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O‘AHU AND HAWAI‘I ISLAND, HAWAI‘I

Hurricane Nolo: Where New Storm Exposure Met Existing Stress



Illustrative Image

Event Summary of the Water Intelligence Event Report for O‘ahu and Hawai‘i Island, September 23–30, 2026

EXECUTIVE SUMMARY

Concentrated Exposure on Already-Stressed Coasts

The evidence maps where Nolo could matter most. It does not confirm what the storm did.

HEADLINE ASSESSMENT

Hurricane Nolo's significance is concentrated exposure layered on pre-existing stress.

On both islands, mapped and modeled layers for hazard, infrastructure, impaired water and limited recovery capacity coincide in the same low-lying coastal districts. The evidence establishes that exposure; it does not establish damage.

Hurricane Nolo affected O‘ahu and Hawai‘i Island during the analysis period of September 23–30, 2026. True Elements' TrueQi™ Water Intelligence System, supported by Argus™, examined rainfall estimates, flash-flood guidance, regulatory floodplain maps, a modeled storm-surge scenario, impaired-waters listings, modeled water-quality scores and community vulnerability screening for both islands. Argus™ supports the organization and

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comparison of that evidence. Its outputs are analytical decision support, not certified engineering conclusions.

The evidence concentrates concern in a few places. On Oʻahu, Mapunapuna and Keʻehi Lagoon show the densest overlap of mapped flood hazard, modeled surge exposure and transportation infrastructure in the Honolulu metro area. On Hawaiʻi Island, Honokōhau Harbor carries the highest mapped coastal-hazard concentration. It sits on a single coastal electric transmission corridor that crosses surge- and flood-prone ground.

EVIDENCE LIMITATION

This is a risk and exposure assessment, not a damage report. The analysis did not assess damage reports, stream or tide gauge readings, observed surge or post-storm water sampling. The dates, times and timezone of the data reads were not recorded, so no reading can be placed before, during or after Nolo's passage.

KEY FINDINGS

Rain Fell Upslope; Exposure Sits on the Coast

Nolo's heaviest reported rain and its most exposed coasts are in different places

National Weather Service (NWS) rainfall estimates show rainfall organized by terrain on both islands. On Oʻahu, the Koʻolau Range received about 1.5–2.0 inches, while the southern and western coasts received 0.1–0.5 inches. On Hawaiʻi Island, the interior and the Mauna Kea and Mauna Loa flanks received 3.0–8.0+ inches, compared with 0.1–0.25 inches on the immediate Kona coast.

EVIDENCE LIMITATION

These are estimates, not gauge observations, and the accumulation period behind the totals was not stated.

Kaʻū is the more runoff-sensitive of the two Hawaiʻi Island study areas. NWS Flash Flood Guidance indicates that flash flooding there generally requires only about 1–3 inches of rain

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per hour, compared with about 3–5 or more inches per hour on the Kona western slopes. Kaʻū also received higher reported totals, including 3.0–4.0 inches near Pāhala.

IMPORTANT QUALIFICATION

Flash Flood Guidance is expressed as rainfall per hour, and the reported estimates are totals over an unstated period. This evidence cannot show whether any threshold was reached. The higher totals near Pāhala are not evidence that flash flooding occurred.

Mapunapuna and Keʻehi Lagoon carry Oʻahu's deepest exposure

This low-lying area recorded the highest coastal flood hazard composite scores in the Honolulu metro area, with 7–10 overlapping hazard zones in some places. It lies partly within the Federal Emergency Management Agency (FEMA)'s 1% annual chance (100-year) floodplain, a regulatory designation of an area with a 1% chance of flooding in any year. It is also the only Oʻahu location reported with modeled Category 1 storm-surge inundation greater than 3 feet. Waikīkī is the most visible district on this coast, but Mapunapuna and Keʻehi Lagoon carry the deeper exposure.

EVIDENCE LIMITATION

The surge figure comes from a planning scenario for a hypothetical Category 1 hurricane. It does not describe water depths observed during Nolo. The floodplain is a regulatory designation, not event flooding. The hazard composite has no named source, and its scale may not match Hawaiʻi Island's.

Honokōhau Harbor and a single coastal power line

At Honokōhau Harbor, the coastal flood hazard composite shows 8–11 overlapping hazard zones, the highest category in the Hawaiʻi Island analysis. The Category 1 surge scenario shows both less-than-3-foot and greater-than-3-foot inundation zones around the harbor. A primary electric transmission line runs along much of the western and southern coast through storm-surge and flood-prone areas. It passes near the harbor, Kailua-Kona,

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Kealakekua and Pāhala, among other communities. True Elements infers that damage at one exposed point could create wider power problems.

EVIDENCE LIMITATION

The corridor's exposure was mapped, but grid redundancy was not assessed. No outage or line damage is established, and potential effects on power supply remain an inference. Because the two islands' composites may not share a scale, Honokōhau's value is not ranked against Oʻahu's.

O'AHU **7–10 zones**	**Mapunapuna and Keʻehi Lagoon hold the island's densest hazard overlap.** Floodplain, surge scenario and H-1 links coincide in one low-lying district.
HAWAIʻI ISLAND **8–11 zones**	**Honokōhau Harbor is the most exposed coastal site.** The harbor lies on a single coastal transmission line that crosses hazard zones.
RAINFALL **Up to 8+ in**	**The heaviest totals fell upslope rather than on the coasts.** Concern shifts to runoff routed downhill into receiving waters.

