Focus Area #2

Land Based Pollution

Melanie Lander
Community Planning and Design Extension Agent
Hawaii Sea Grant College Program

Defining Land-Based Pollution

> *Land-based pollution largely originates from non-point sources, meaning there is no one point of origin that can be addressed or remediated to stop the flow of polluted waters.*

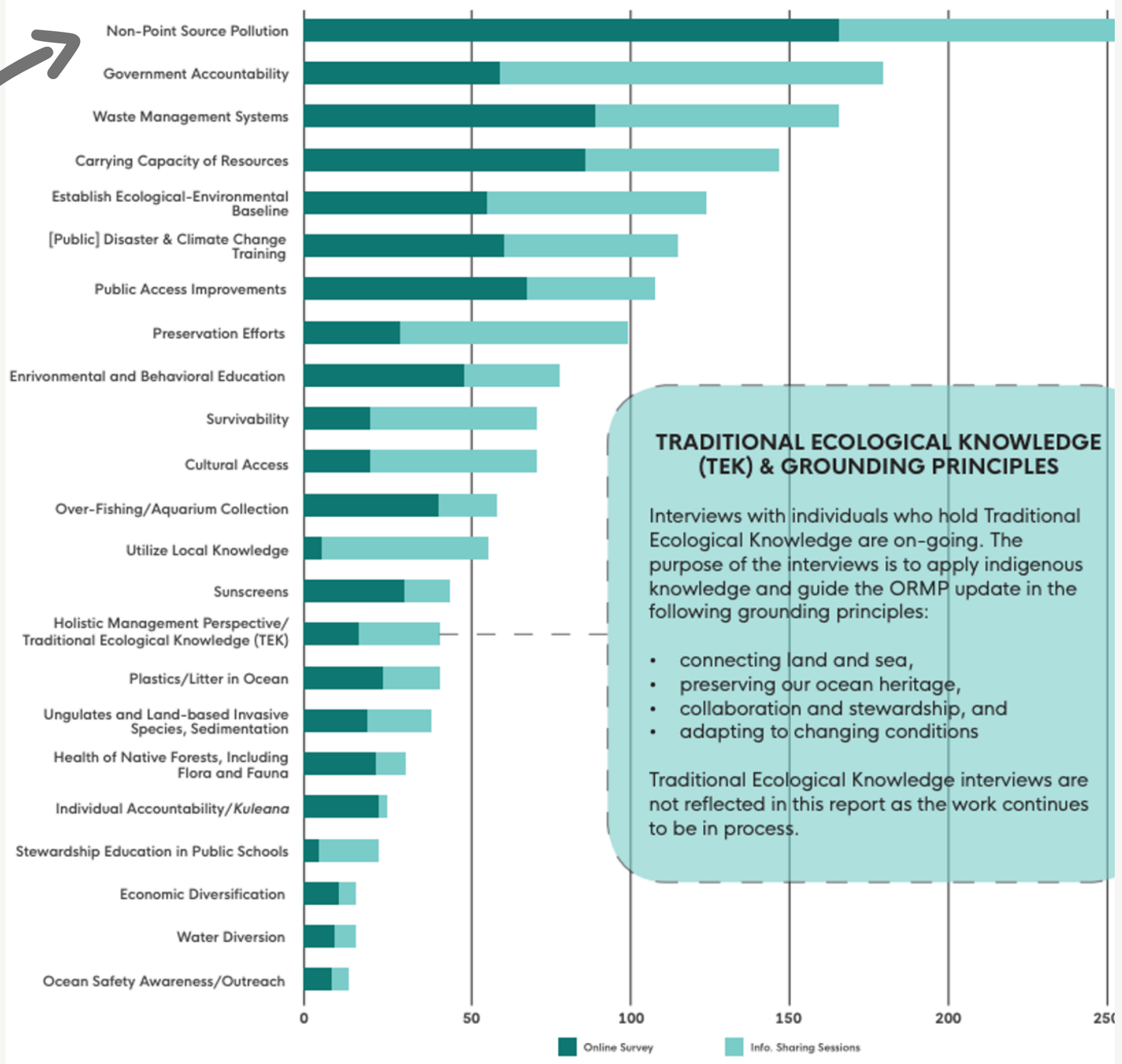
HAWAII OCEAN RESOURCES MANAGEMENT PLAN 2020

