

Water Safety and Drownings in Hawaii

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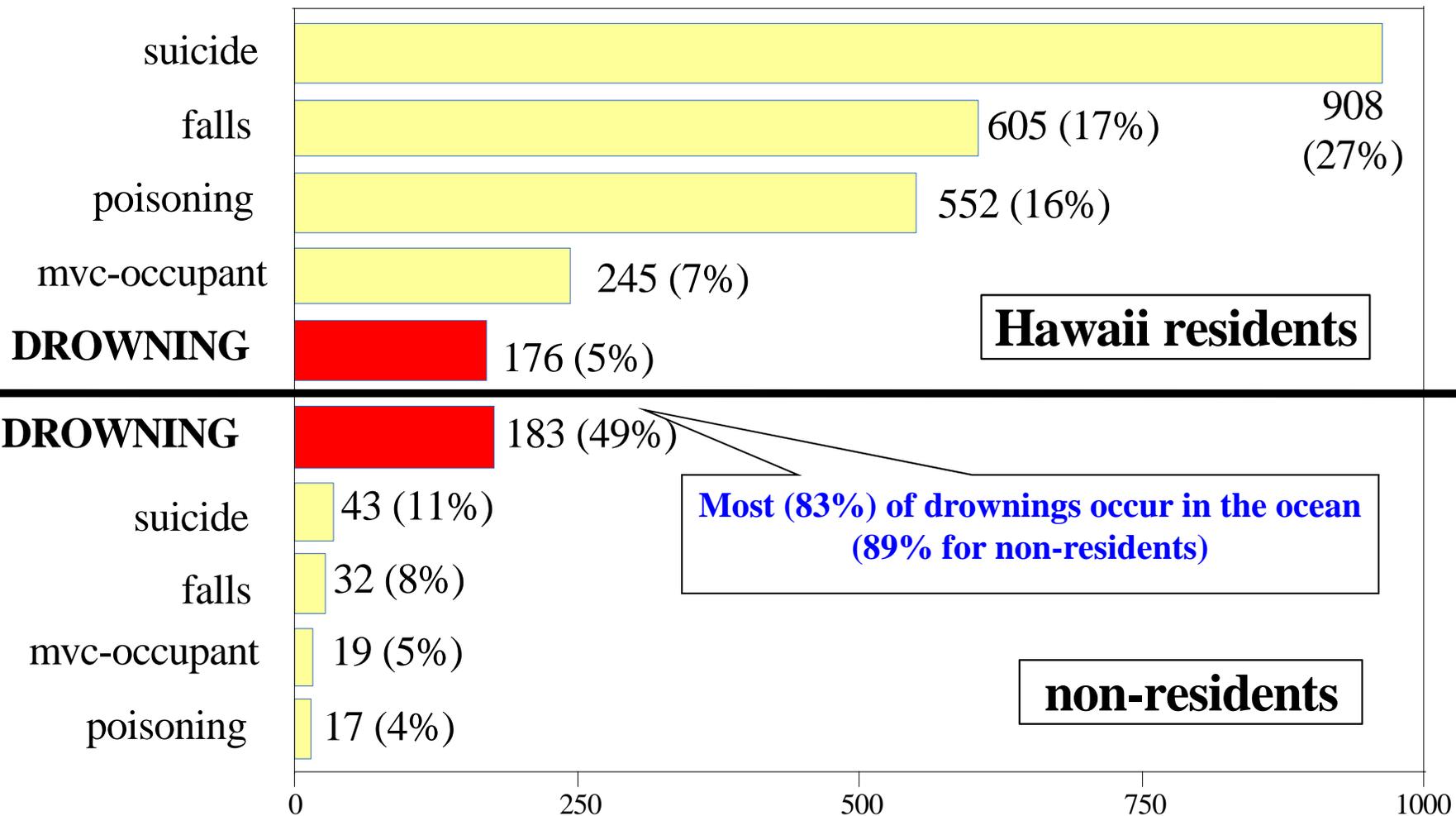
Overview of presentation

