

East Maui Stream and Estuary Project

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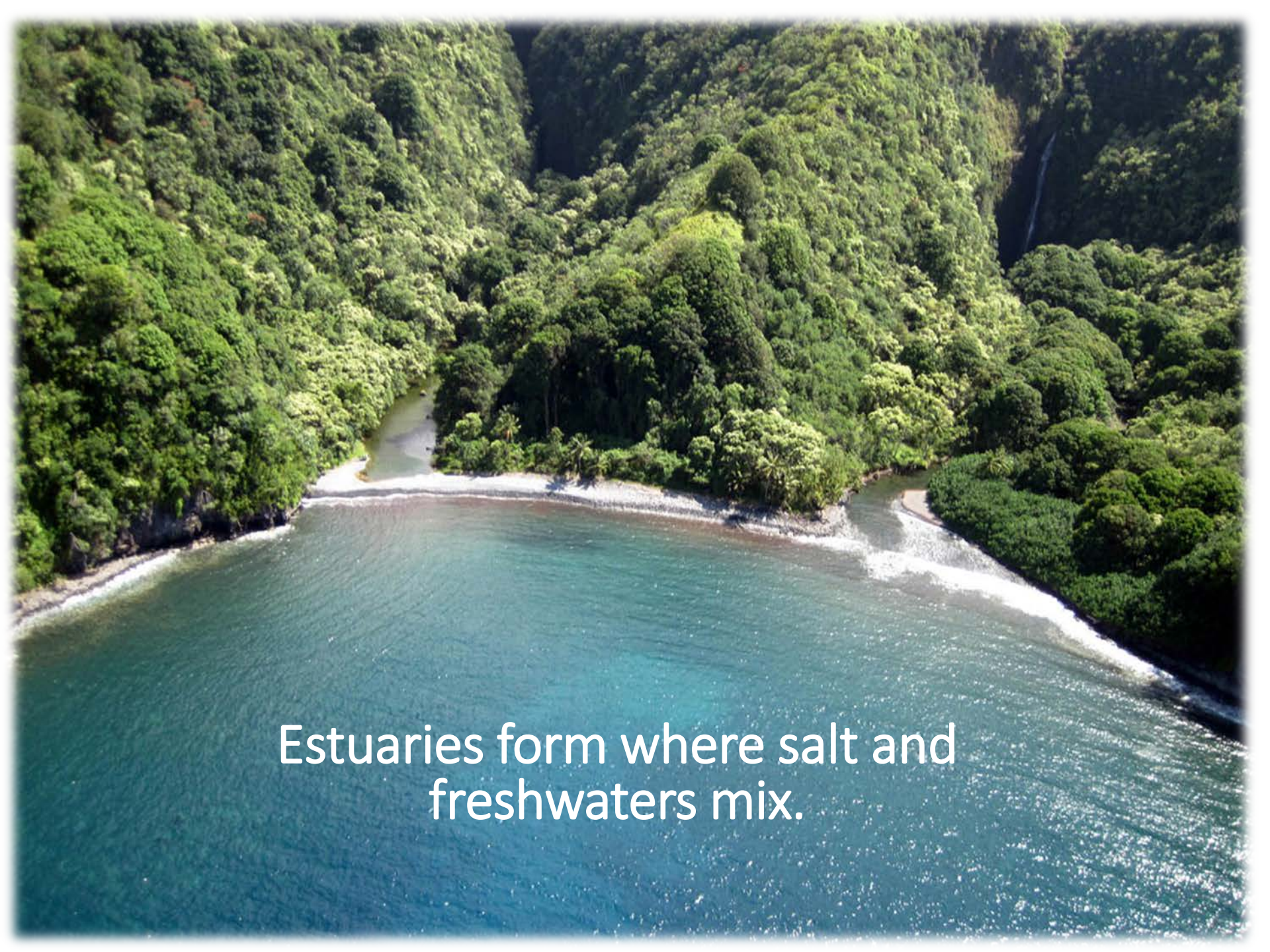
Division of Aquatic Resources



monitoring report:

Aquatic species monitoring of East
Maui streams and estuaries at 100%
baseflow conditions.



