Clean, unpolluted water in Maunalua Bay is important for everyone who uses the bay for swimming, fishing, surfing, diving, or just enjoying the ocean.

The future is up to you.

What you can do:

- Work with community organizations to help establish and maintain a QAPP (Quality Assurance Project Plan), a way for communities to do state-certified water quality testing.
- Use fertilizers and pesticides sparingly to keep them from running off into the ocean.
- Replace impermeable surfaces, like concrete and asphalt, on your property with permeable concrete or green space. Install rain gardens to catch rainwater, sediment, and pollutants.
- Volunteer with Malama Maunalua’s invasive alien algae removal program, or other community cleanup events.
- Learn more about water quality, sedimentation, invasive alien algae removal, and the economic importance of Maunalua Bay through our other projects at https://scholarspace.manoa.hawaii.edu/10125/44552

Steps we took towards understanding water quality in Maunalua Bay:

- Create a database of past water quality analyses in Maunalua Bay.
- Determine the location and composition of pollutants in Maunalua Bay.
- Summarize strategies used by other community organizations for developing QAPPs.

What does this mean for the bay, and for you?

Water Quality in Maunalua Bay: Past, Present, and Future

The Hawaii State Department of Health has declared Maunalua Bay an impaired water body, meaning that pollution levels don’t meet state standards for public safety.
Past...

To understand how water quality has changed in Maunalua Bay, we looked at studies done by other researchers and tried to test water quality in the same places. In comparison with other studies, our sampling found that trends in water quality have not changed much, but certain characteristics seem to have worsened, like nutrients.

Present...

To look for current patterns in water quality in Maunalua Bay, we sampled water quality offshore at Waialae Nui and Kuli’ou’ou, and in Kuapa Pond.

It’s difficult to know the exact cause of declining water quality. But we think it has happened because of increased urban development, the use of fertilizers and pesticides for landscaping, and the channelization of natural streams.

We found that levels of total suspended solids, which includes the largest sediment particles >0.7 microns, are normal. However, in many places, turbidity and nitrogen levels far exceed DOH standards by 5-10x, indicating that tiny microparticles and nutrient levels, which can look clear, are problematic for human and environmental health.

Water that looks “clean” and clear can actually be less healthy than water that is dirty and dark.

Some measures of Water Quality:

**Inorganic Nitrogen**: Amount of chemical nitrogen in water in the form of nitrates, nitrites, and ammonia; bacteria convert these forms of nitrogen into usable organic forms, so low levels are not always a good sign.

**Organic Nitrogen**: Amount of nitrogen present in water in the form of cellular structures. Can include living tissues, such as bacteria or dissolved plant matter, that give some water its green color.

**Chlorophyll**: Amount of phytoplankton in the water, measured by the fluorescent green reflectance of chlorophyll. High levels of chlorophyll often happen because of high nutrient levels.

**Total suspended solids (TSS)**: Large (>0.7 microns) sediment particles that don’t pass through a filter and can be weighed.

**Turbidity (NTU)**: “Cloudiness” of water, measured by light passing through a sample.