Non-point source pollution is

- the largest source of pollution in the US
- defined by exclusion
- managed through voluntary best practices (non-regulatory)
- Includes contaminants from urban areas, agriculture, and cesspools
- Not treated before entering the ocean

Project Background

During statewide engagement in August, 2019 over 85% of respondents were concerned about the issue of non-point source pollution, making it the most cited concern that arose from the public outreach process



TRADITIONAL ECOLOGICAL KNOWLEDGE (TEK) & GROUNDING PRINCIPLES

Interviews with individuals who hold Traditional Ecological Knowledge are on-going. The purpose of the interviews is to apply indigenous knowledge and guide the ORMP update in the following grounding principles:

- connecting land and sea,
- preserving our ocean heritage,
- collaboration and stewardship, and
- adapting to changing conditions

Traditional Ecological Knowledge interviews are not reflected in this report as the work continues to be in process.

Project Background

Partner Presentations

- NOAA Habitat Blueprint
- USGS Pacific Islands Water Sciences Center
- DOH CWB Monitoring Section
- DOH Sanitation Branch
- DOH Wastewater Branch & Recycled Water
- DLNR DAR
- DLNR DOFAW

In addition, representatives from the BWS, county planners, DOT, DOA, PacIOOS, and many others with roles related to land-based pollution regularly participate as CWG members.

This process informed the formation of Land-Based Pollution as one of three Focus Areas, with a dedicated Action Team to prioritize implementation between 2020-2030

Of the three focus areas, LBP most clearly represents the plan's connection between land and sea

HAWAI'I OCEAN RESOURCES MANAGEMENT PLAN

FOCUS AREA II: LAND-BASED POLLUTION

This Focus Area is a refinement of the 2013 ORMP Management Priority 'Watershed Management', which viewed the mauka areas of Hawai'i's watersheds as primarily protecting aquifer recharge and the makai areas as most directly impacting coastal water quality. The selection of Land-Based Pollution as a 2020 Focus Area highlights polluted stormwater runoff as a pervasive and widespread issue within Hawai'i's watersheds. This issue does not occur solely in Hawai'i but does impact the State uniquely. As an island state, Hawai'i is reliant upon robust freshwater resources and healthy nearshore ecosystems, and its highly permeable geography creates an unusually fast transfer of pollutants to groundwater. Land-based pollution degrades irreplaceable coastal habitats, threatens human health, limits cultural practices, reduces local sustainability and self-sufficiency, and reduces visitor appeal, an issue tied to the health of the State's tourism-dependent economy. There is perhaps no single issue that better encapsulates the truly indelible relationship between land and sea than that of land-based pollution.

WHY FOCUS ON LAND-BASED POLLUTION?

Land-based pollution largely originates from nonpoint sources, meaning there is no one point of origin that can be addressed or remediated to stop the flow of polluted waters. The force of flowing water picks up sediment, nutrients, bacteria, toxic chemicals, oil, and trash at which point freshwater becomes polluted stormwater runoff (DOH-CWB 2018). As water flows across altered areas known as the built environment it carries pollution through natural waterways, channelized streams, and storm drains. In Hawai'i, untreated stormwater runoff is deposited directly into nearshore waters without treatment or filtration. The *State of Hawai'i Water Quality and Assessment Report* found that of 108 marine water bodies assessed, 88 (81%) did not meet water quality standards for one or more pollutants (DOH 2019). The report cites turbidity as the leading cause of coastal water quality degradation and attributes this finding to polluted runoff from land-based sources. Over half of marine assessments also identified excess nutrients present in coastal waters. 'Brown water' a term for the possible presence of sewage, pathogens, debris, and other health risks in ocean waters, has become part of Hawai'i residents' lexicon. Brown water advisories issued by the DOH explicitly warn that if it has recently rained, swimming in streams or the ocean is inadvisable.