An aerial photograph of a tropical estuary. The image shows a large body of turquoise water in the foreground, which narrows into a channel. This channel is flanked by dense, lush green tropical forest. On the right side, a river or stream flows into the estuary, creating white foam as it meets the larger body of water. The forest extends up steep hillsides, and a waterfall is visible on the right-hand slope. The overall scene is a vibrant, natural landscape.

Estuaries form where salt and freshwaters mix.

Streams contribute to coastal food webs.



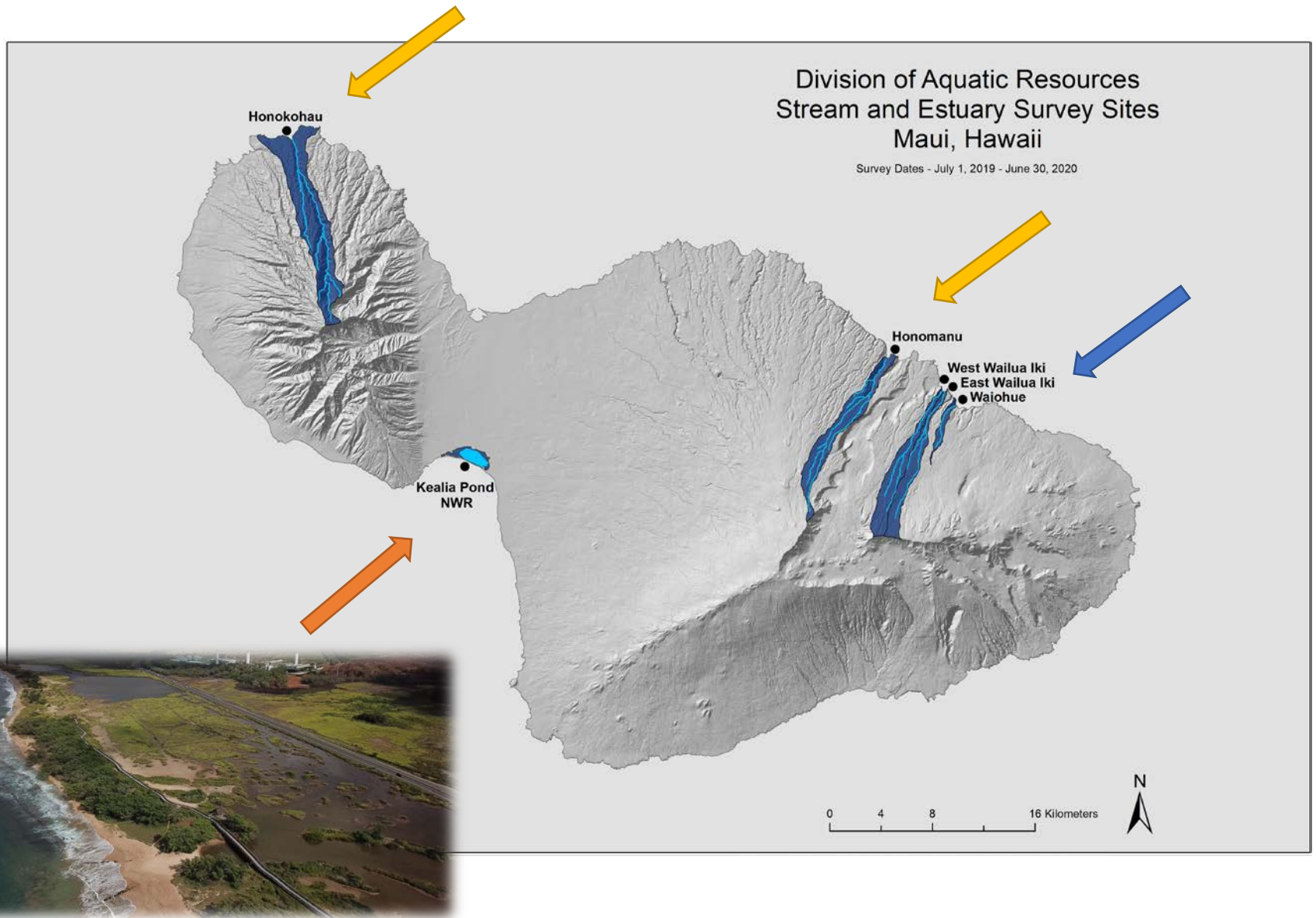
>125 native species recorded in estuaries



