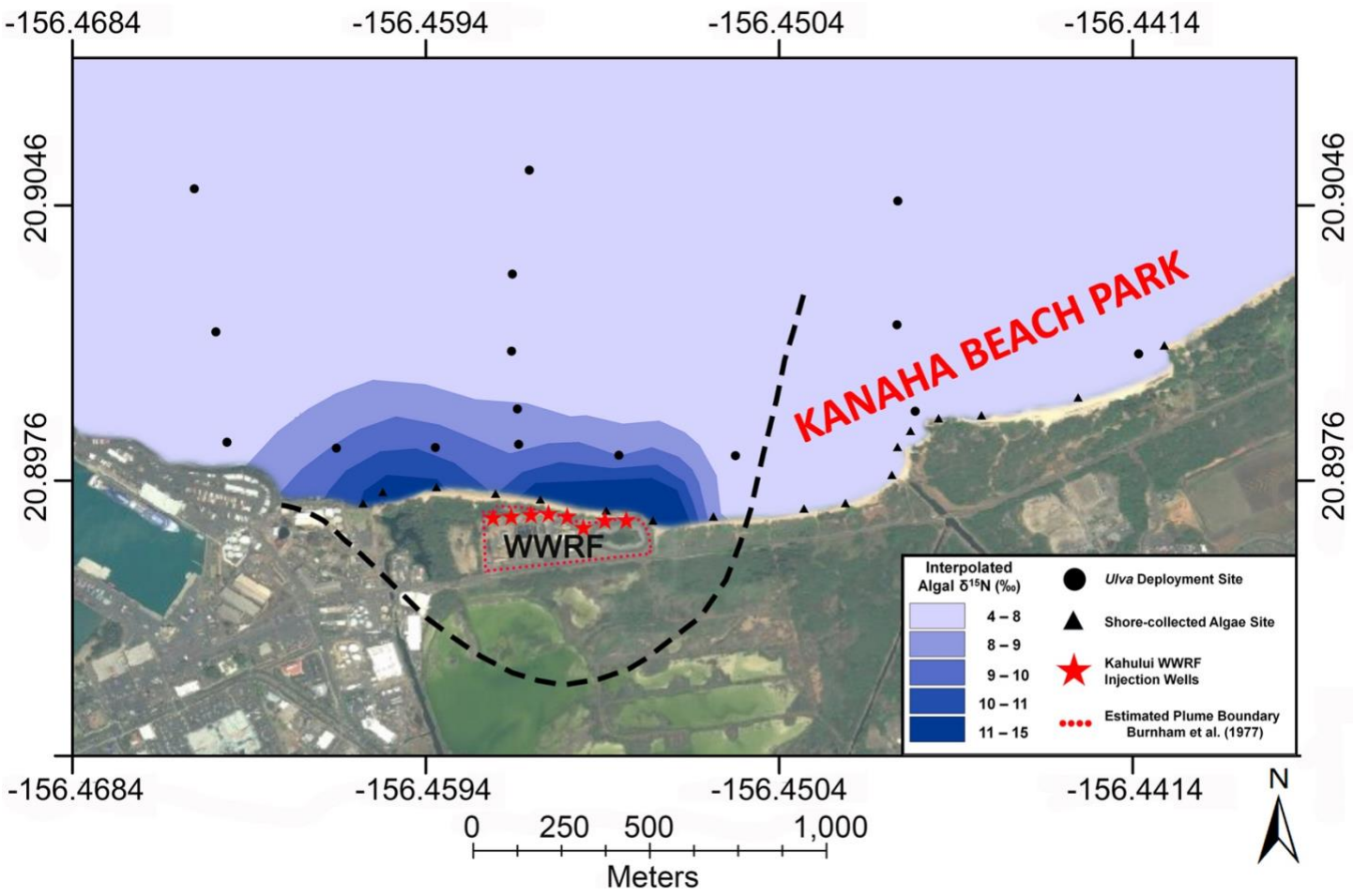
Background

Wastewater flowing from the Maui County municipal wastewater reclamation facility in Kahului does not undergo a disinfection treatment step before discharge into nearshore injection wells that flow into recreation areas like Kanaha Beach Park. The County stopped disinfection of injected wastewater from Kahului in 2018.

Without any treatment step like UV disinfection, injected wastewater flowing into nearshore recreation areas like Kanaha Beach Park in Kahului places swimmers directly in harm's way. Bacterial monitoring at nearby sites proves this risk. Conditions that make a person more susceptible to contracting a water borne illness from infected wastewater include eczema or any condition that gives rise to breaks in the skin, HIV/AIDS, lymphedema, prednisone treatment, chemotherapy, pregnancy and old age.

Geographic Coverage

The geographic location and extent of the Kahului-Wailuku WWRF infected injection well plume in close proximity to Kanaha Beach Park and the Kahului Harbor nearshore recreation areas, is shown in plots of marine macroalgae $\delta^{15}N$ associated with wastewater treatment shown in Figure 5 from **Amato 2016**, below.



Scope of Work

The funding request, if approved, will task the County of Maui Department of Environmental Management to develop a Preliminary Engineering Report (PER) describing an installation UV disinfection capability for injection well discharges at the Kahului WWRF as described in the **2015 Brown & Caldwell report**. Table 6-3 shows the specification for a 55% UVT treatment capability system that DEM will be responsible to characterize in a PER. The County of Maui Department of Environmental Management has estimated the cost of adding a new UV disinfection channel in Kahului at $6 million, shown in their FOIA response in Appendix B. A PER to refine this projection is expected to cost $100k.

This biohazard needs mitigation funding now and cannot wait any longer as the effluent is downright dangerous (see Appendix C).

Project Stakeholders

Maui Island community members are the beneficiaries in this project. They will enjoy the benefits of 100% municipal wastewater disinfection with fewer infections and associated medical treatments or death.

We need to recognize that our **North Maui nearshore environment** has rights and honor them.

Native Hawaiian Community indigenous rights have to be recognized and respected as a part of any planning and use discussions for any geographic area in Hawaii Nei. A diverse set of other stakeholders also include beach users, fishermen, snorkelers, wind surfers, boaters, local businesses, etc. All depend on the health and future sustainability of the nearshore waters of Maui's North Shore.

The County of Maui **Department of Environmental Management** has a sacred duty to uphold the public trust by actively working to prevent any instance in which a swimmer or surfer interacts with municipal wastewater in the nearshore environment, without first treating that effluent with a reef-safe disinfection step like ultraviolet light wastewater disinfection.

Measure of Effectiveness

The measure of effectiveness of the program will be quantified progress in reducing the current quantity of the estimated **448 *BILLION*** fecal *coliform* indicator bacteria injected per day into nearshore municipal injection wells in Kahului. The Key Performance Indicator that will enable us to determine that the project is a "success" will be the decreasing numerical quantity of fecal *coliform* colony forming units discharged.

Preliminary Cost Estimate

Freedom of Information Act request responses from the County of Maui Department of Environmental Management shown in Appendix B state an estimated cost to install ultraviolet light wastewater disinfection capability for 100% of the injected secondary wastewater effluent in Kahului is approximately $6,000,000. Presently, the County of Maui DEM does not plan to invest in UV disinfection in Kahului **until FY2026**. County of Maui FY2023 budget allocation funding is needed to immediately initiate the process to install UV disinfection in Kahului. Scott Rollins from DEM places the price of a Preliminary Engineering Report that is needed to estimate the cost of installing UV in Kahului at $100k. This would be an appropriate moderate investment by the Council in their FY2023 budget that will move the community incrementally toward 100% municipal wastewater disinfection in Maui.

Appendix A Draft municipal wastewater disinfection legislation Bill 52 from Council Member Kelly King

Anticipated Bill 52 CD1 language:

"Municipal wastewater effluent discharged or reused by the County must meet Hawaii state R-1 reuse standards for fecal coliform bacteria; the County must allocate sufficient funding for the implementation of this subsection so that its implementation does not cause any increases in sewage rates for residents."

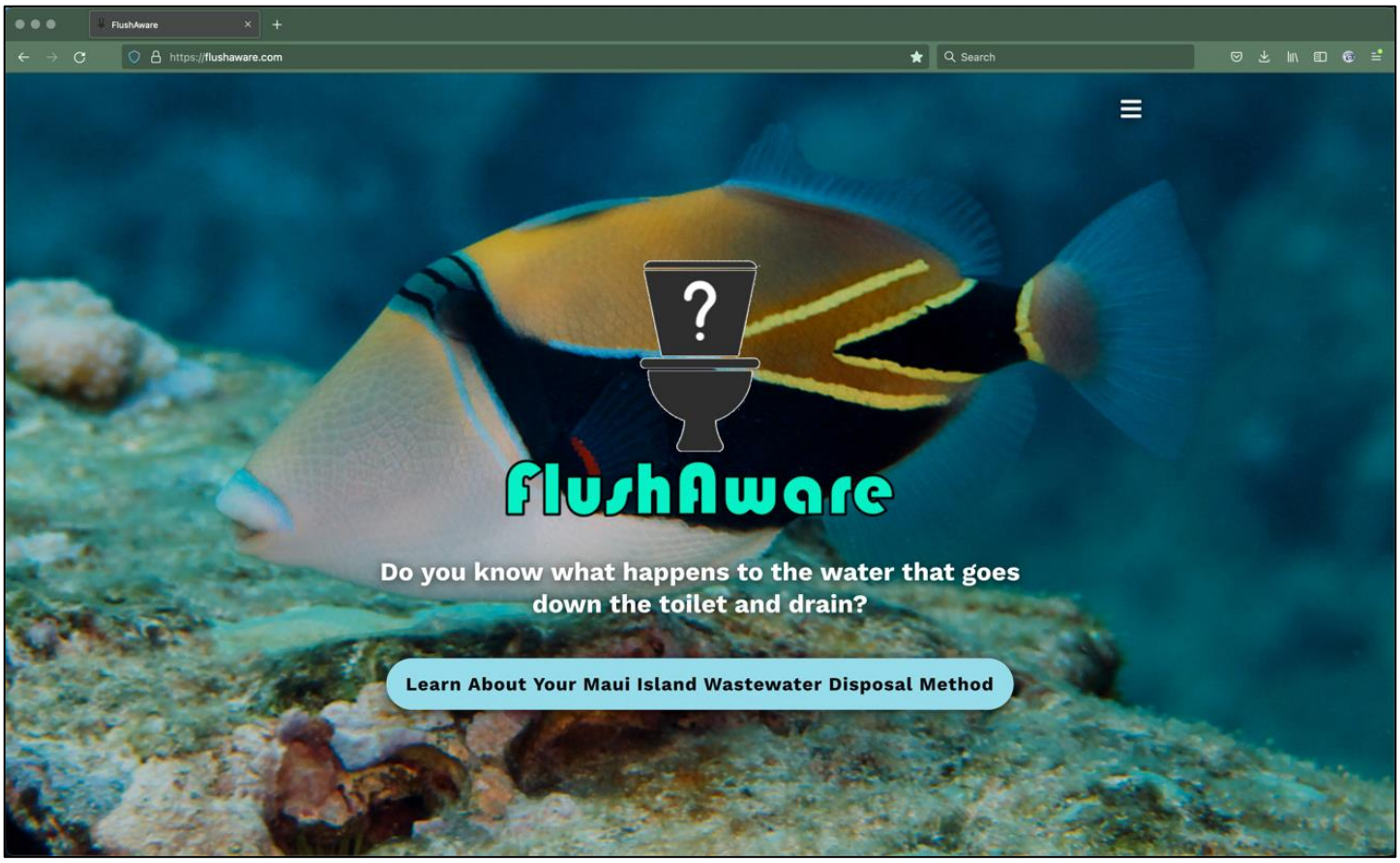
Appendix B County of Maui DEM FOIA request response citing UV disinfection cost in Kahului

