

## Re: anchialine ponds information

Lisa Marrack <lisamarrack@gmail.com>

Wed 4/11/2018 5:01 AM

To: Eva Schemmel <eschemmel@conservation.org>;

**North of Keohole Point:** 163 pools, (estimate probably 10 more on the Kona village property - most with fishes)  
24 with Tilapia, 51 with Poeciliidae species (Guppies or Gambusia),  
91 with Halocaridina rubra (22 of those with M.lohena)

**Keohole Pt south to Puuhonua O Honaunau NHP:** 251 pools  
3 with Tilapia, 48 with **Poeciliidae species** (Guppies or Gambusia), (plus at least 9 on private property - Queen Liliokalani and Kohanaiki probably have Poeciliids)

125 with Halocaridina rubra (26 of those with M.lohena) (41 unknown whether have shrimp)

### **Pools South of PuuHonua to South point**

At least 100 . I have not surveyed parts of this coast but intend to. Milolii area has some. Some of highest endemic shrimp diversity at MANUKA NARS ( 80 pools surveyed by Sakihara 2009; 2 with Poeciliidae species).

#### A note:

I separate out Tilapia from Poeciliids because H rubra will coexist with Poeciliids but not Tilapia. As you probably know, when fishes are removed, shrimp come back quickly since they are in the groundwater. Pond managers throughout the area are developing ways to eliminate introduced fishes but it is not easy!

Marrack, L., Beavers, S., and P. O'Grady. 2015. The relative importance of introduced fishes, habitat characteristics, and land use for endemic shrimp occurrence in brackish anchialine pool ecosystems. Hydrobiologia 758(1)

Sakihara, T. 2009.

Mapping and Inventory of Anchialine Pool Habitat and Biota in the Manuka Watershed and Natural Area Reserve.

Tech Report, Hawaii DAR.

On Wed, Apr 4, 2018 at 11:31 AM, Eva Schemmel <[eschemmel@conservation.org](mailto:eschemmel@conservation.org)> wrote:

Thank you Lisa, much appreciated!

Eva

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**From:** Lisa Marrack <[lisamarrack@gmail.com](mailto:lisamarrack@gmail.com)>

**Sent:** Wednesday, April 4, 2018 4:16:04 AM

**To:** Eva Schemmel

**Subject:** Re: anchialine ponds information

Hi. I am so sorry not to get back sooner. I am travelling and can get to You by next Tuesday. Thanks!

On Tue, Apr 3, 2018, 11:46 AM Eva Schemmel <[eschemmel@conservation.org](mailto:eschemmel@conservation.org)> wrote:

Aloha Lisa,

I hope all is well. I wanted to check back in with you and see if the information was available on anchialine pools. I am looking for information on the number of ponds in South West Hawaii (South of Keahole Point) and the number of ponds in North West Hawaii (North of Keahole Point), and a condition factor or percent of each of the ponds in North and South West Hawaii (i.e. are dominated by native species or another condition factor). This information will be used to support further stakeholder engagement and will be shared with our partners at the NOAA Integrated Ecosystem Assessment program.

Thank you for your help,

Eva

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**From:** Eva Schemmel

**Sent:** Thursday, November 16, 2017 7:38:15 AM

**To:** Lisa Marrack

**Subject:** Re: anchialine ponds information

Hi Lisa,

Thank you for the fast response. I understand data sensitivity. Perhaps an easier way would be to send along summarized data. I just need the number of pond in South West Hawaii (South of Keahole Point) and the number of ponds in North West Hawaii (North of Keahole Point), and a condition factor or percent of each of the ponds in North and South West Hawaii (i.e. are dominated by native species or another condition factor). Hope that makes sense. Thank you for your help on this and I hope you have a good vacation.

Eva

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**From:** Lisa Marrack <[lisamarrack@gmail.com](mailto:lisamarrack@gmail.com)>  
**Sent:** Thursday, November 16, 2017 6:53:13 AM  
**To:** Eva Schemmel  
**Subject:** Re: anchialine ponds information

Dear Eva:

Thanks so much for contacting us. It sounds like you are doing some good work. I am currently working on a project that looks at the effects of sea level rise on anchialine pools. I do have GIS layers of pools but would need permission from the various land owners to give them out as some are sensitive in terms of cultural and/or natural resources. Let me speak to my co-PI about the best way to proceed. meanwhile, here is a link to our current visualization tool. We are hoping to extend the geographic scope of the project with various partners. I am on vacation next week but please feel free to touch bases again if you don't hear back.

<http://maps.coastalresilience.org/hawaii>

Best regards,

Lisa Marrack, PhD  
UH Hilo Affiliate Faculty

On Wed, Nov 15, 2017 at 9:06 AM, Eva Schemmel <[eschemmel@conservation.org](mailto:eschemmel@conservation.org)> wrote:

Aloha Lisa,

I have been reading through your work on anchialine ponds in Hawai'i and I am contacting you to see if there is information that you can send along for the assessment that I am leading - the West Hawai'i Ocean Health Index. I am looking for information on the extent (area or number or density (whatever you think is the best metric)) and condition (a list of ponds and locations of ponds that have endemic shrimp present or other condition metric) of pond systems in West Hawai'i. The best type of data would be a GIS layer if you have it or a list of ponds with locations and species present. Stakeholders in West Hawaii have identified anchialine ponds as important habitats for biodiversity and this information will be used in the assessment under the Habitats subgoal under Biodiversity ([www.oceanhealthindex.org](http://www.oceanhealthindex.org)).

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Thank you for your time and support and please don't hesitate to call me with questions,

Eva  
[808-343-5263](tel:808-343-5263)

Eva Schemmel, PhD

Science Advisor  
Conservation International

5/23/2018

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