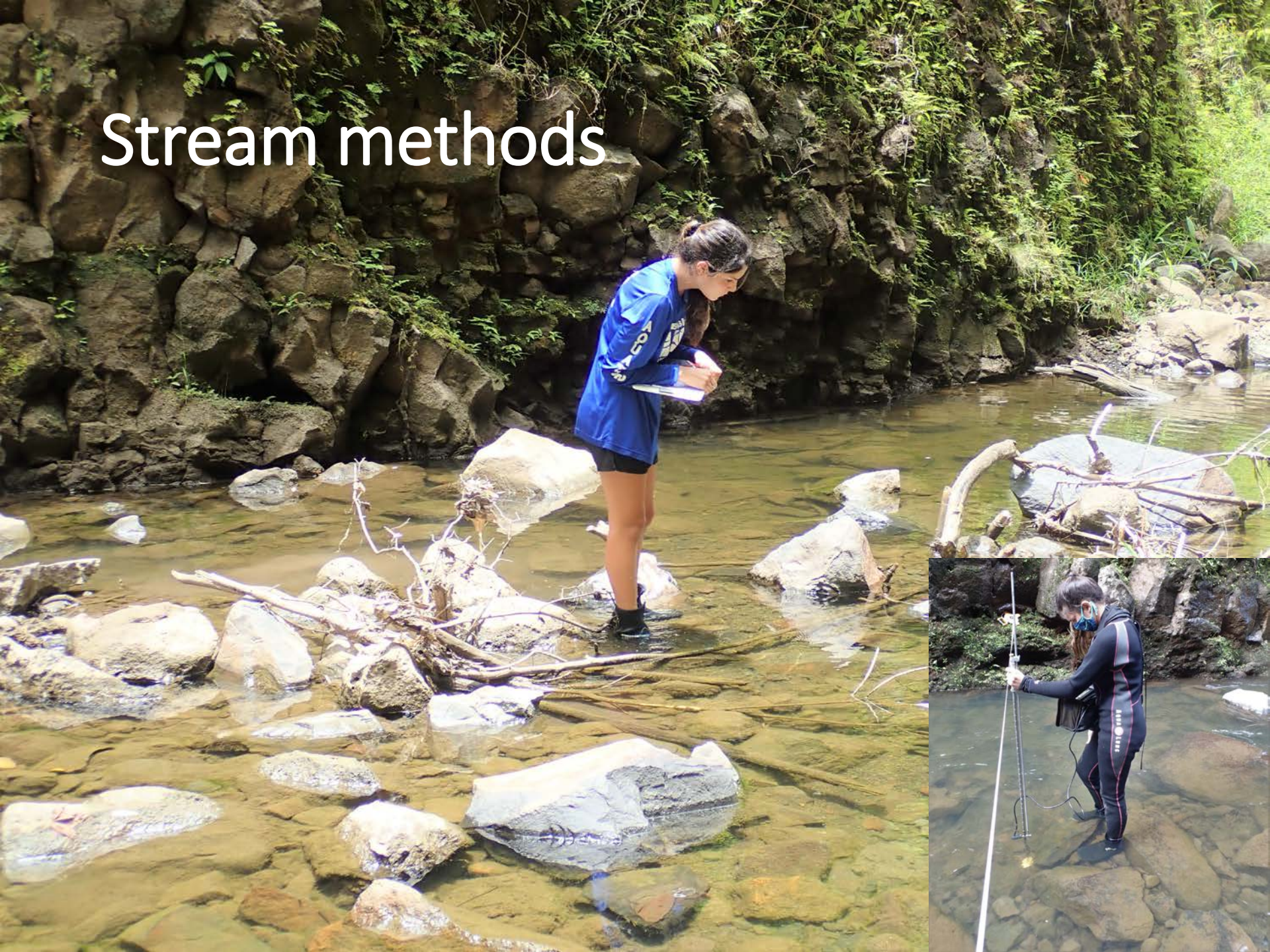
Healthy estuaries are needed for sustainable fishing.