"Rain has resulted in stormwater runoff entering into coastal waters. ***The public is advised to stay out of flood waters and storm water runoff due to possible overflowing cesspools, sewer, manholes, pesticides, animal fecal matter, dead animals, pathogens, chemicals, and associated flood debris.*** *Not all coastal areas may be impacted by runoff, however, if the water is brown stay out."*

- DOH BROWN WATER ADVISORY, 2020

Input from members of the public during the Information Sharing Sessions and corresponding online survey indicated that polluted stormwater runoff, specifically from the most intensely developed areas of Hawai'i's coastline, was a ubiquitous concern statewide. In fact, nonpoint source pollution's impact on freshwater resources and nearshore ecosystems was the most frequently voiced concern during public outreach, indicating a keen awareness of the impact of human activities and development practices on coastal resource health.

In Hawai'i, the DOH-CWB Polluted Runoff Control Program's mission is to prevent and reduce nonpoint source pollution. At the county level, prevention is enforced through rules and ordinances and by implementing nonpoint source pollution control projects that aim to improve water quality. Monitoring is a fragmentary effort composed of data collection by the USGS, DOH-CWB, counties, private companies and consultants, non-profits, and academic institutions that meet the DOH-CWB's Quality Assurance/Quality Control (QA/QC) requirements. Though the DOH is required by the Clean Water Act to report select monitoring data every two years, the report's data comes from a variety of sources, leaving the State vulnerable to changes in federal and institutional funding and priorities.

The DOH-CWB Monitoring and Analysis Section checks for bacterial contamination at beaches around the State, however a significant lack of regulatory and monitoring capacity has inhibited the State's ability to frequently, expansively, and consistently monitor water quality elsewhere. Until 2020, Hawai'i Island's coastal water quality was monitored by a single individual. DOH-CWB monitoring focuses on protecting human health and enhancing the quality of the State's waters. It does not directly assess pollutant impacts on coastal ecosystem impacts, but outsources stream water quality data collection. The lack of essential resources for coastal and stream water quality monitoring has resulted in better cooperation between the State and citizen science groups. In doing so, State residents have demonstrated the importance of both individual and collective action as well as their urgent desire for information.

Data is incredibly important for enforcement, analysis, and decision-making; however, monitoring does not inherently improve coastal water quality. A critical gap exists between establishing regulations and

The DOH-CWB conducts water quality monitoring in He'eia, O'ahu during alien mangrove removal. The restoration of native species in Hawai'i's coastal ecosystems supports improved water quality.
Photo: DOH-CWB

Plastic debris demarcates the high tide line at Bellows Beach Park, O'ahu.
Photo: Office of Planning