- **Part 1: Ocean drownings**
 - *Rate comparisons*
 - *County specific trends, data, and maps*
 - *Locations, victim residence, and seasonality (October-March vs. April-September)*
- **Part 2: Nonfatal drownings in ocean**
 - *Survival, related to EMS response times*
- **Part 3: Spinal cord injuries**
 - *Injuries related to ocean activities*

Leading mechanisms of fatal injuries in Hawaii, by 5-year periods, 1995-2014

	1995-1999	2000-2004	2005-2009	2010-2014
1	motor vehicle (673)	motor vehicle (728)	motor vehicle (707)	drug poisoning (796)
2	drug poisoning (390)	falls (526)	falls (646)	falls (743)
3	suffocation (389)	suffocation (464)	drug poisoning (618)	motor vehicle (614)
4	falls (384)	drug poisoning (426)	suffocation (504)	suffocation (604)
5	DROWNING (309)	DROWNING (306)	DROWNING (373)	DROWNING (385)
6	firearm (257)	firearm (215)	firearm (166)	firearm (217)
7	cut/pierce (60)	poisoning (95)	poisoning (147)	poisoning (84)
8	poisoning (52)	other transport (67)	cut/pierce (58)	cut/pierce (66)
9	fires and burns (49)	cut/pierce (50)	other transport (38)	other transport (46)
10	other transport (42)	fires and burns (28)	fires and burns (24)	fires and burns (32)