Six sites were monitored.



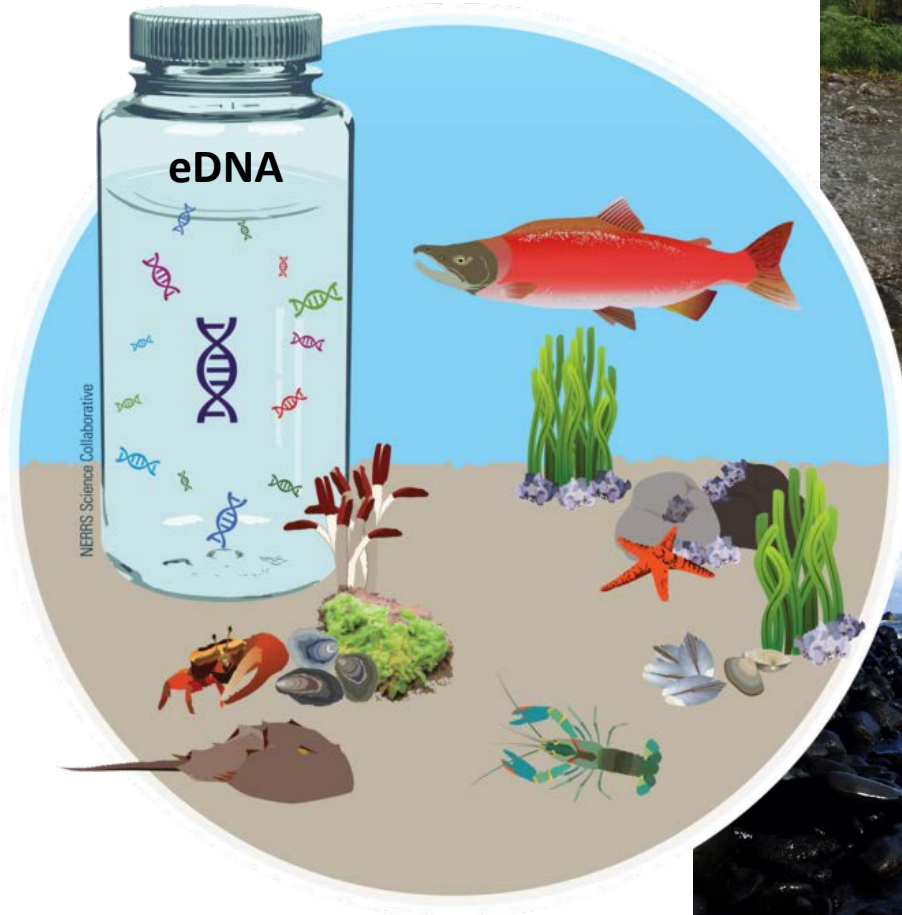
Stream methods



Cast net surveys – 2 methods



Why Environmental DNA?