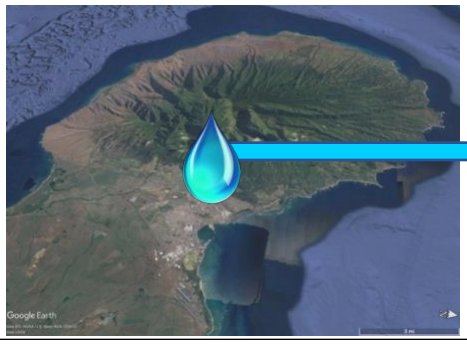
Wailuku-Kahului Wastewater Reclamation Facility (WWRF) Upgrade to R-1 (CBS-1169)

The plan to upgrade the Kahului/Wailuku WWRF to R-1 is only in the preliminary planning stages. We do not have any preliminary plans, or formal cost estimates at this time. The preliminary estimate in the six year CIP was based on the one channel expansion in Lahaina that cost approximately $6 million. An actual cost estimate will be prepared once we get closer to design contracts.

We have listed it as a potential project on our six year Capital Improvement Program. At this point in time it is not required until the recycled water force main (CBS-1171) and pump station (CBS-5034) projects are constructed to transfer water to the central valley and the water could be used by customers. These other projects are also on the six year schedule and have design contracts issued and the EIS is in process. The current time line is our best estimate, it is not required to be completed by FY2028. It is dependent on other projects as well as other approvals (mayor's office, County Council, etc.) Note that funding for projects is only approved on a year to year basis during the County Budget process.

Appendix C Excerpt from the new online education system FlushAware.com describing Kahului discharges



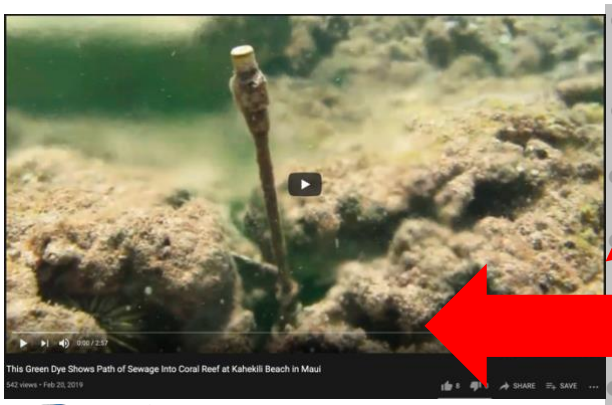


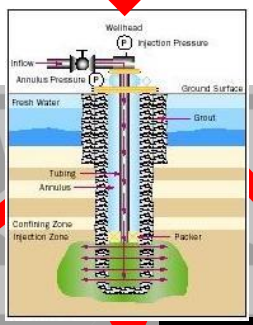
1. Drinking water is transported from the rivers and groundwaters of Na Wai Eha, Maui's Four Great Waters of West Maui, to Kahului and Wailuku, where it enters the resident's home and is used for household activities and flushed down the toilet or drain.

2. Untreated wastewater is conveyed through sewer mains to the Kahului-Wailuku Wastewater Reclamation Facility, then the water is treated to "**secondary**" standards.

3. A small portion (10%) is **chlorine disinfected** and is pumped to in-plant irrigation and industrial uses within the facility, the vast majority (90%) remains **infected** with pathogens and discharges as **R-3** into nearshore injection wells.

4. The **infected** injected wastewater flows through groundwater toward the Pacific Ocean, where it emerges often through the reef itself, via openings that present as direct pathways from the wastewater treatment plant to the reef, similar to the flow shown with green dye in the video below.





fecal coliform

LIST OF PATHOGENIC (ILLNESS-CAUSING) LIFE FORMS COMMONLY FOUND IN INFECTED WASTEWATER, SUCH AS R-3 INJECTED IN KIHEI AND KAHULUI

The list of pathogenic microbial species commonly found in non-disinfected wastewater is long and alarming, shown in the **U.S. NIH list** below.

Respiratory infections such as COVID-19 and **skin infections** can be caused by water borne pathogens.

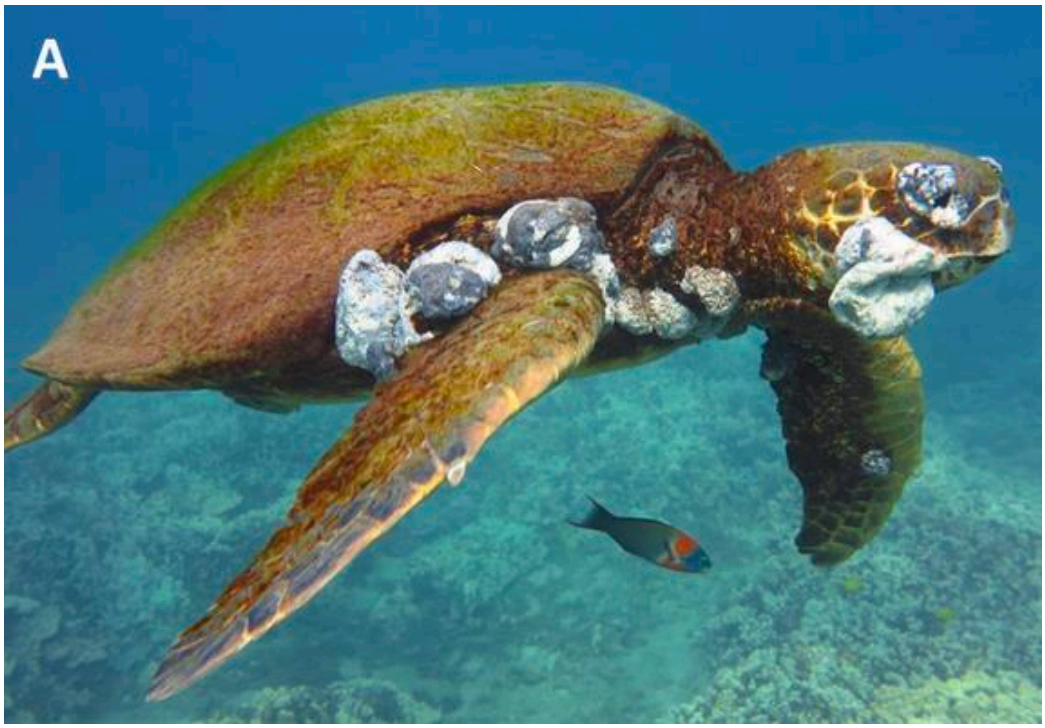
The major pathogens of concern in municipal wastewater and diseases or illness associated with them:

Name of pathogen	Major disease or symptoms
Bacteria	
Campylobacter jejuni	Gastroenteritis
Escherichia coli	Gastroenteritis
Salmonella spp.	Salmonellosis, typhoid, paratyphoid
Shigella spp.	Bacillary dysentery
Staphylococcus	Skin Infections, bacteremia, toxic shock syndrome, septic arthritis
Streptococcus	Cellulitis, Pink eye, meningitis, pneumonia, endocarditis, necrotizing fasciitis
Vibrio cholerae	Cholera
Yersinia spp.	Gastroenteritis
Viruses	
Adenovirus	Upper respiratory infection and gastroenteritis
Astrovirus	Gastroenteritis
Coxsackie virus	Meningitis, pneumonia, fever
Echovirus	Meningitis, paralysis, encephalitis, fever
Hepatitis virus	Infectious hepatitis, miscarriage, and death
Human calicivirus	Epidemic gastroenteritis with severe diarrhea
Polio virus	Poliomyelitis
Reovirus	Respiratory infections, gastroenteritis
Rotavirus	Acute gastroenteritis with severe diarrhea
TT hepatitis	Hepatitis
COVID-19	Acute respiratory illness
Protozoa	
Balantidium coli	Balantidiasis
Cryptosporidium spp.	Cryptosporidiosis
Entamoeba histolytica	Acute amoebic dysentery
Giardia duodenalis	Giardiasis
Toxoplasma gondii	Toxoplasmosis
Helminths	
Ascaris lumbricoides	Ascariosis
Ascaris suum	Coughing and chest pain
Hymenolepis nana	Hymenolepiasis
Necator americanus	Hookworm disease
Taenia saginata	Insomnia, anorexia
Taenia solium	Insomnia, anorexia
Toxocara canis	Fever, abdominal pain, muscle ache
Trichuris trichiura	Diarrhea, anemia, weight loss

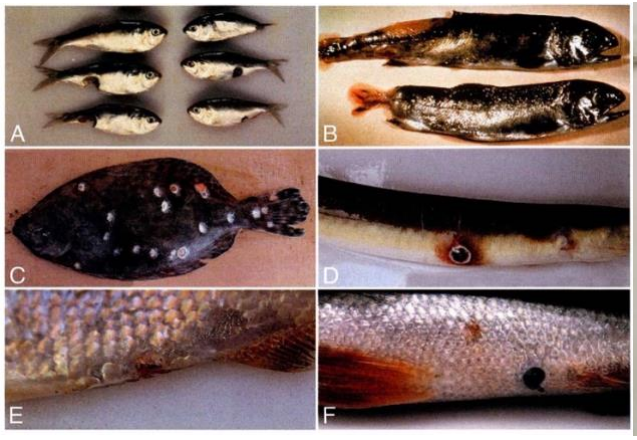
WASTEWATER CONTAINS PATHOGENS THAT CAUSE DISEASE IN MARINE LIFE

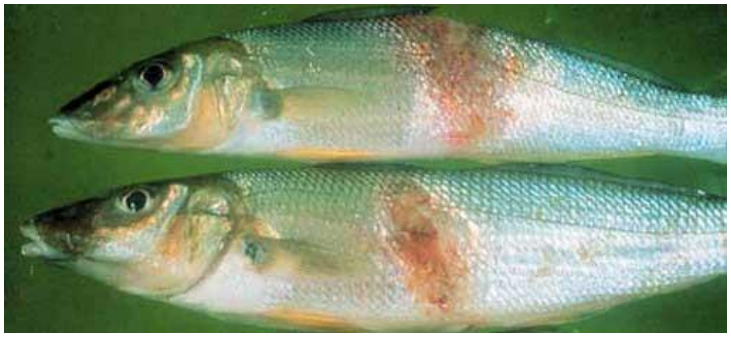
Land-based pollution is a contributor to reef degradation, show here in Ma'alaea, Maui

Kihei, Maui, has been called a "ground zero" for fibropapillomatosis, a disease that is caused by a herpes virus and manifests as tumors in turtles. The virus is injected into the environment, and green sea turtles ingest invasive ocean algae, fed by excess nitrogen found in injected wastewater in Kihei, causing the growth of the tumors, a leading cause of death of the endangered species.

