WELCOME!

Aquaculture Tech & Research Brown Bag

July 13, 2022

Noon – 12:30 p.m.

Hawai‘i Aquaculture Collaborative
hiaquacollab.org

University of Hawai‘i Sea Grant College Program

NELHA

- Sessions are recorded and will be posted with slides on hiaquacollab.org
- Introduce yourselves in the chat.
- Use the handraising feature or ask questions/make comments in the chat.

Hawai‘i Aquaculture Collaborative Technology & Research Working Group

Purpose

Provide a space for Hawai‘i aquaculture industry leaders and stakeholders to collaborate on technology and research solutions

Format

- Industry leader provides background, context, problem they are trying to solve.
- Open it up for questions, discussion, solutions

Going Forward

- Monthly, every 2nd Wednesday @ noon
- Next few months: what projects are working on producing local feed? – 8/10/22
- Contact Kai: bradleyf@hawaii.edu
- For more info: hiaquacollab.org

Hawai‘i Aquaculture Collaborative

Workforce Development

summer convening

Partnering with Government

Mahalo legislators!

Communications/ Marketing

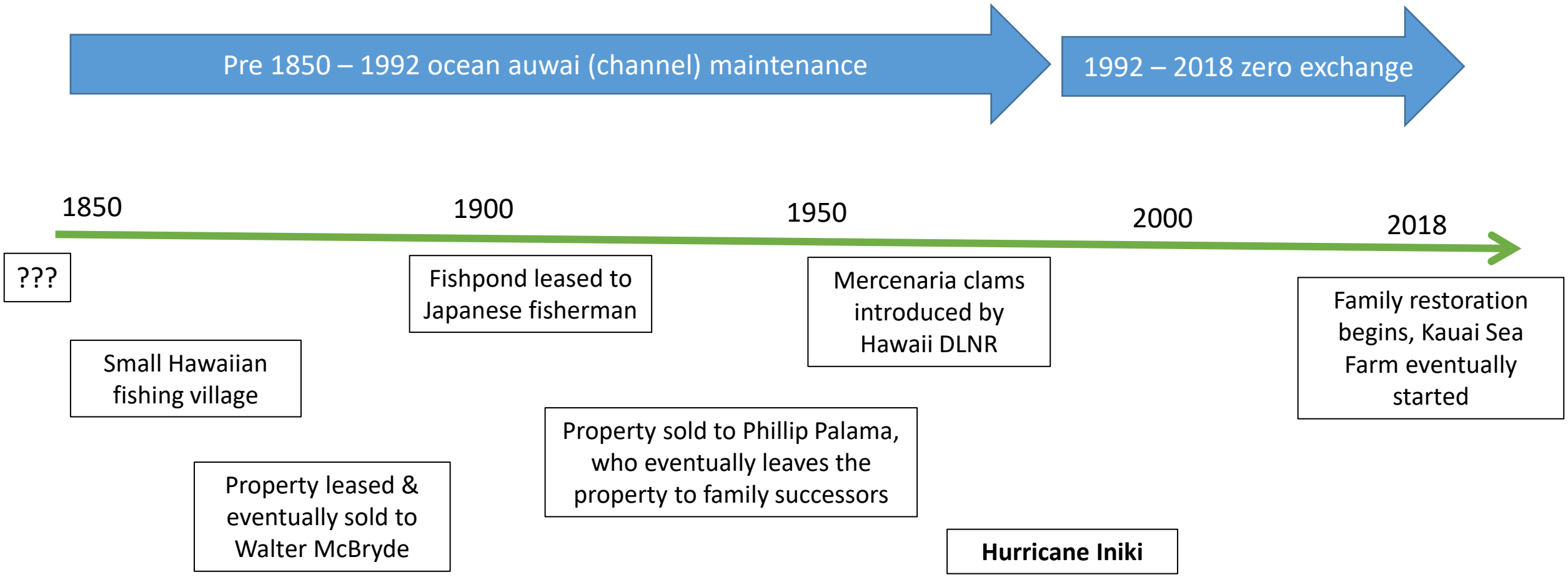
Taste Our Love for Hawai‘i Aqua + Culture

Cyanobacteria vs. Diatom Production in a Restored Loko I`a (help us grow clams!)