Biodiversity highlights



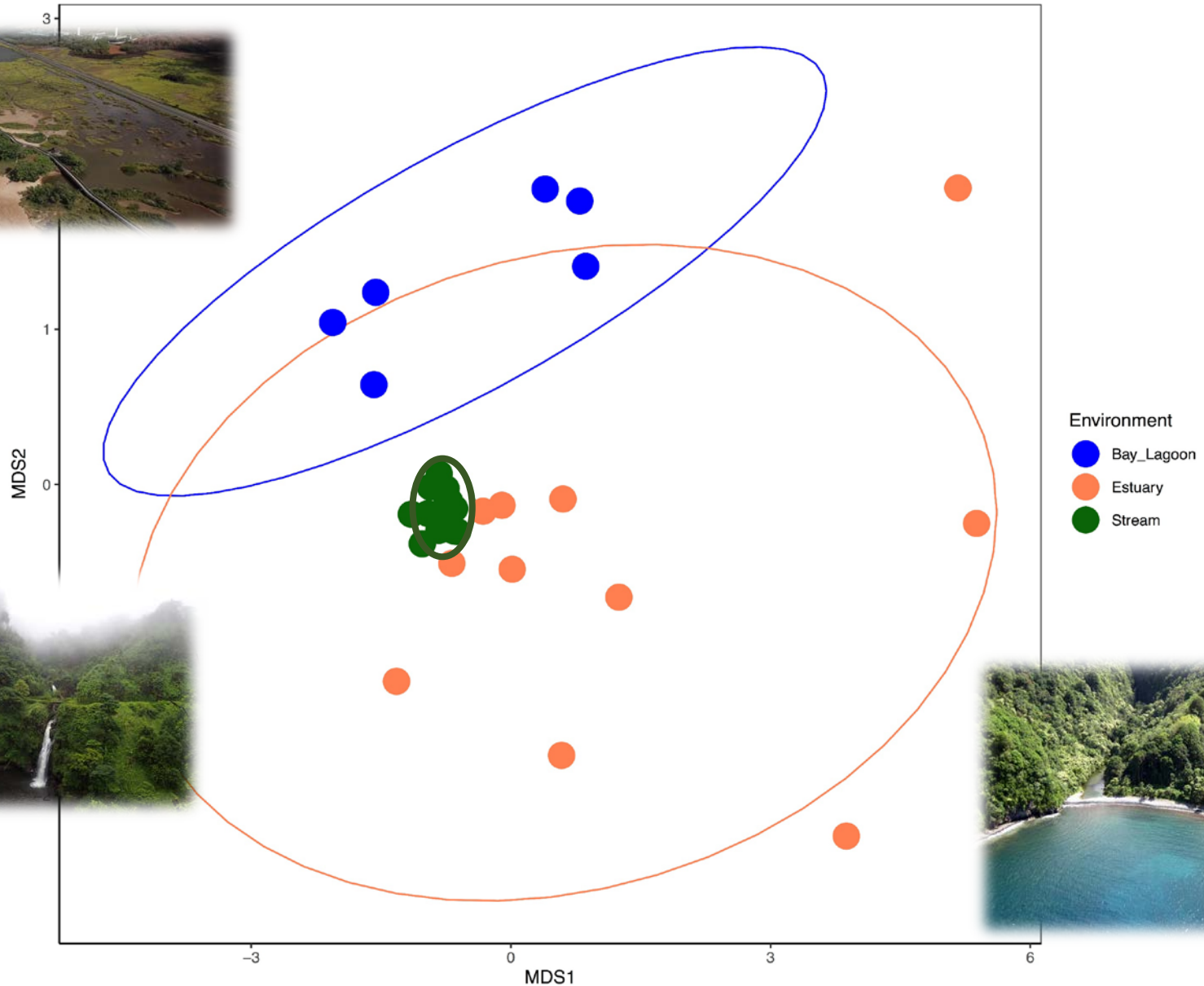
Two estuaries, Honomanu & Honokohau had >50 native fish species, biodiversity on par with coral reefs.

Two streams, Honomanu & Honokohau Stream had highest invertebrate biodiversity. Invertebrates are critical in food webs.