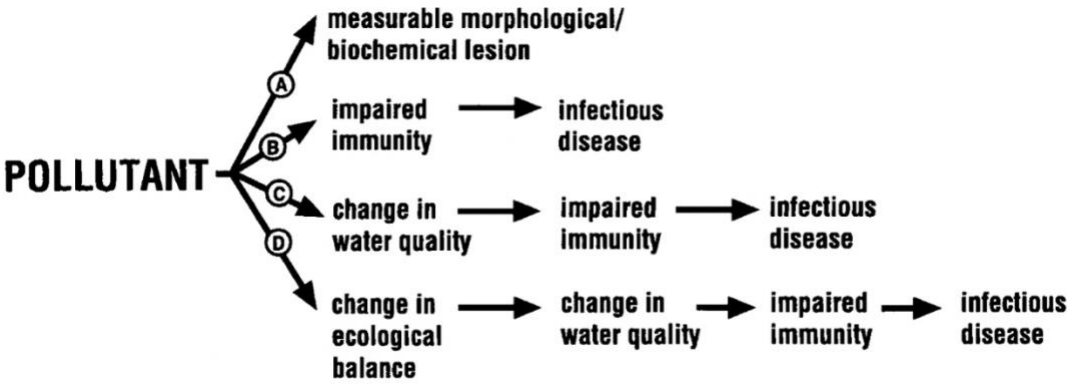


Infectious fish ulcers are a global phenomenon that can be traced to pollution sources like infected wastewater.





Pollution loading leads to infectious fish ulcers by way of several vectors.



The coral itself is affected by land-based pollution.

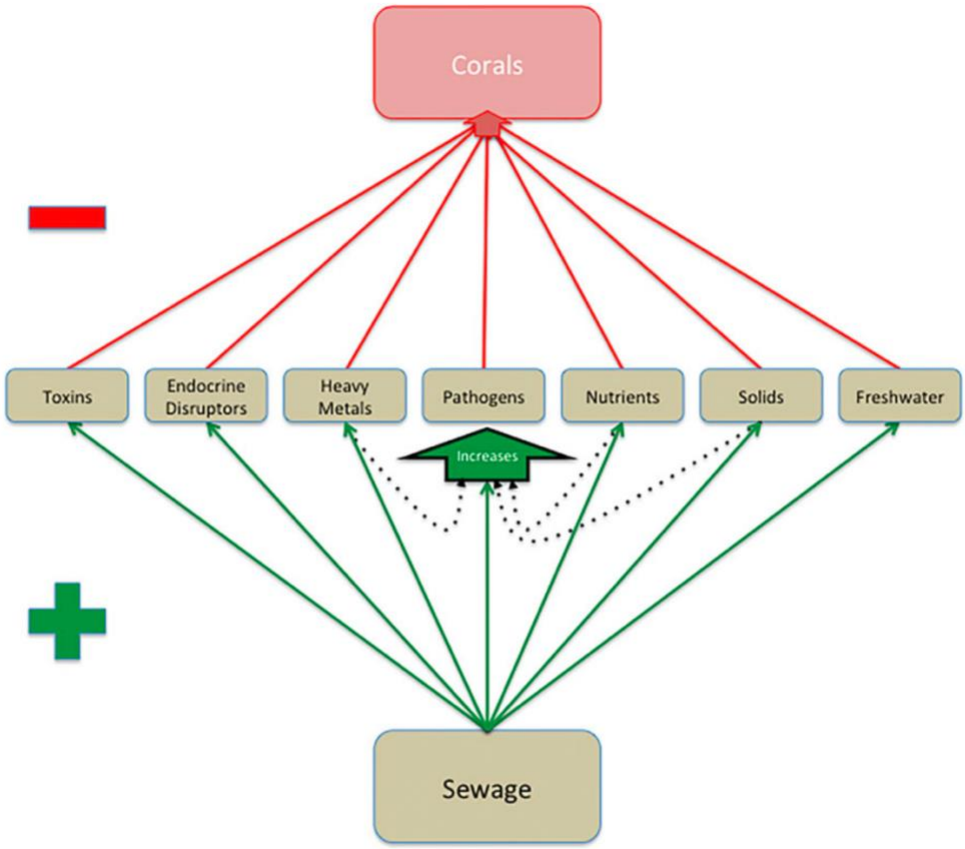
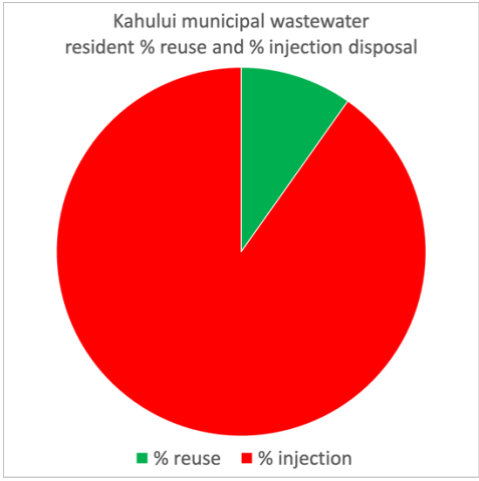


Figure 1. Interaction diamond illustrating impacts of sewage on concentrations of known stressors to corals and the positive feedbacks those stressors can have.



On average, about 90% of resident wastewater is discharged into nearshore injection wells at the Kahului Wastewater Reclamation Facility, while about 10% is used for in-plant recycling. Detailed County of Maui plant flow reports **here**.

Ave. 2020 total flow	Ave. 2020 reuse flow	Ave. 2020 injection flow	2020 injected TN	2020 injected TP
(MGD)	(MGD)	(MGD)	(mg/L)	(mg/L)
5.37	0.53	4.85	10.27	3.03

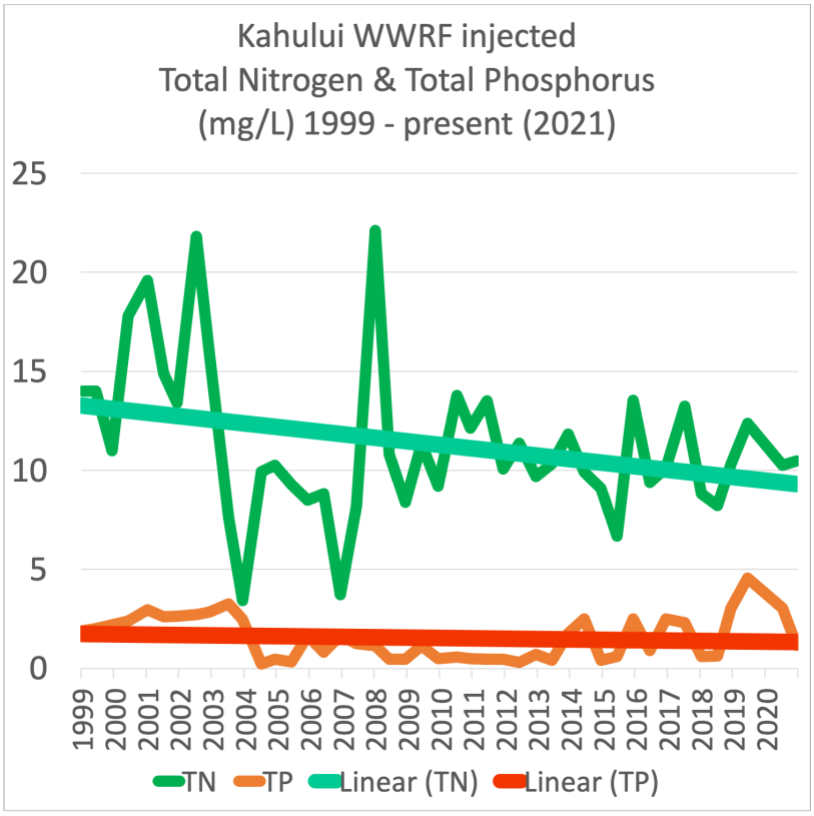
The average daily plant flow at the Kahului Wastewater Reclamation Facility in 2020 was over 5 MGD, reuse was about 0.5 MGD, and average injection over 4.8 MGD. Total Nitrogen in the same period was over 10 mg/L and Total Phosphorous was over 3 mg/L. Detailed UIC water quality and County of Maui plant flow reports **here**.

inj. nutrients / census resident / year	inj. wastewater / census resident / year	inj. wastewater / census resident / day
(lbs/year)	(gallons/year)	(gallons/day)
4.0	36,389	100