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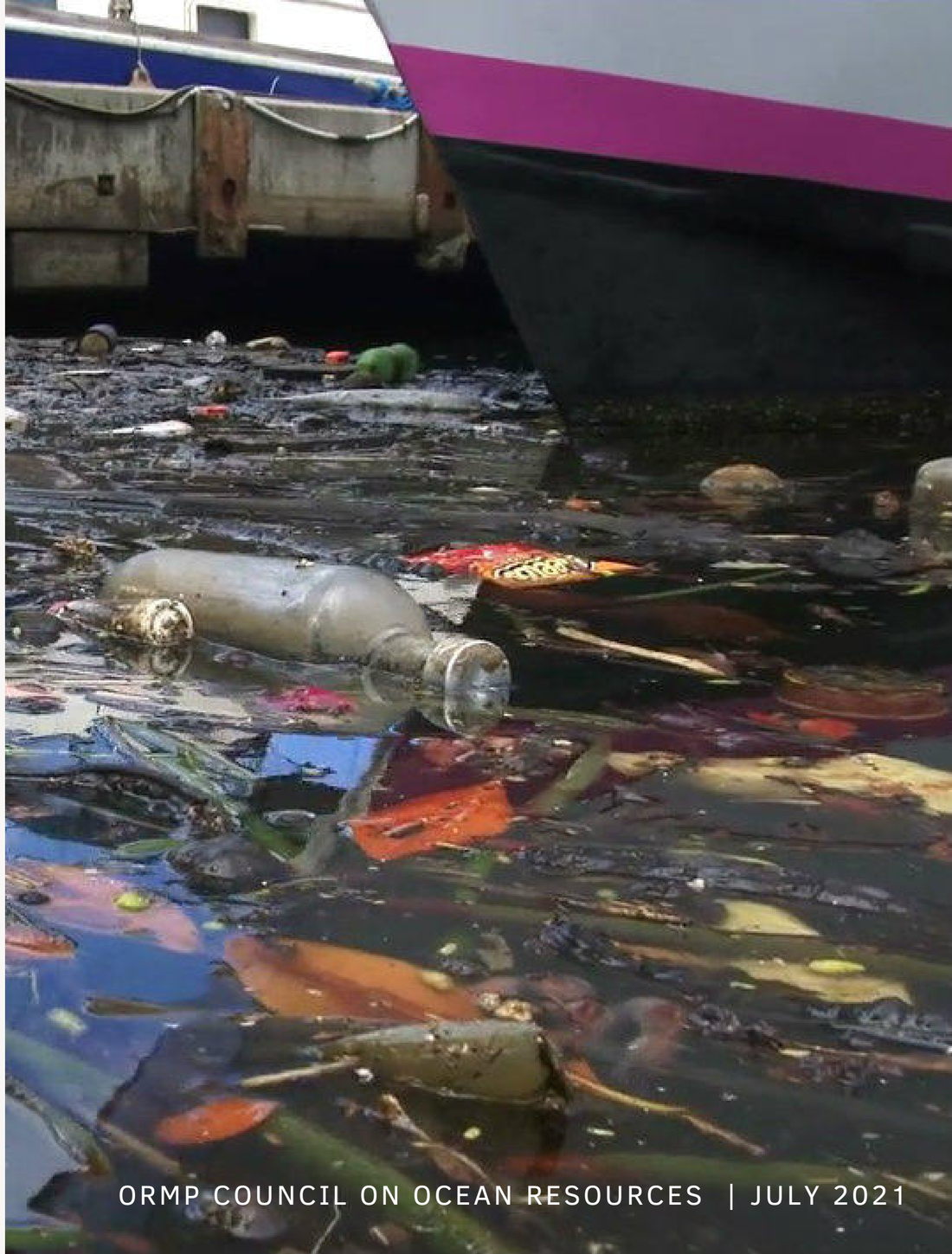
FOCUS AREA II
LAND-BASED POLLUTION

Why Focus on Land-Based Pollution?

- Water quality impairment curtails cultural practices, degrades human and environmental health, impacts economic activity
- All agencies have varying responsibilities towards stemming the flow of land-based pollution