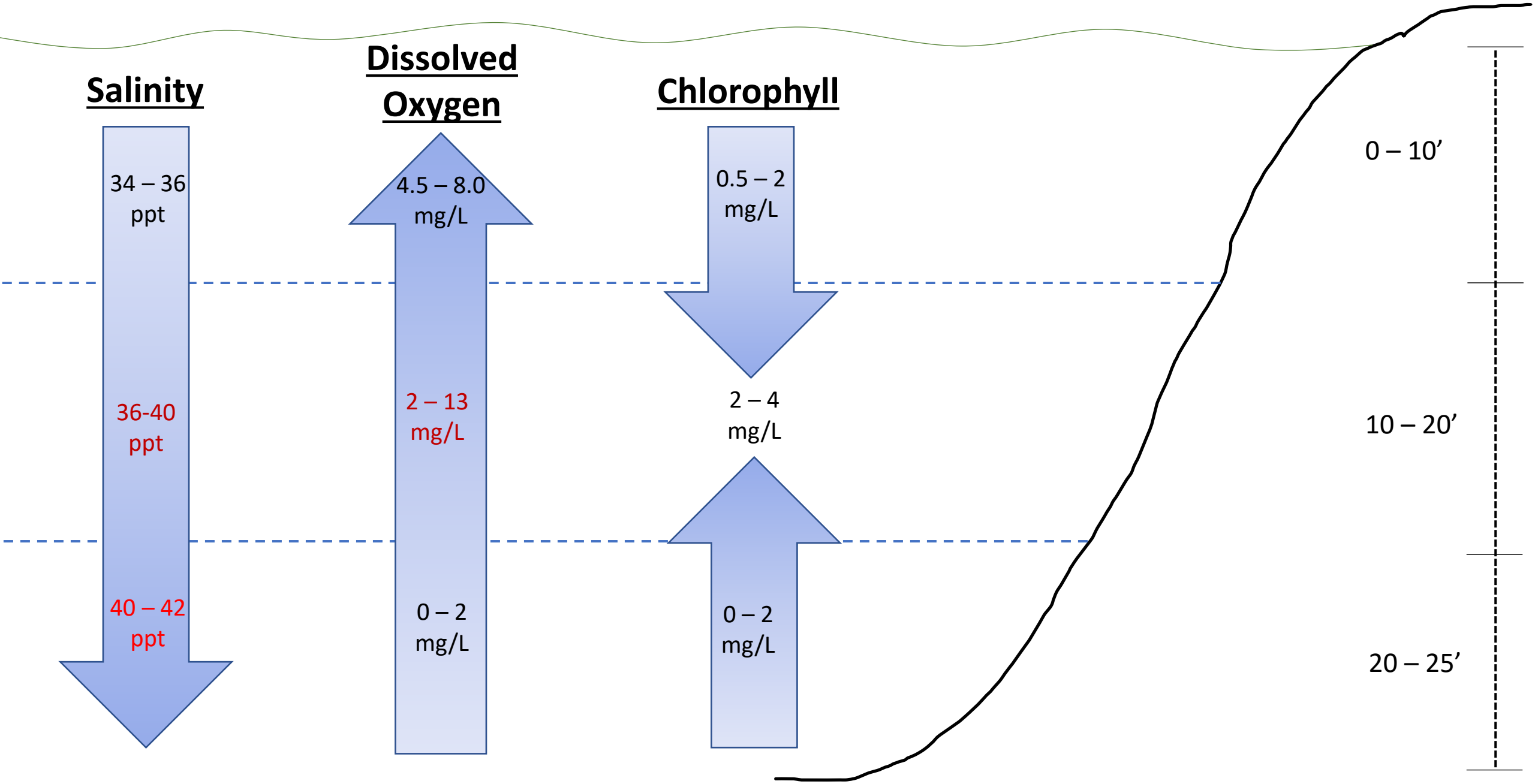
Kauai Sea Farm

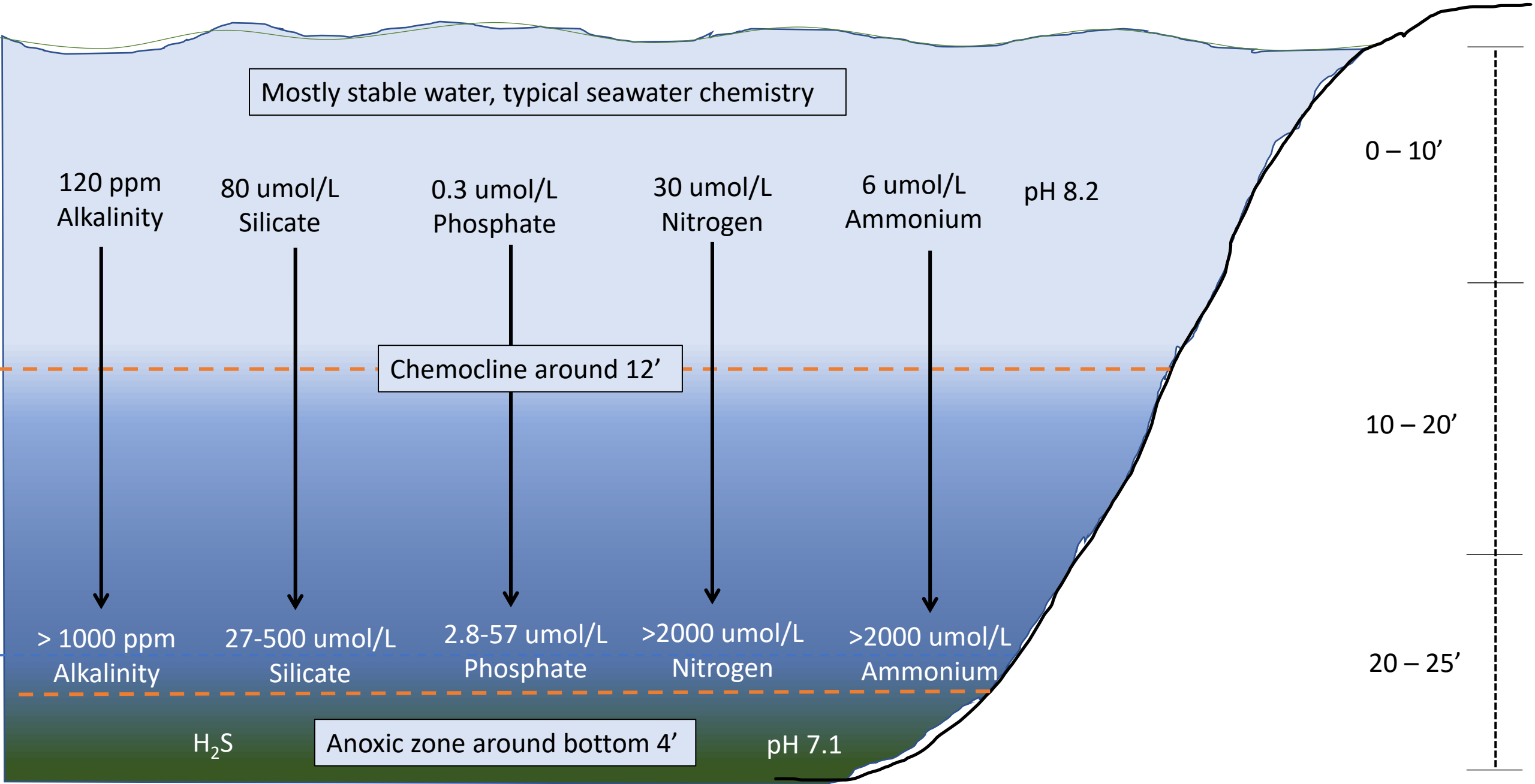
David Anderson – dave@kauaiseafarm.com

Timeline

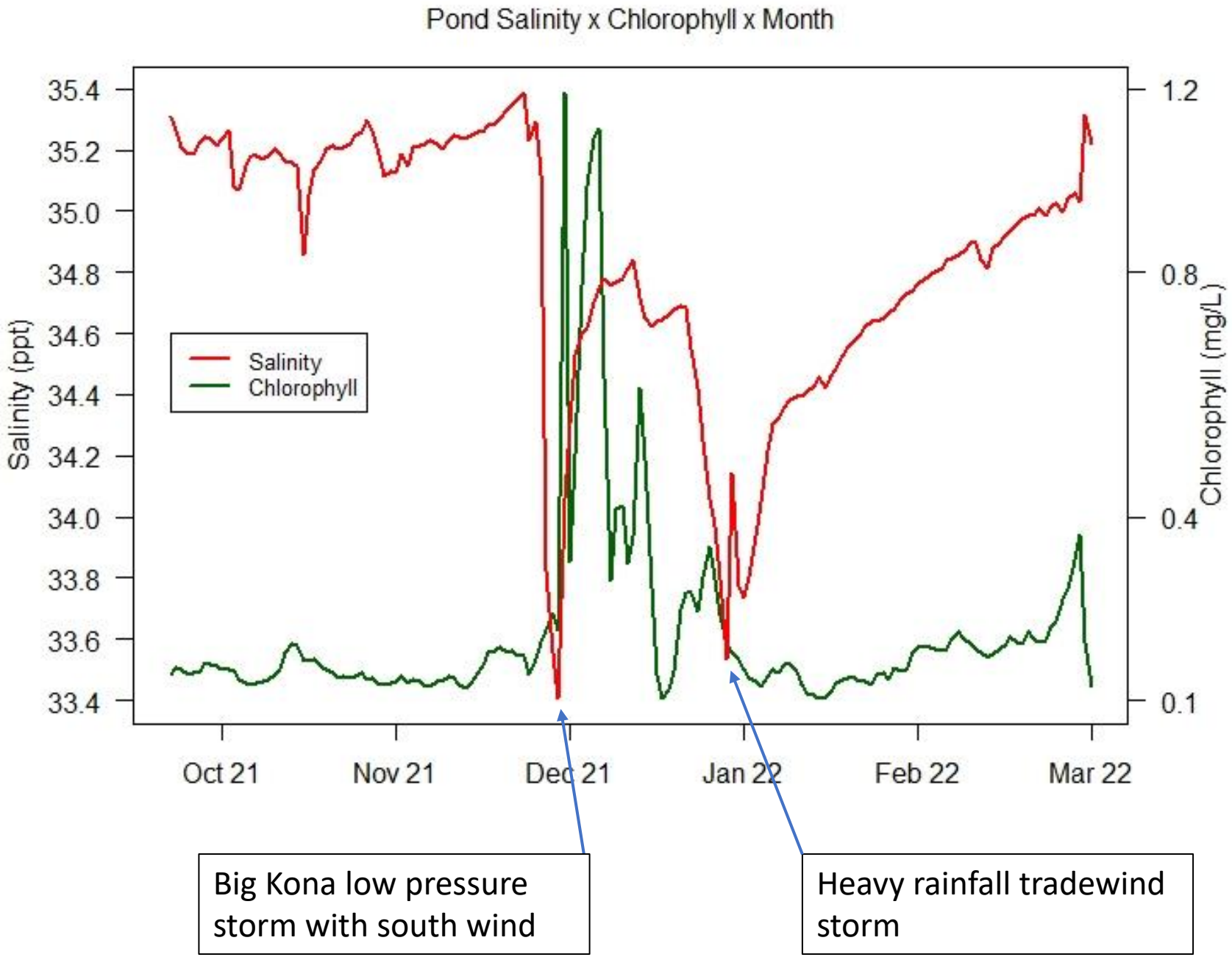

Pre 1850 – 1992 ocean auwai (channel) maintenance
1992 – 2018 zero exchange
1850
1900
1950
2000
2018
???
Small Hawaiian fishing village
Property leased & eventually sold to Walter McBryde
Fishpond leased to Japanese fisherman
Property sold to Phillip Palama, who eventually leaves the property to family successors
Mercenaria clams introduced by Hawaii DLNR
Hurricane Iniki
Family restoration begins, Kauai Sea Farm eventually started

- Generally dark green to brown water color
  - Can see 3-5 ft through water column
- Salinity changes slightly seasonally, mostly stable around 35-ppt