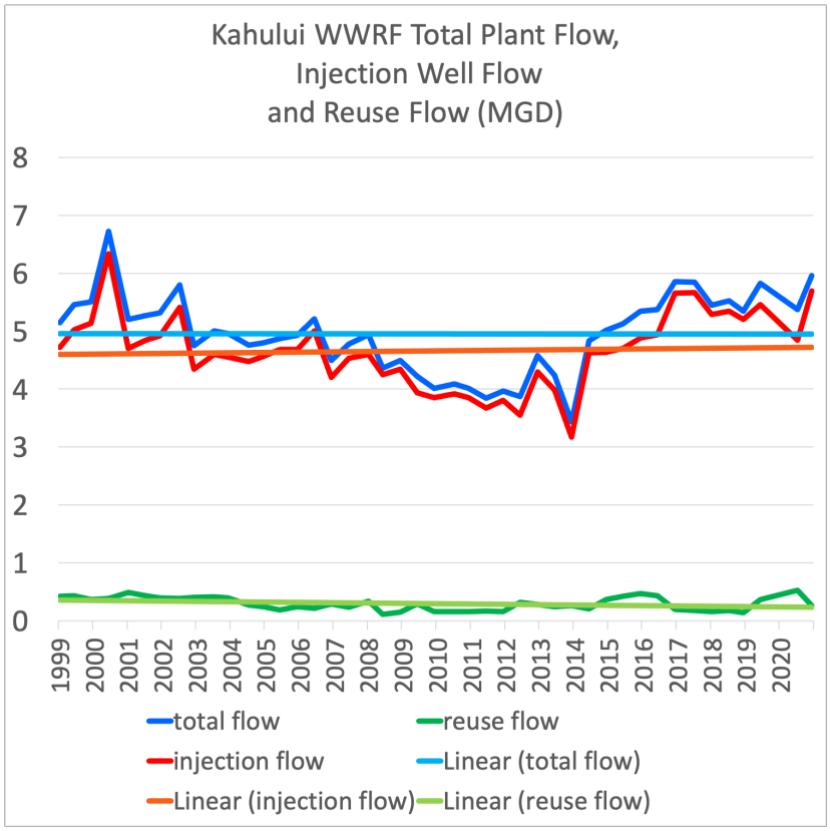
The total estimated nutrient mass injected per census resident per year at the Kahului Wastewater Reclamation Facility is about 4 pounds of dissolved nutrients per year. Each resident contributes about 36K gallons to injection per year in Kahului, averaging about 100 gallons per resident per day. Detailed UIC water quality and County of Maui plant flow reports **here**.

	injected *coliform* cell counts		total inj. *coliform* cell counts / resident
	(MPN/100mL)		(MPN/year)
>	2419.6	>	3,332,923,119

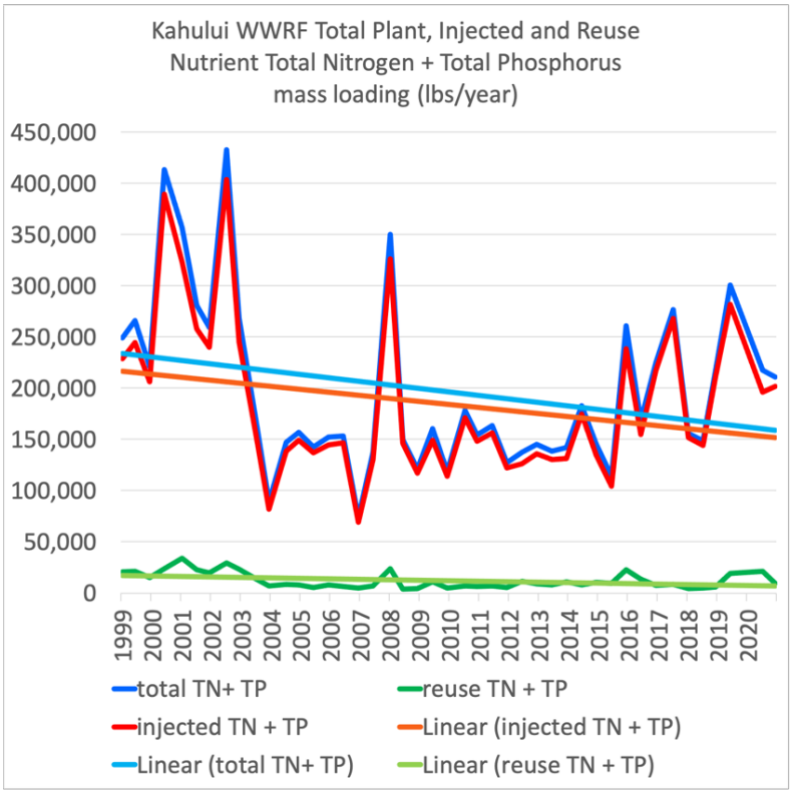
Injected fecal *coliform* Most Probable Number of colony forming (infection forming) units is recently measured at above 2419.6 per 100 mL, which is above the detection limits for the test used. Total injected fecal *coliform* colony forming units per census resident is over 3 Billion cells per year. Detailed UIC water quality and County of Maui plant flow reports **here**.



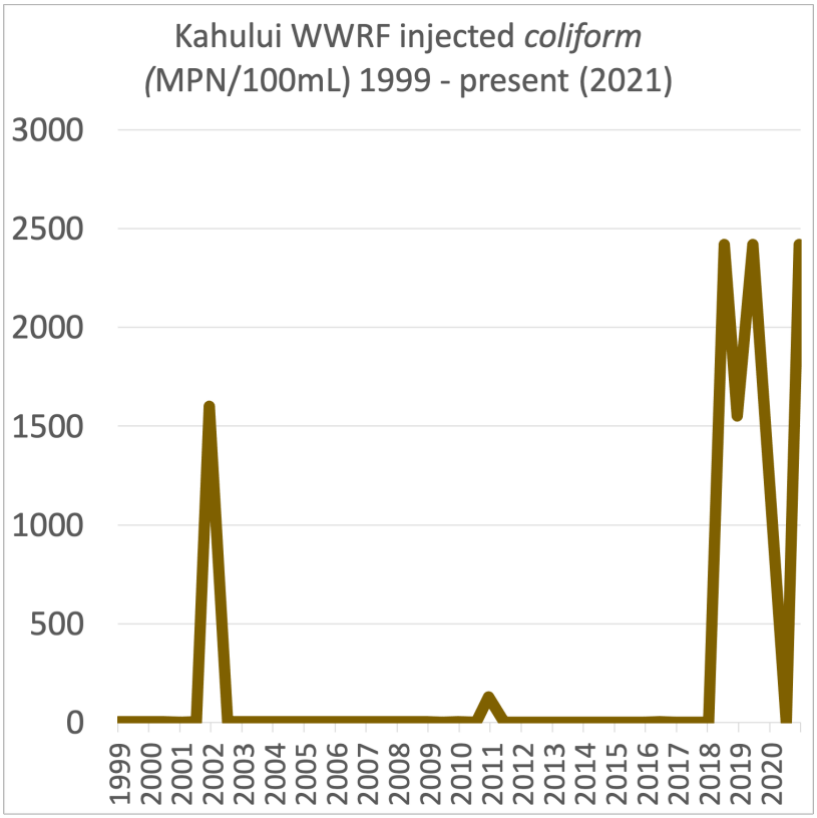
Injected nutrient concentrations in Kahului from 1999-2021 showed a slight downward trend in Total Nitrogen ending up around 10 mg/L. Total Phosphorus trends are steady over the years around 2 mg/L. Detailed UIC water quality and County of Maui plant flow reports **here**.



Injected flowrates in Kahului from 1999-2021 shows an average plant flow of about 5 MGD. and < 0.5 MGD reuse, with over 4.5 MGD of infected wastewater going to nearshore injection wells. Detailed UIC water quality and County of Maui plant flow reports **here**.



From 1999-2021 the Kahului Wastewater Reclamation Facility showed an overall decline in total plant nutrient mass discharged and nutrient mass injected, down to about 150,000 lbs. or about 75 tons of dissolved nutrients per year as Nitrogen and Phosphorus. Detailed UIC water quality and County of Maui plant flow reports **here**.



Fecal *coliform* cell counts from 1999-2021 shows injected municipal wastewater in Kahului appears to have been consistently disinfected until around 2018, after which fecal *coliform* cell counts are routinely measured above the testing detection limit of 2419.6 Most Probable Number of colony-forming (or infection forming) units per 100mL of wastewater. Detailed UIC water quality and County of Maui plant flow reports **here**.

Kahului-Wailuku Municipal Wastewater Reclamation Facility							
Underground Injection Control compliance monitoring report summary							
1999-2021 data set							
drive.google.com/drive/folders/1B3p6fc8rnKl0NtzuUfMXsxQaXj17-CIT							
	total flow	*reuse flow*	*injection flow*	Total Nitrogen	Total Phosphorus		*coliform*
date	MGD	MGD	MGD	mg/L	mg/L		MPN/100mL
6/14/99	*5.147*	*0.424*	*4.723*	14	1.9	<	*2*
11/17/99	*5.458*	*0.437*	*5.021*	14	2	<	*2*
5/17/00	*5.507*	*0.37*	*5.137*	10.99	2.2	<	*2*
11/27/00	*6.725*	*0.385*	*6.34*	17.8	2.38	<	*2*
6/7/01	*5.2*	*0.493*	*4.707*	19.6	2.95		*no data*
12/11/01	*5.274*	*0.431*	*4.843*	14.9	2.6		*2*
5/23/02	*5.317*	*0.4*	*4.917*	13.4	2.63	>	*1600*
12/27/02	*5.799*	*0.39*	*5.409*	21.8	2.72	<	*2*
5/28/03	*4.752*	*0.407*	*4.345*	15.7	2.84	<	*2*
12/17/03	*5.009*	*0.413*	*4.596*	7.62	3.26	<	*2*
5/7/04	*4.954*	*0.399*	*4.555*	3.41	2.48	<	*2*
12/7/04	*4.756*	*0.277*	*4.479*	9.93	0.22	<	*2*
5/26/05	*4.802*	*0.24*	*4.562*	10.27	0.46	<	*2*
11/15/05	*4.875*	*0.189*	*4.686*	9.29	0.327	<	*2*
5/15/06	*4.933*	*0.249*	*4.684*	8.49	1.65		*2*
11/27/06	*5.217*	*0.213*	*5.004*	8.83	0.81	<	*2*
5/11/07	*4.495*	*0.289*	*4.206*	3.71	1.67	<	*2*
11/9/07	*4.776*	*0.238*	*4.538*	8.19	1.25	<	*2*
6/13/08	*4.939*	*0.338*	*4.601*	22.12	1.15		*2*
11/13/08	*4.364*	*0.111*	*4.253*	10.81	0.47	<	*2*
5/27/09	*4.496*	*0.154*	*4.342*	8.38	0.46	<	*2*
11/25/09	*4.225*	*0.291*	*3.934*	11.34	1.13	<	*1.8*
05/10/10	4.016	0.162	*3.854*	9.2	0.5		2
12/03/10	4.085	0.161	*3.924*	13.77	0.56	<	1.8
05/26/11	4.016	0.162	*3.854*	12.14	0.5		130
11/30/11	3.842	0.167	*3.675*	13.52	0.47	<	1.8
05/24/12	3.964	0.161	*3.803*	10.06	0.47	<	1.8
11/30/12	3.868	0.317	*3.551*	11.38	0.3	<	1.8
05/14/13	4.581	0.281	*4.3*	9.69	0.7	<	1.8
11/14/13	4.237	0.249	*3.988*	10.33	0.41	<	1.8
05/22/14	3.441	0.266	*3.175*	11.82	1.76	<	1.8
11/14/14	4.839	0.21	*4.629*	9.9	2.5	<	1.8
05/08/15	5.011	0.37	*4.641*	9.1	0.42	<	1.8
11/16/15	5.127	0.423	*4.704*	6.69	0.6	<	1
05/26/16	5.348	0.467	*4.881*	13.53	2.5	<	1
11/18/16	5.376	0.433	*4.943*	9.4	0.9		4.1
05/30/17	5.856	0.194	*5.662*	10.12	2.5		no data
12/27/17	5.85	0.179	*5.671*	13.23	2.3		no data
06/06/18	5.447	0.155	*5.292*	8.81	0.6	<	1
12/03/18	5.523	0.178	*5.345*	8.23	0.62	>	2419.6
05/23/19	5.345	0.145	*5.2*	10.31	3.05		1553.1
11/08/19	5.828	0.367	*5.461*	12.38	4.56	>	2419.6
12/09/20	5.373	0.526	*4.847*	10.27	3.03		no data
05/13/21	5.956	0.264	*5.692*	10.47	1.17	>	2419.6