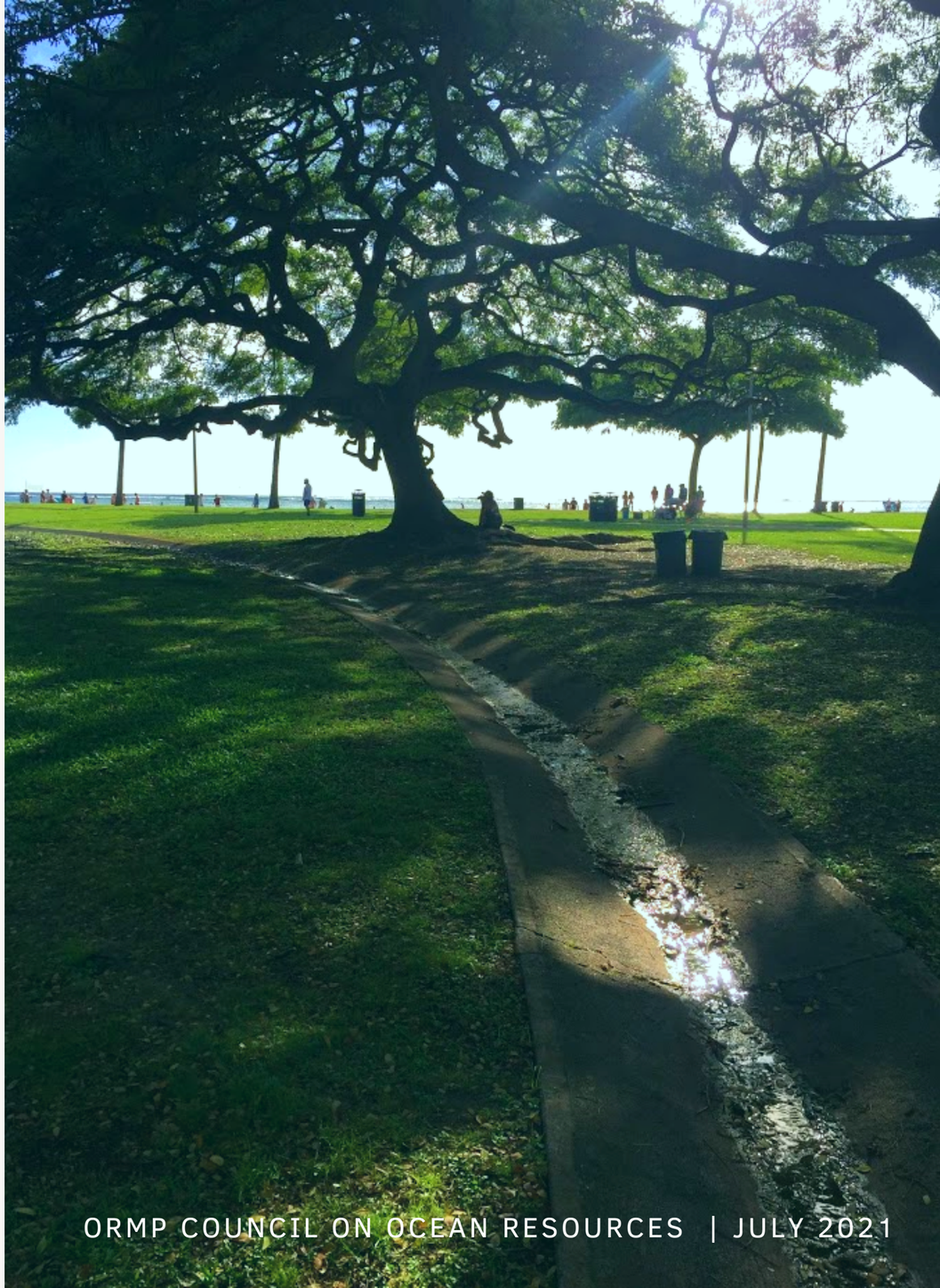


Project Background

"*Identifying frameworks for land-based pollution management in the Hawaiian Islands*" will describe:

- Multi-jurisdictional management framework
- Successes and shortfalls, existing educational and compliance campaigns, research needs

The report is intended to support the FA #2 Action Team in it's implementation of research and actions over the next decade



Approach

Report will combine a literature review and first-person stakeholder interviews to outline the state's land-based pollution management framework.

Project Period

Key Elements

- Agency responsibilities and jurisdictions
- Capacity challenges
- Nexus with climate change
- Complex nature of management

Next Steps

- Form Action Team and hold regular meetings
- Begin to address implementation actions as identified on pg. 42 of 2020 ORMP

Questions?

mlander@hawaii.edu