  - Lowest recorded was 30-ppt during flooding event
- Freshwater springs at 2 locations around pond, limited knowledge of input
- Growth rates vary seasonally, with fastest observed growth during lower salinity


Salinity
34 – 36 ppt
36-40 ppt
40 – 42 ppt
Dissolved Oxygen
4.5 – 8.0 mg/L
2 – 13 mg/L
0 – 2 mg/L
Chlorophyll
0.5 – 2 mg/L
2 – 4 mg/L
0 – 2 mg/L
0 – 10’
10 – 20’
20 – 25’


Mostly stable water, typical seawater chemistry
120 ppm Alkalinity
80 umol/L Silicate
0.3 umol/L Phosphate
30 umol/L Nitrogen
6 umol/L Ammonium
pH 8.2
Chemocline around 12’
> 1000 ppm Alkalinity
27-500 umol/L Silicate
2.8-57 umol/L Phosphate
>2000 umol/L Nitrogen
>2000 umol/L Ammonium
H_2S
Anoxic zone around bottom 4’
pH 7.1
0 – 10’
10 – 20’
20 – 25’

- Negative correlation between salinity & chlorophyll
- Heavy rain produced a spiking and falling trend of chlorophyll levels for a month afterwards
  - Kona wind low pressure storm vs. tradewind storm
  - Wind direction?
  - Nutrient runoff?
- The period of spiking chlorophyll had the clearest pond water seen (10’ of visibility from surface to bottom)



Big Questions

- Are chlorophyll spikes caused by rainfall introducing nutrients, or upwelling of nutrient rich water in the pond?
- Direct & indirect methods for measuring algae and cyanobacteria
- Can water be circulated in the pond to redistribute nutrients and promote beneficial microalgae growth?
- What is the most efficient method for moving large volumes of water from 25’ to the water surface?
  - Air lifts vs. Venturi pumping vs. zero-head pumps

MAHALO!

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