This data summary table shows nutrient concentrations, fecal *coliform* cell counts, and flowrates for the total plant, reuse and injection for the Kahului-Wailuku Wastewater Reclamation Facility, during the biannual months when the Underground Injection Control Program with the Safe Drinking Water Branch requires testing. Detailed UIC water quality and County of Maui plant flow reports **here**.

REEF POWER

Reef Power LLC

a Maui small business, presents:

"Rationale for investment in ultraviolet light disinfection of injection well wastewater discharges from the Kahului Wastewater Reclamation Facility." (Related to Bill 52 – a proposed Maui County law that requires all municipal wastewater discharges meet state R-1 reuse standards for fecal *coliform*.)

Maui County Council
6:00 p.m. April 14, 2022

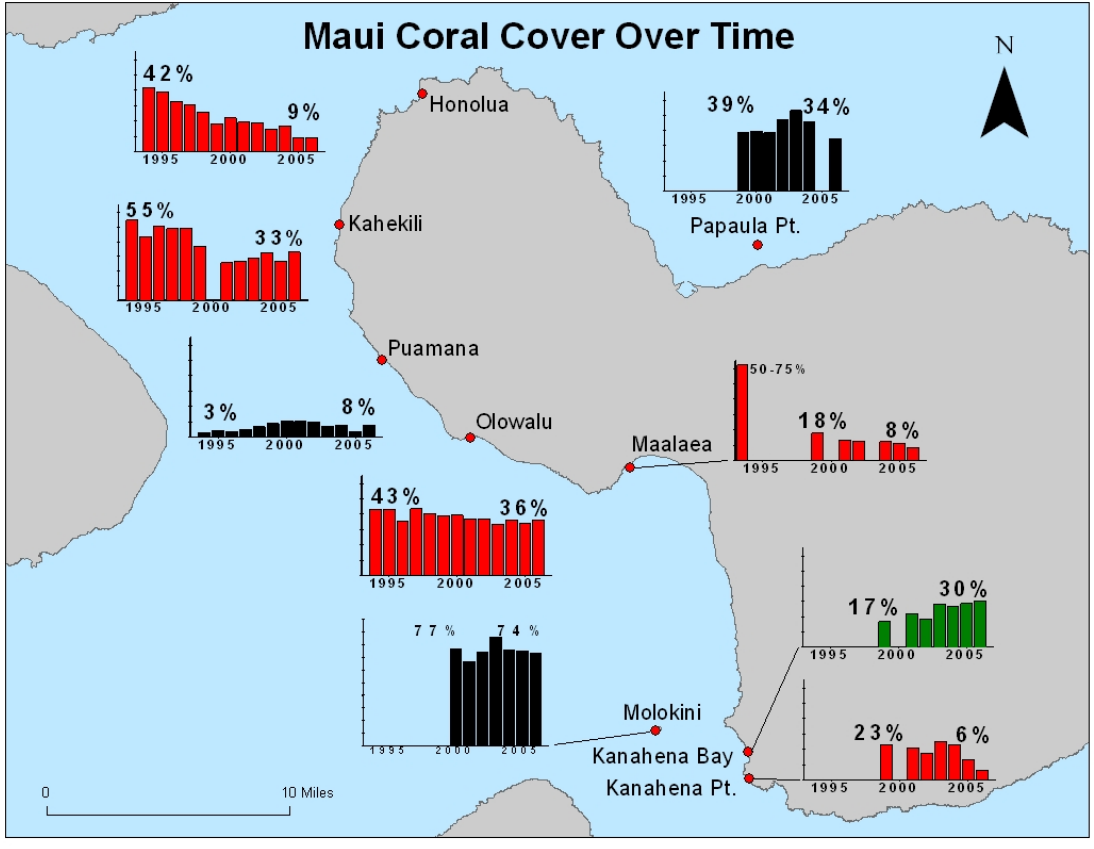

Maui’s reefs are in trouble!

Maui Island Underground Injection Control Program Permittee Summary

Injection Well UIC Permiteee	Injected flow/day (gallons/day)	Injected TN concentration (mg/L)	Injected TP concentration (mg/L)	Total injected nutrients / year (lbs/year)		Injected *coliform* cell counts (MPN/100mL)
Lahaina WWRF	2,948,000	6.28	0.216	58,295	<	1
Kihei WWRF	1,817,000	11.55	2.41	77,215		248.9
Kahului WWRF	5,692,000	10.47	1.17	201,686	>	2419.6
Hono Kai	7,500	24.4	2.95	624	≦	1600
Island Sands	11,000	12.9	4.9	596		2
Ka Nai A Nalu	18,000	24.6	4.58	1,599	<	2
Lauloa	10,000	21.6	3.98	779		17
Ma'alaea Banyans	7,485	25.5	5.28	701	<	20
Ma'alaea Kai	6,500	11.9	1.82	271		16000
Ma'alaea Mermaid	4,200	26.9	3.7	391	<	2
Ma'alaea Triangle	15,000	16.5	0.925	796	<	1
Ma'alaea Yacht	9,500	34.5	3.78	1,107		4
Makani A Kai	6,000	10.59	1.4	219	≧	1600
Milowai	8,500	40.8	9.75	1,308		17
TOTAL:	10,560,685			345,588		

	Lahaina has enjoyed 100% UV disinfection of injection well and reuse discharges since 2015
	Maui County DEM states 100% UV for Kihei injection well and reuse discharges finished Summer 2022
	$9.5 mil for Ma'alaea Regional Wastewater Reclamation System eliminates 79% of UIC permitees
	$100k for PER on UV for 5+ MGD discharging in Kahului would move Maui County toward 100% disinfection

Status of Maui's Coral Reefs



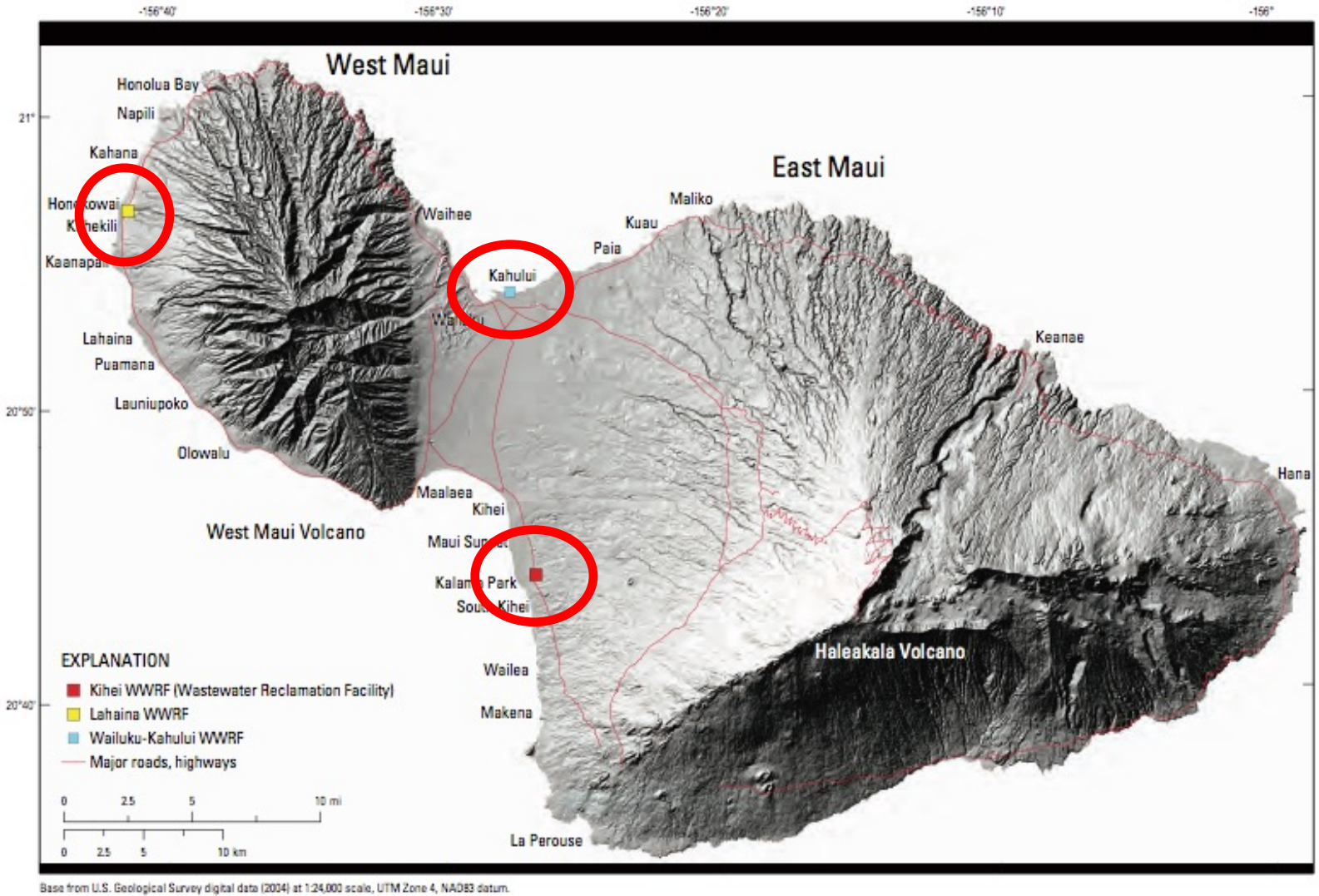
Trends in coral cover at 9 long-term monitoring stations. **Red** indicates >5% decline over monitoring period, **green** indicates >5% increase, **black** = no change (<5%)