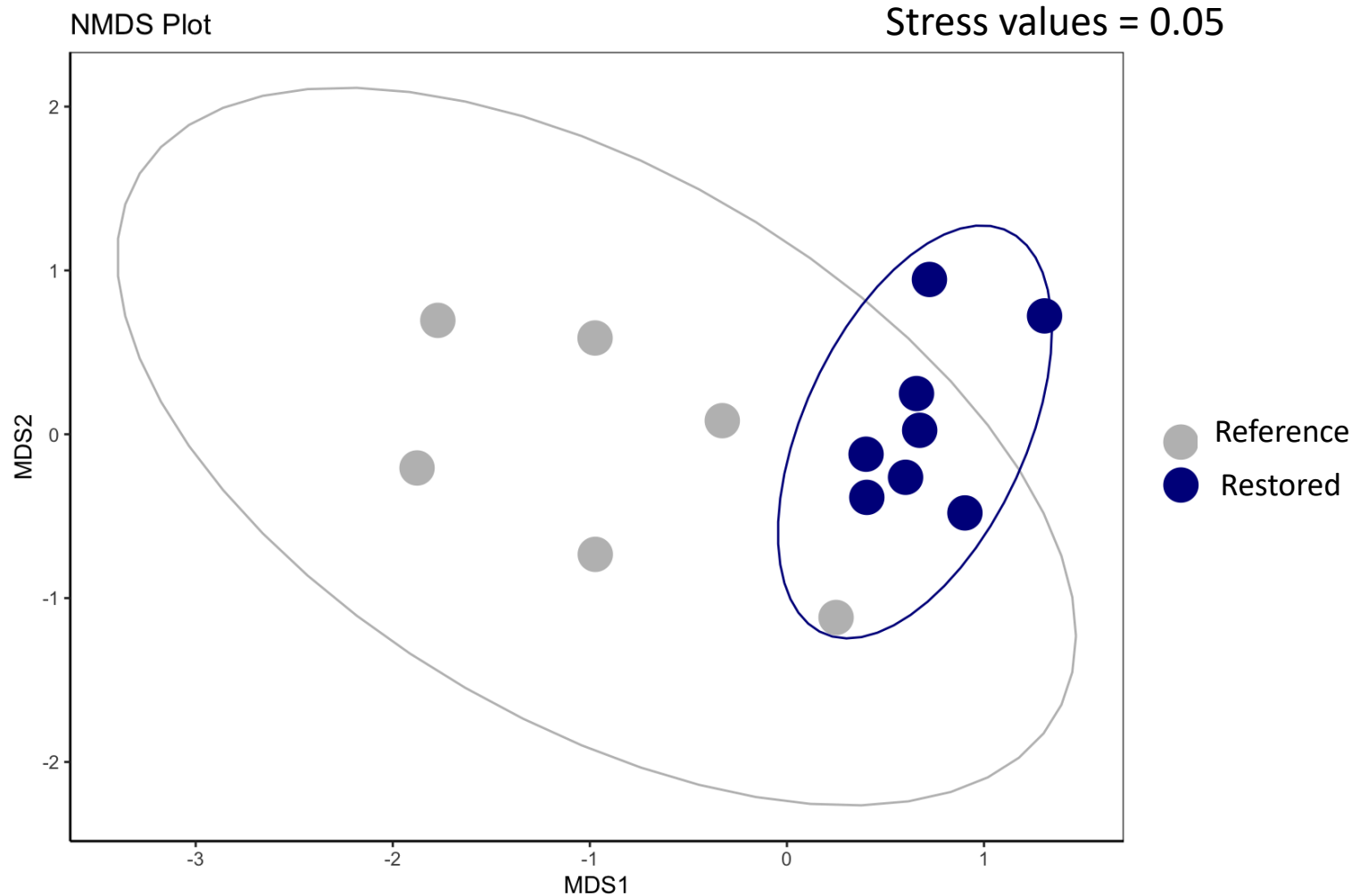


eDNA reveals 3 different fish communities

NMDS Plot



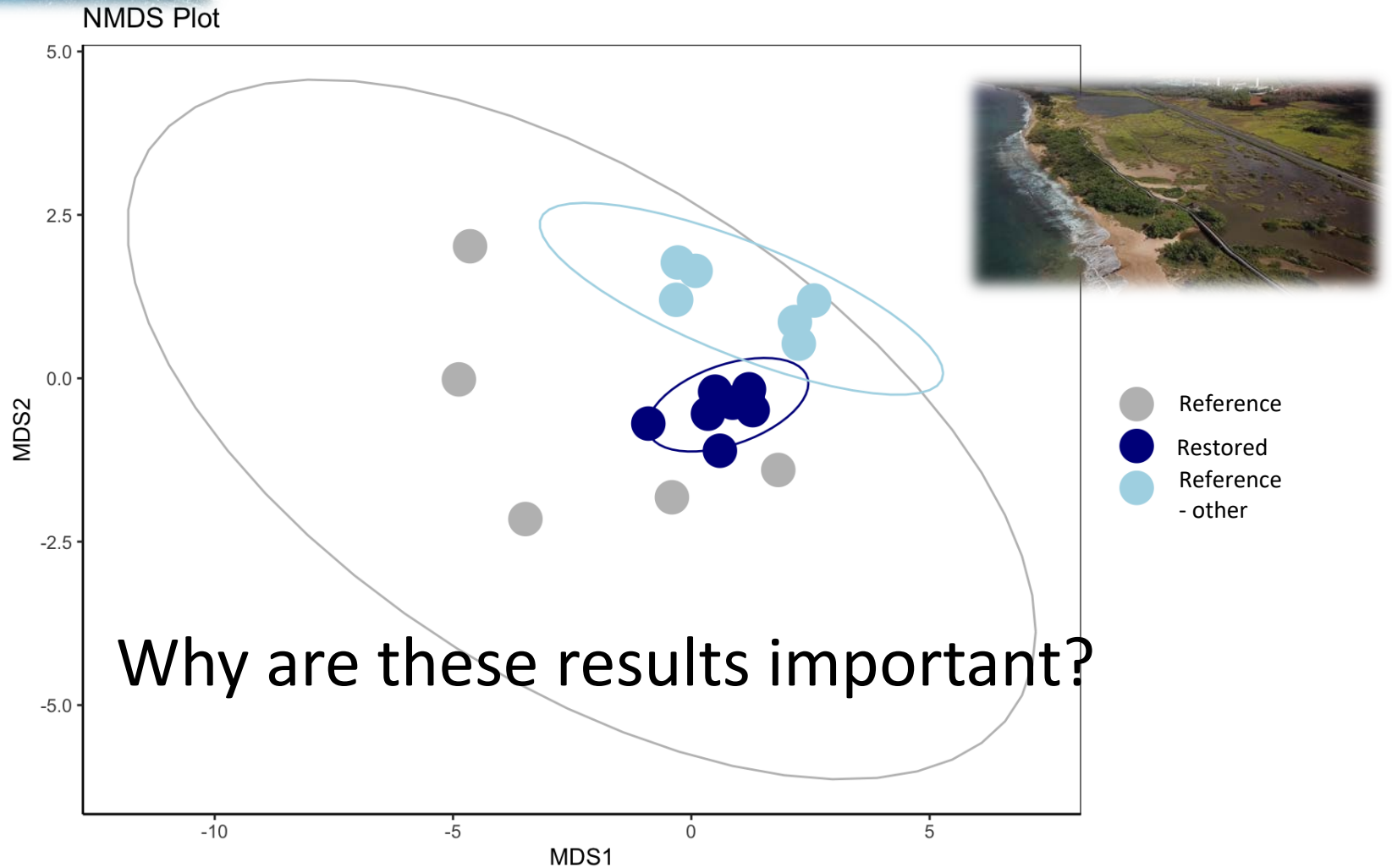
Fish communities in restored streams distinct from those in reference sites





Fish communities in restored estuaries are also distinct.

Stress values = 0.09



eDNA detects stressers in watersheds



Takeaways

- Juvenile recruitment is a key indicator for stream health
- Connectivity is essential for recruitment success of freshwater species
- Life cycle of freshwater species is an important source of food for juvenile fish using estuaries
- Healthy streams contribute to productive estuaries
- Stream flow impacts both streams and estuaries
- Restoring streams and estuaries can improve fishing opportunities

Next steps

- Continue to collaborate with CWRM to monitor and document how flow impacts aquatic resources
- Share lessons learned with other divisions
- Extend our monitoring to include streams and their estuaries before and after flow restoration
- Perform follow up monitoring to track how streams and estuaries respond to management actions
- Expand monitoring to other streams and estuaries statewide



An aerial photograph of a tropical coastline. The land is covered in dense, vibrant green forest. A bay with dark sand beaches is visible, featuring a prominent sea stack in the water. The sky is overcast and grey. The word "MAHALO" is overlaid in white, sans-serif capital letters in the center of the image.

MAHALO