RECEIVING WATERS AND COMMUNITIES

Waters and Communities Already Under Stress

Many receiving waters were listed as impaired before Nolo, and several exposed districts carry mapped vulnerability

The U.S. Environmental Protection Agency (EPA)'s water-quality assessment database, ATTAINS, lists many of Oʻahu's urban streams and coastal waters as impaired before Nolo. These include Honolulu Harbor, Keʻehi Lagoon, Pearl Harbor shoreline areas, the Ala Wai Canal, Waikīkī coastal segments and the Nuʻuanu, Kalihi and Moanalua streams. ATTAINS

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also shows widespread impaired coastal waters along the Kona and Kaʻū coastlines. True Elements infers that Nolo's runoff added contamination to these waters.

EVIDENCE LIMITATION

The specific pollutant behind each listing was not read. No post-storm sampling was assessed, so added loading is a reasoned inference, not a measured increase.

TrueQi™ modeled scores show a gradient on Oʻahu. The Honolulu metro drinking-water service area scored 93, compared with 87 for urban and coastal surface waters. The modeled scores are higher for the Honolulu drinking-water service area than for urban and coastal surface waters.

EVIDENCE LIMITATION

TrueQi™ scores are proprietary modeled values, not regulatory measurements. Their read time is unknown, and no post-storm sampling was assessed. The gradient therefore does not show that drinking water was safe or unaffected during Nolo.

EPA's environmental screening tool, EJScreen, places Chinatown, Pālama and Kalihi in the highest percentile range for a combined measure of people of color and low-income residents. Mapunapuna and Salt Lake show moderate-to-high vulnerability. EJScreen also shows elevated linguistic isolation, meaning households in which no one over age 14 speaks English very well, in Waikīkī and parts of Liliha and Kalihi. On Hawaiʻi Island, the Climate and Economic Justice Screening Tool (CEJST) designates disadvantaged communities along the Kona coast from Kailua-Kona through Hōnaunau-Nāpōʻopoʻo, and along the Kaʻū coast, including Pāhala and Nāʻālehu.

EVIDENCE LIMITATION

These are screening designations of vulnerability and recovery capacity, not measures of storm harm.

WHY IT MATTERS

Repeated Storms Could Compound Existing Stress

Layers that are weak alone point to the same places when combined

Mapped and modeled layers for hazard, infrastructure, impaired water and vulnerability co-locate at five sites: Mapunapuna and Keʻehi Lagoon, Honokōhau Harbor, the Kailua-Kona

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waterfront, Pearl Harbor-Hickam and the Kaʻū coast. Together, three of these datasets form a coherent pathway: rain fell upslope, modeled quality declines from upland to urban waters, and the receiving waters were already impaired. That pathway indicates that the water-quality question after Nolo concerns surface and coastal receiving waters primarily, rather than treated drinking water.

EVIDENCE LIMITATION

Co-location indicates concentrated exposure, not independent confirmation, causation or impact. The relationships among the layers are undocumented, and no sampling yet tests the receiving-water reading.

> **"The places most exposed to Nolo were, in many cases, the places least able to absorb another storm."**

True Elements' analysis describes Nolo as the third hurricane-related event to reach the Hawaiian Islands within roughly two months. True Elements infers that a storm in quick succession meets systems not yet reset. Drainage may still hold debris, culverts and slopes may be weakened, and impaired waters may receive a new pollution pulse before the last has flushed. Households may face repeated cleanup costs and financial strain, especially in disadvantaged communities.

EVIDENCE LIMITATION

The earlier events are not named, dated or documented, so the sequence is reported, unverified context. The cumulative mechanism is plausible but depends on that sequence and on post-storm conditions that the analysis does not document.

DECISION CONTEXT

What Would Reduce Uncertainty Fastest

Considerations for qualified agencies and operators, not prescribed actions

The convergence raises the question of whether post-storm inspection has reached the highest-exposure sites. On Oʻahu, these include Mapunapuna, Keʻehi Lagoon, Honolulu Harbor, Pearl Harbor-Hickam, airport access routes and H-1 interchanges. On Hawaiʻi Island, they include Honokōhau Harbor, the Kailua-Kona waterfront and Kaʻū roads and gulches. Because the affected waters were impaired beforehand, a monitoring program confined to drinking water would miss the exposure that the evidence emphasizes. Agencies may consider extending sampling to urban streams, canals, harbors, beaches and

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reef-adjacent waters. For districts with elevated linguistic isolation, True Elements favors multilingual, visual updates distributed through trusted community channels.

OPERATIONAL TAKEAWAY

The highest-value next information is observational: inspection results at the convergence sites and surface-water sampling in impaired receiving waters. Either would convert mapped exposure into confirmed condition or rule it out.

EVIDENCE LIMITATION

These are considerations, not directives. Engineering judgments are outside the report. Open questions include whether Nolo flooded, surged or damaged any of these places, and the exposure of the Wai‘anae Coast, which was not fully assessed.

READ THE FULL REPORT

The complete evidence, sources and limitations

The full Water Intelligence Event Report for Issue 005 documents every data layer, measurement, qualification and source behind this Summary.

Full Report: trueelements.com/water-intelligence-series/#issue-005

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True Elements is a water intelligence company. Its TrueQi™ Water Intelligence System, supported by Argus™ Ai, connects trusted public water, weather and hazard data into a traceable operating picture for consequential decisions.

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