Case Study: Total System Collapse at Maalaea

The end result of reef degradation is evident at Maalaea Bay. In 1972, Maalaea coral reefs were described as being 'striking in their diversity and in the presence of rare corals species'. As late as 1993, estimated coral cover was 50-75% close to the site where cover is now 8%. Therefore, in just a few decades, the Maalaea reef has transformed from a healthy and diverse ecosystem into a badly degraded habitat overgrown by algae and with little surviving coral. One consequence of severe loss of living coral is that degrading reefs change from being actively-growing and structurally-complex habitats, into eroding and relatively flat areas which do not support abundant marine life. That process is well advanced at Maalaea, where fish stocks are now in very poor condition, being dominated by small wrasse, triggerfish and puffers. Given that the Maalaea reef is now a poor habitat for most grazing fishes, and that existing blooms of algae will continue to inhibit new coral growth, even in the best of circumstances (without water quality or fishing impacts), recovery of Maalaea would likely take many years.

DLNR report link

Three municipal wastewater reclamation facilities in Maui inject 10+ millions of gallons per day.



Base from U.S. Geological Survey digital data (2004) at 1:24,000 scale, UTM Zone 4, NAD83 datum.


This Green Dye Shows Path of Sewage Into Coral Reef at Kahekili Beach in Maui
Video Link
Pause (k)
0:12 / 2:57
Scroll for details

Syllabus

NOTE: Where it is feasible, a syllabus (headnote) will be released, as is being done in connection with this case, at the time the opinion is issued. The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States* v. *Detroit Timber & Lumber Co.,* 200 U. S. 321, 337.

SUPREME COURT OF THE UNITED STATES

Syllabus

COUNTY OF MAUI, HAWAII *v.* HAWAII WILDLIFE FUND ET AL.

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

No. 18–260. Argued November 6, 2019—Decided April 23, 2020

The Clean Water Act forbids "any addition" of any pollutant from "any point source" to "navigable waters" without an appropriate permit from the Environmental Protection Agency (EPA). §§ 301(a), 502(12), 86 Stat. 844, 886. The Act defines "pollutant" broadly, §502(6); defines a "point source" as "'any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged,'" including, *e.g.,* any "'container,'" "'pipe, ditch, channel, tunnel, conduit,'" or "'well,'" §502(14); and defines the term "discharge of a pollutant" as "'any addition of any pollutant to navigable waters [including navigable streams, rivers, the ocean, or coastal waters] from any point source,'" §502(12). It then uses those terms in making "unlawful" "'the discharge of any pollutant by any person'" without an appropriate permit. §301.

Petitioner County of Maui's wastewater reclamation facility collects sewage from the surrounding area, partially treats it, and each day pumps around 4 million gallons of treated water into the ground through four wells. This effluent then travels about a half mile, through groundwater, to the Pacific Ocean. Respondent environmental groups brought a citizens' Clean Water Act suit, alleging that Maui was "discharg[ing]" a "pollutant" to "navigable waters" without the required permit. The District Court found that the discharge from Maui's wells into the nearby groundwater was "functionally one into navigable water," 24 F. Supp. 3d 980, 998, and granted summary judgment to the environmental groups. The Ninth Circuit affirmed, stating that a permit is required when "pollutants are fairly traceable from the point source to a navigable water." 886 F. 3d 737, 749.


FlushAware
Do you know what happens to the water that goes down the toilet and drain?
Learn About Your Maui Island Wastewater Disposal Method
FlushAware.com

LIST OF PATHOGENIC (ILLNESS-CAUSING) LIFE FORMS COMMONLY FOUND IN INFECTED WASTEWATER, SUCH AS R-3 INJECTED IN KIHEI AND KAHULUI

The list of pathogenic microbial species commonly found in non-disinfected wastewater is long and alarming, shown in the **U.S. NIH list** below.

Respiratory infections such as COVID-19 and **skin infections** can be caused by water borne pathogens.

The major pathogens of concern in municipal wastewater and diseases or illness associated with them:

Name of pathogen	Major disease or symptoms
Bacteria	
Campylobacter jejuni	Gastroenteritis
Escherichia coli	Gastroenteritis
Salmonella spp.	Salmonellosis, typhoid, paratyphoid
Shigella spp.	Bacillary dysentery
Staphylococcus	Skin Infections, bacteremia, toxic shock syndrome, septic arthritis
Streptococcus	Cellulitis, Pink eye, meningitis, pneumonia, endocarditis, necrotizing fasciitis
Vibrio cholerae	Cholera
Yersinia spp.	Gastroenteritis
Viruses	
Adenovirus	Upper respiratory infection and gastroenteritis
Astrovirus	Gastroenteritis
Coxsackie virus	Meningitis, pneumonia, fever
Echovirus	Meningitis, paralysis, encephalitis, fever
Hepatitis virus	Infectious hepatitis, miscarriage, and death
Human calicivirus	Epidemic gastroenteritis with severe diarrhea
Polio virus	Poliomyelitis
Reovirus	Respiratory infections, gastroenteritis
Rotavirus	Acute gastroenteritis with severe diarrhea
TT hepatitis	Hepatitis
COVID-19	Acute respiratory illness
Protozoa	
Balantidium coli	Balantidiasis
Cryptosporidium spp.	Cryptosporidiosis
Entamoeba histolytica	Acute amoebic dysentery
Giardia duodenalis	Giardiasis
Toxoplasma gondii	Toxoplasmosis

› Hawaii J Med Public Health. 2012 Aug;71(8):218-23.

Risk factors for community-associated Staphylococcus aureus skin infection in children of Maui

Gayle J Early [1], Steven E Seifried

Affiliations + expand

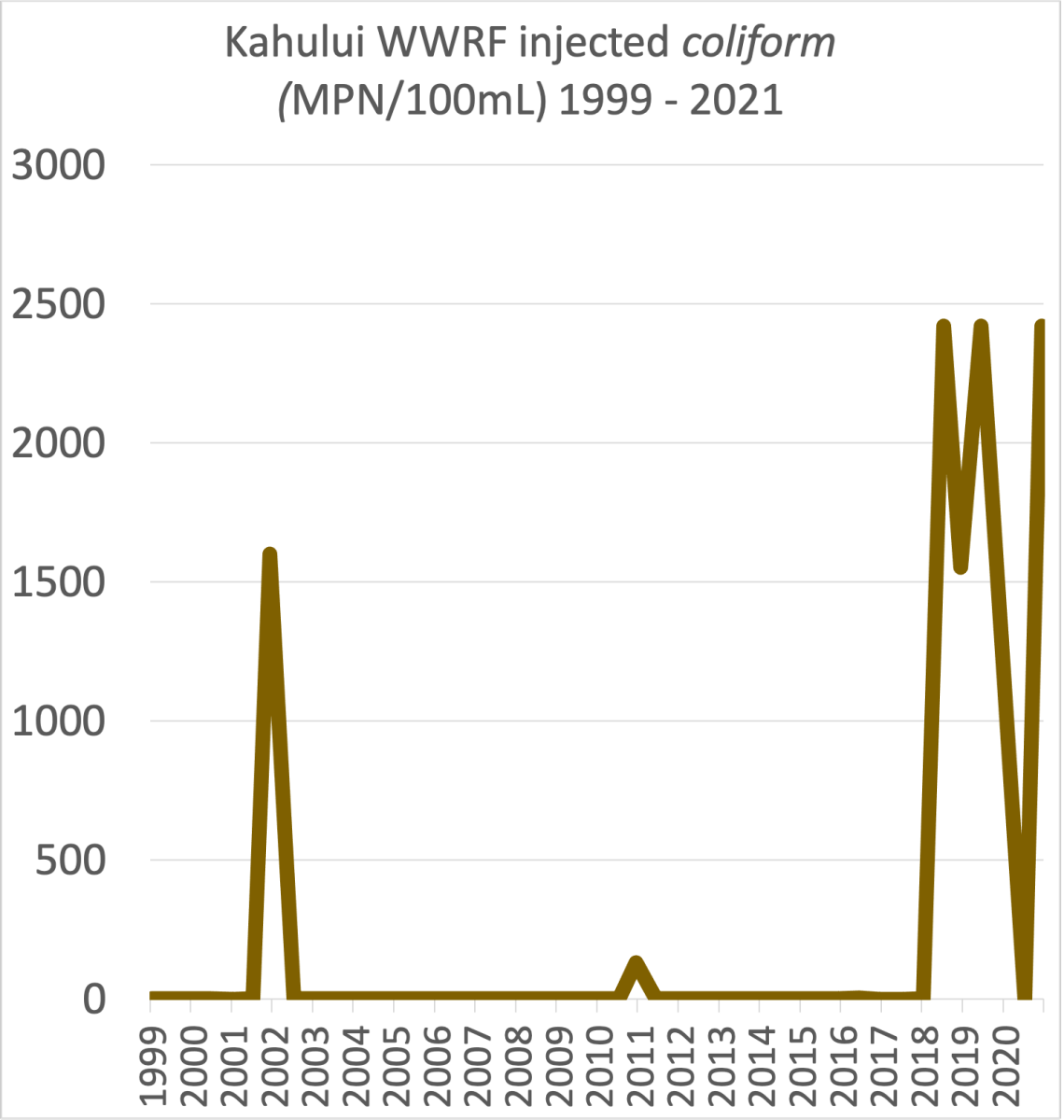
PMID: 22900237 PMCID: PMC3419822

Free PMC article

Article link

Abstract

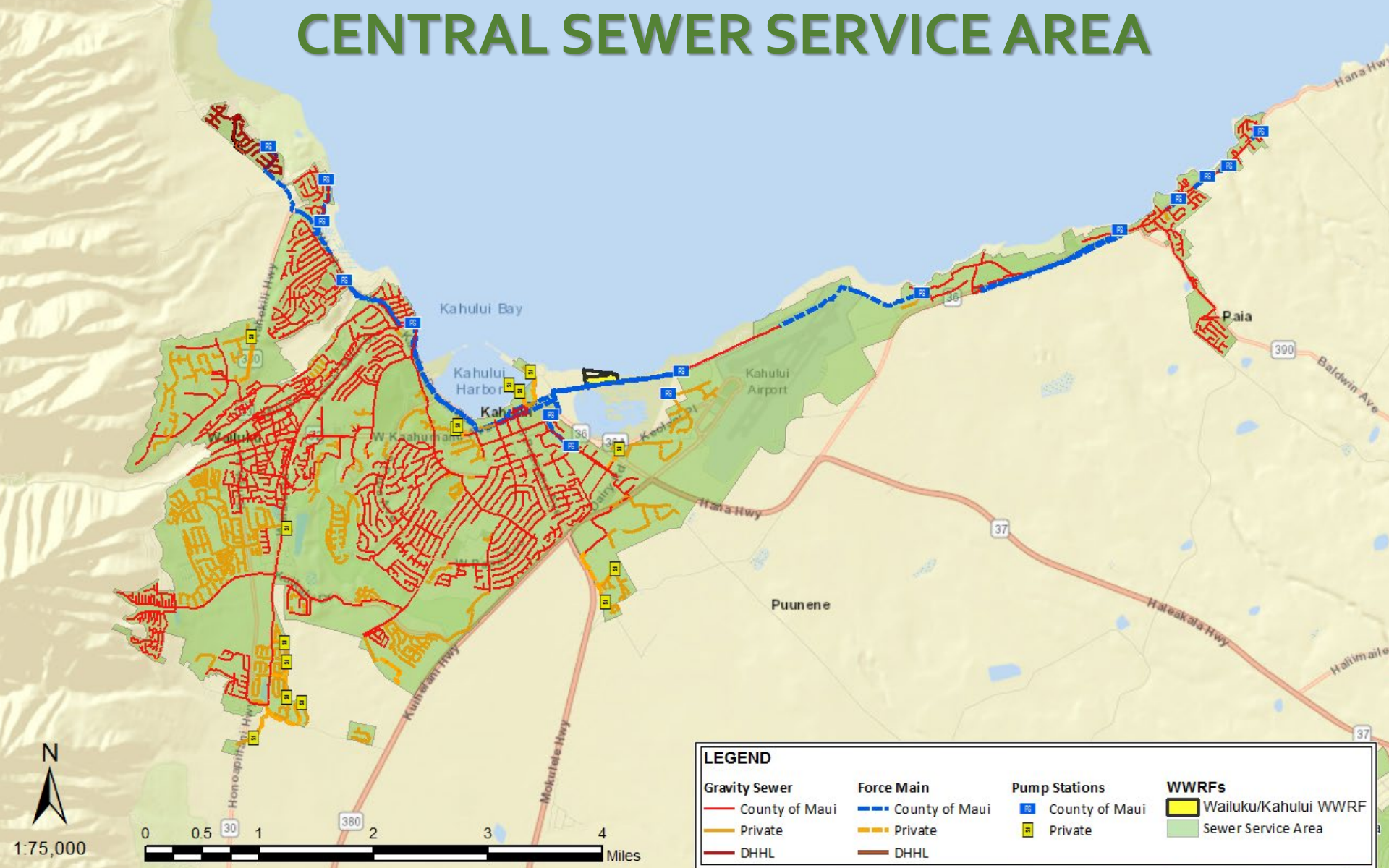
The prevalence of community-associated methicillin-resistant Staphylococcus aureus (CA-MRSA) infection, and Staphylococcus aureus (S. aureus) infection overall, has dramatically increased in the past 10 years. Children and Native Hawaiians and Pacific Islanders (NHPI) are disproportionately affected by CA-MRSA infection. The purpose of this case-control study was to identify risk factors for CA-S. aureus skin infections in children of Maui, Hawai'i, as a foundation for reducing the transmission of these infections. Survey data were obtained from patients in pediatric

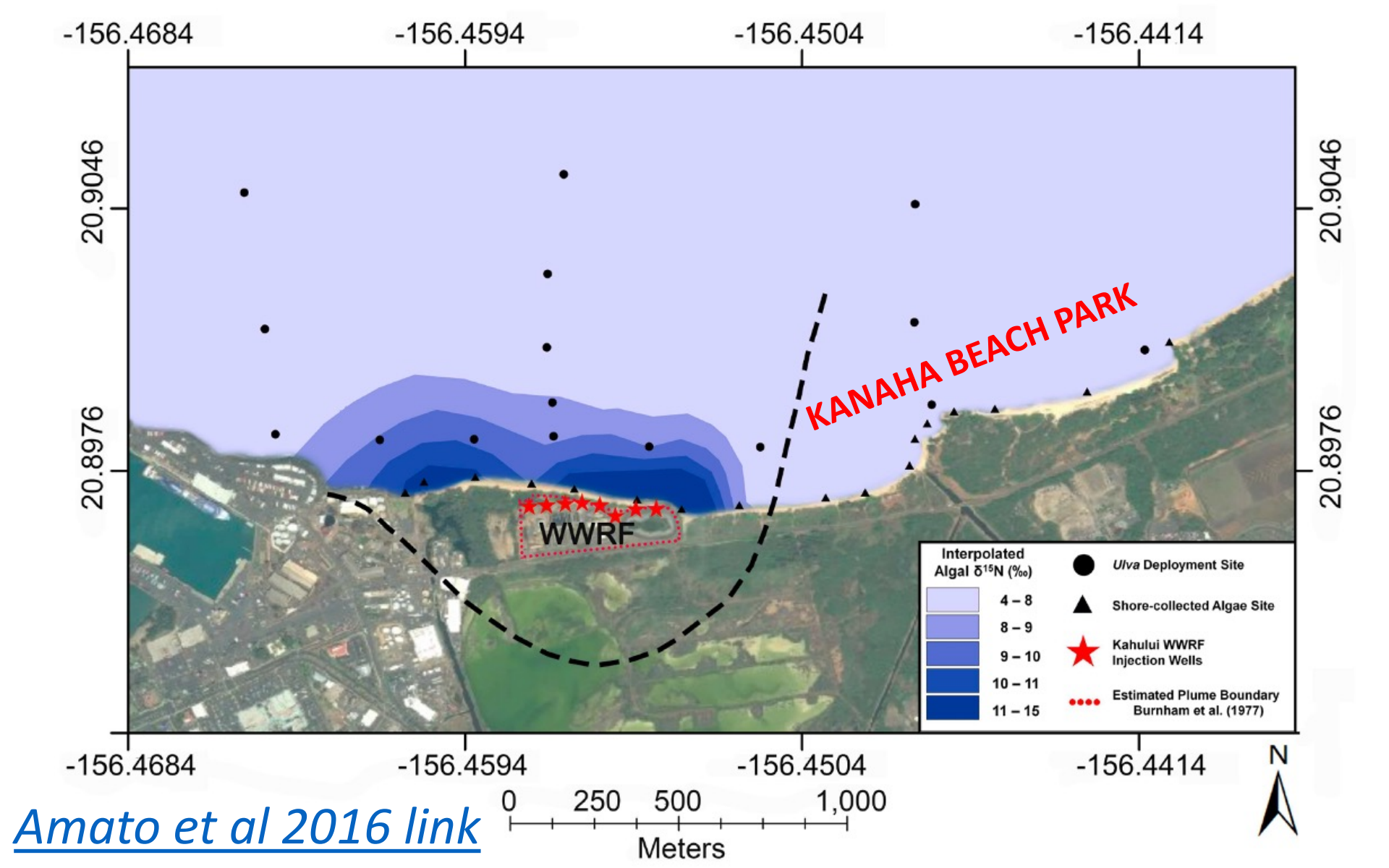


Kahului WWRF Injection Wells

- Chlorine disinfection until 2018
- No disinfection since 2018
- Frequent measurements of >2419.6 MPN CFU/100mL fecal *coliform*
- Occasional Beach Action Value exceedances for *enterococcus* at Kanaha Beach Park and Kahului Harbor

CENTRAL SEWER SERVICE AREA





[Amato et al 2016 link]

High bacteria count posted at Kanaha Beach

LOCAL NEWS

NOV 9, 2019

The Maui News

SHARE TWEET

High levels of bacteria have been detected at Kanaha Beach, the state Department of Health announced Friday morning.

During routine beach monitoring, the department's Clean Water Branch detected enterococci levels of 364 per 100 milliliters, indicating that potentially harmful microorganism such as bacteria, viruses, protozoa or parasites may be present in the water.

The advisory will remain in effect until water sample results no longer exceed the threshold level of 130 enterococci per 100 ml.

Swimming at beaches with pollution in the water may lead to illness, the department said.

Children, the elderly and people with weakened immune systems are the most likely to develop illnesses or infections after coming into contact with polluted water, usually while swimming. The department said that while swimming-related illnesses can be unpleasant, they are usually not very serious, requiring little or no treatment or improving quickly upon treatment, and they have no long-term health effects.

The most common illness associated with swimming in water polluted by fecal pathogens is gastroenteritis. It occurs in a variety of forms that can have one or more of the following symptoms: nausea, vomiting, stomachache, diarrhea, headache or fever. Other minor illnesses associated with swimming include ear, eye, nose and throat infections. In highly polluted water, swimmers may occasionally be exposed to more serious diseases.

Article link

Maui News

High Bacteria Count Notification East of Hoaloha Park in Kahului, Maui

December 4, 2020, 5:00 AM HST

Article link

The Hawai‘i State Department of Health has issued a high bacteria count notification and is retesting water at Kahului Harbor east of Hoaloha Park.

The department reports that bacteria levels of 1625 per 100 mL were detected during routine beach monitoring, but is uncertain about the representativeness of the first sample.

“This beach has historically met the acceptable beach threshold level, and there is no known source of fecal contamination. Therefore, DOH has collected another sample and is retesting the site,” according to a department notification.

Sewage spill closes Southern California beaches

A section of the Los Angeles County-run system "collapsed," sending untreated wastewater to already overwhelmed storm drains that lead to sea, officials said.

The release of millions of gallons of untreated sewage into the Dominguez Channel in Carson, Calif., closed some beaches Friday

Dean Musgrove / AP

Article link

Jan. 2, 2022, 6:09 PM HST / Updated Jan. 2, 2022, 7:17 PM HST

By Dennis Romero

Southern California beaches from Orange to Los Angeles counties were closed over the holiday weekend after as many as 7 million gallons of untreated wastewater spilled into the Pacific Ocean, officials said Sunday.

The spill happened after a series of late December storms brought heavy rainfall to the area. A section of Los Angeles County-run sewage system "collapsed," sending untreated wastewater to already overwhelmed storm drains that lead to sea, some blocked by debris, the Los Angeles County Sanitation Districts said in a series of statements.

The collapse was reported Friday night in the city of Carson, and an emergency contractor quickly set up pumps to bypass the problem, but sewage continued to make it to sea the next day, according to the districts.

By New Year's Day additional bypass pumps and the last drops of rain had combined to help end the spill overnight, the sanitation officials said.

County of Maui not planning to invest in disinfection of injected effluent in Kahului until FY2026. Estimated cost of UV disinfection install in Kahului $6M

Wailuku-Kahului Wastewater Reclamation Facility (WWRF) Upgrade to R-1 (CBS-1169)

The plan to upgrade the Kahului/Wailuku WWRF to R-1 is only in the preliminary planning stages. We do not have any preliminary plans, or formal cost estimates at this time. The preliminary estimate in the six year CIP was based on the one channel expansion in Lahaina that cost approximately $6 million. An actual cost estimate will be prepared once we get closer to design contracts.

We have listed it as a potential project on our six year Capital Improvement Program. At this point in time it is not required until the recycled water force main (CBS-1171) and pump station (CBS-5034) projects are constructed to transfer water to the central valley and the water could be used by customers. These other projects are also on the six year schedule and have design contracts issued and the EIS is in process. The current time line is our best estimate, it is not required to be completed by FY2028. It is dependent on other projects as well as other approvals (mayor's office, County Council, etc.) Note that funding for projects is only approved on a year to year basis during the County Budget process.

County of Maui
Fiscal Year 2022-2027 Capital Improvement Program

CBS No: CBS-1169

Project Name: Wailuku-Kahului Wastewater Reclamation Facility (WWRF) Upgrade to R-1

Department: Department of Environmental Management

District: Wailuku-Kahului

Project Type: Sewer

Anticipated Life: 30 years

Prior Years	Appr	Ensuing	Subsequent Years					Total
Expend/Encb	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	6-Year
0	0	0	0	0	0	1,800,000	0	1,800,000

PROJECT DESCRIPTION

The primary objective for this project is to modify the Wailuku-Kahului Wastewater Reclamation Facility to produce a R-1 quality reclaimed water for the Wailuku-Kahului service area. This includes construction of ultraviolet disinfection basins, on-site storage, a pump station and all related piping and electrical to connect to the proposed force main.

PROJECT JUSTIFICATION

Use of reclaimed water will result in the conservation of potable water resources, preservation of brackish water resources and reduction of treated effluent discharged into injection wells.

STRATEGIC PLAN ALIGNMENT

Department's Strategic Plan	Countywide Priority Results
Sustain Reliable Wastewater Infrastructure Ensure Facilities Meet Future Needs Provide Reliable Wastewater Service	A Suitable Public Infrastructure A Strong, Diversified Economy A Prepared, Safe, and Liveable County A Healthy and Sustainable Community

Operating Impact Narrative

Addition of this treatment capability will require an additional position to manage the system, and extra costs for electricity and materials to operate the disinfection system and pumps.

Wailuku-Kahului WWRF
R-1 Recycled Water Study

Prepared for
County of Maui, Wastewater Reclamation Division, Wailuku, HI
August 2015

2015 Reuse study #1 link

2015 Reuse study #2 link

Table 5-6. DOH Reuse Guidelines - Disinfection Requirements

Item	Requirement
General Disinfection	
Inactivation of F-specific bacteriophage MS2 or poliovirus	5-log or 99.99% removal
Fecal coliform bacteria concentration	<2.2 colony forming units (CFU)/100 mL 7-day median, and >23 CFU/100 mL in no more than one sample in 30 days, and <200 CFU/mL at all times
Disinfection via UV	
UV dose	100,000 µWs/cm^2 (for non-membrane filtration)
Minimum UV transmittance	55 percent
Post-filtration turbidity	Automatic diversion from reuse if >2 NTU
Measurements for flow rate, UV intensity, UV transmittance, turbidity, operational UV dose	Continuous
UV System Redundancy	Required such that PWWF can be handled when one bank of lamps (in each channel) is offline

Table 6-3. UV Disinfection Design Criteria	
Description	**Value**
Filtered water UV transmittance	55 percent minimum [a]
Minimum UV dose	100,000 µWs/cm^2
UV technology	Trojan UV3000+
Lamp type	Low pressure high output, in quartz sleeves
End of lamp life factor	0.98
Lamp fouling factor	0.95
Lamp cleaning system	Automatic
Number of channels	3
Number of banks per channel	5 (1 redundant bank per channel)
Total number of banks	15 (12 duty, 3 redundant)
Number of modules per bank	18 [a]
Number of lamps per module	8
Total number of UV lamps	2,160 [a]
Lamp power draw	254 watts/lamp
Maximum power draw	540 kW [a]
Water level control	Fixed weirs
Instrumentation	Continuous UV intensity monitoring Continuous UV transmissivity monitoring
Energy conservation	Automatic lamp dimming

UV costs for parts & power in the $100K's per year

		FY2021	Estimated FY2022	Estimated FY2023
POWER COST:	(per 2 MGD)			
Lahaina WWRF	UV System	$ 112,958.36	$ 137,875.65	$ 144,037.99
Kihei WWRF	UV System	$ 68,107.25	$ 85,134.06	$ 140,608.51
Electrical Cost per KWH	HECO	$ 0.31	$ 0.31	$ 0.32
	S POWER (PV)	$ 0.21	$ 0.21	$ 0.21
Estimated Annual UV Power Cost		$ 181,065.61	$ 223,009.71	$ 284,646.50
MATERIALS/SUPPLIES:				
Lahaina WWRF	UV lamps, sleeves, modules, parts	$ 127,217	$ 132,340	$ 135,000
Kihei WWRF	UV lamps, replacement modules, parts	$ 51,538	$ 121,400	$ 128,000
Estimated Annual UV Equipment Cost		$ 178,756	$ 253,741	$ 263,000

Anticipated Bill 52 CD1 language:

"Municipal wastewater effluent discharged or reused by the County must meet Hawaii state R-1 reuse standards for fecal coliform bacteria; the County must allocate sufficient funding for the implementation of this subsection so that its implementation does not cause any increases in sewage rates for residents."

REUSE GUIDELINES

Volume 1: Recycled Water Facilities

Prepared by
Hawai'i State Department of Health
Wastewater Branch
January 2016
(Replaces May 15, 2002 Version)

D. R-1 Recycled Water

In order to be classified as R-1 recycled water, wastewater must be oxidized, filtered and disinfected as follows:

3. Disinfection

The disinfection process, when combined with filtration, must have demonstrated inactivation and/or removal of 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least resistant to disinfection as the polio virus may be used for purposes of demonstration.

b. UV Disinfection

1) When using media filtration:

a) The design UV dose shall be 100 mJ/cm^2 or greater under maximum daily flow; and

b) The filtered UV transmittance shall be 55 percent or greater at 254 nanometers (nm).

2) When using membrane filtration:

a) The design UV dose shall be 80 mJ/cm^2 or greater under maximum daily flow; and

b) The filtered UV transmittance shall be 65 percent or greater at 254 nanometers (nm).

3) The minimum acceptable design requirements and commissioning of new UV disinfection systems shall comply with the *NWRI UV Guidelines*.

4) A UV system that is Title 22 certified by California is acceptable to the DOH.

4. Fecal Coliform

a. The median density measured in the disinfected effluent shall not exceed 2.2/100 milliliters using the bacteriological results of the last seven days for which analyses have been completed;

b. The density shall not exceed 23/100 milliliters in more than one sample in any 30-day period; and

c. No sample shall exceed 200/100 milliliters.

d. Frequency of sampling and analysis:

1) Sampling and analysis shall be done daily for fecal coliform when R-1 is being used as allowed (i.e. not directly disposed).

2) If approved by the Director, sampling frequency may be reduced to weekly sampling based on:

a) Use of R-1 when a lower class of recycled water is allowed;
b) Volume of R-1 used;
c) Disinfection or filtration method used;
d) Demonstrated disinfection quality and reliability;
e) Sampling location; and
f) Other factors as determined by the DOH.

Hawaii DOH 2016 Reuse Guidelines link

Maui Island Underground Injection Control Program Permittee Summary

Injection Well UIC Permiteee	Injected flow/day (gallons/day)	Injected TN concentration (mg/L)	Injected TP concentration (mg/L)	Total injected nutrients / year (lbs/year)		Injected *coliform* cell counts (MPN/100mL)
Lahaina WWRF	2,948,000	6.28	0.216	58,295	<	1
Kihei WWRF	1,817,000	11.55	2.41	77,215		248.9
Kahului WWRF	5,692,000	10.47	1.17	201,686	>	2419.6
Hono Kai	7,500	24.4	2.95	624	≦	1600
Island Sands	11,000	12.9	4.9	596		2
Ka Nai A Nalu	18,000	24.6	4.58	1,599	<	2
Lauloa	10,000	21.6	3.98	779		17
Ma'alaea Banyans	7,485	25.5	5.28	701	<	20
Ma'alaea Kai	6,500	11.9	1.82	271		16000
Ma'alaea Mermaid	4,200	26.9	3.7	391	<	2
Ma'alaea Triangle	15,000	16.5	0.925	796	<	1
Ma'alaea Yacht	9,500	34.5	3.78	1,107		4
Makani A Kai	6,000	10.59	1.4	219	≧	1600
Milowai	8,500	40.8	9.75	1,308		17
TOTAL:	10,560,685			345,588		

Lahaina has enjoyed 100% UV disinfection of injection well and reuse discharges since 2015

Maui County DEM states 100% UV for Kihei injection well and reuse discharges finished Summer 2022

$9.5 mil for Ma'alaea Regional Wastewater Reclamation System eliminates 79% of UIC permitees

$100k for PER on UV for 5+ MGD discharging in Kahului would move Maui County toward 100% disinfection

Reef Power LLC
Travis Liggett
President

travis@reefpowermaui.com
voice / text (808) 757 - 5984
fax (808) 442 - 9006
120 Baldwin Avenue #790484
Paia, Hawai'i 96779
reefpowermaui.com

@reefpowermaui
@flushaware

FlushAware.com

MAUI NUI

MARINE RESOURCE COUNCIL

Special Thanks

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