Leading causes of fatal injuries in Hawaii, 2010-2014

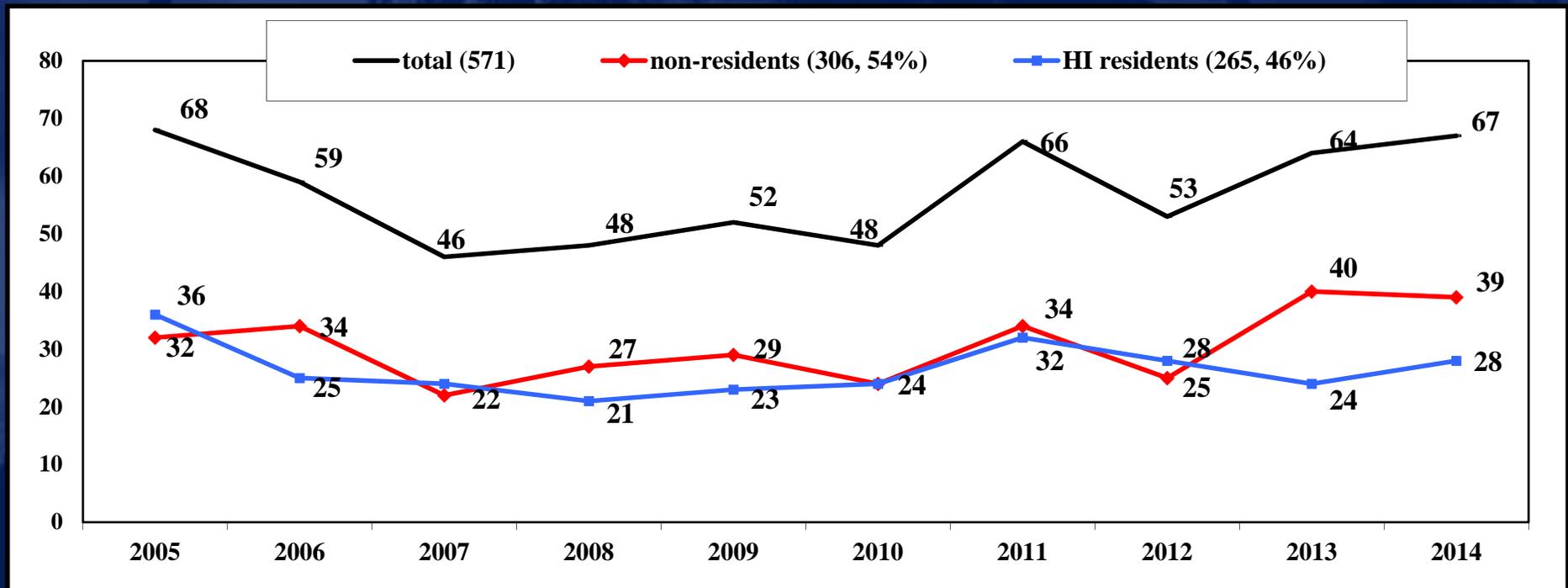




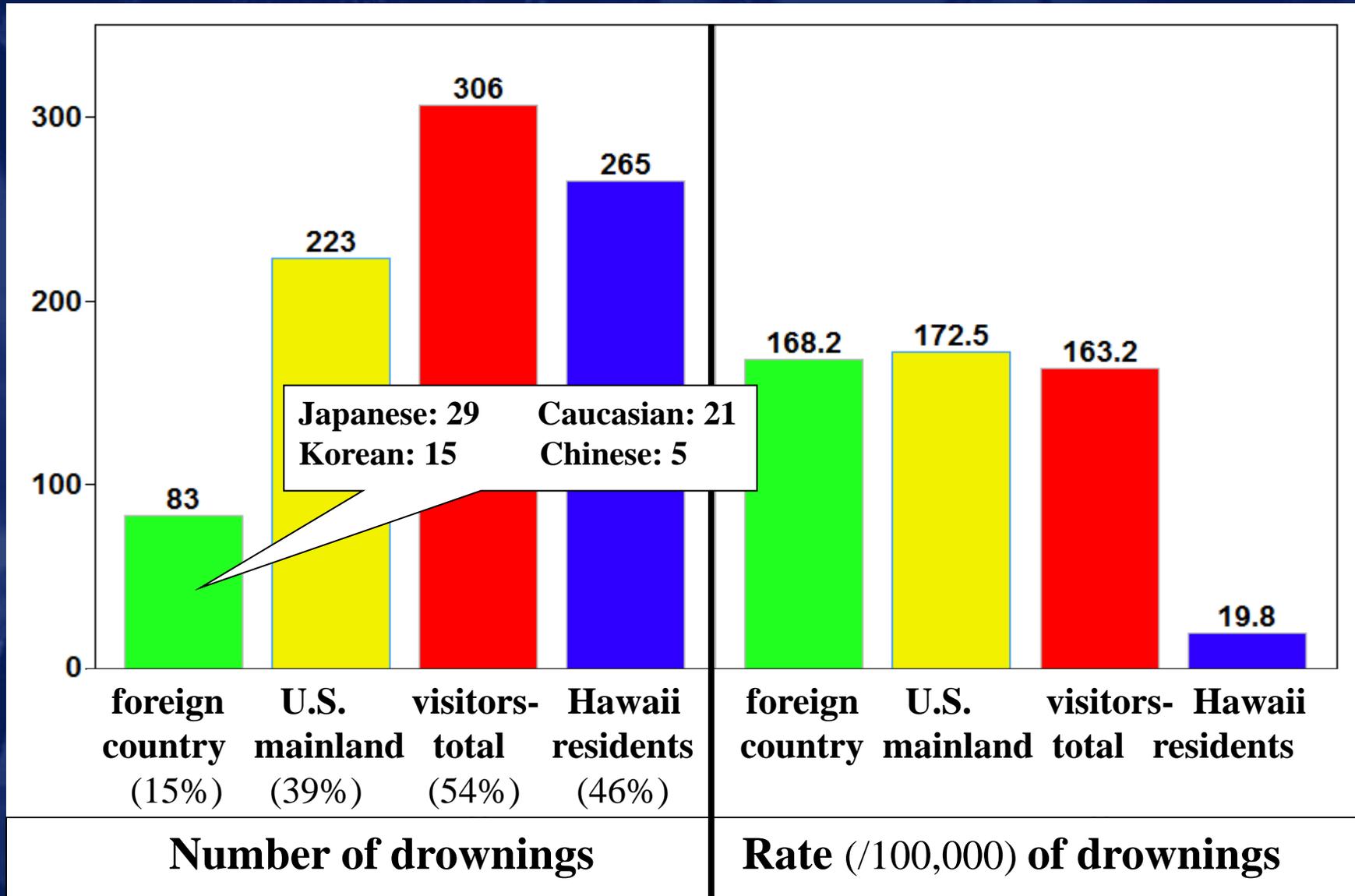
Ocean drownings, 2005-2014

Ocean drownings in Hawaii, 2005-2014

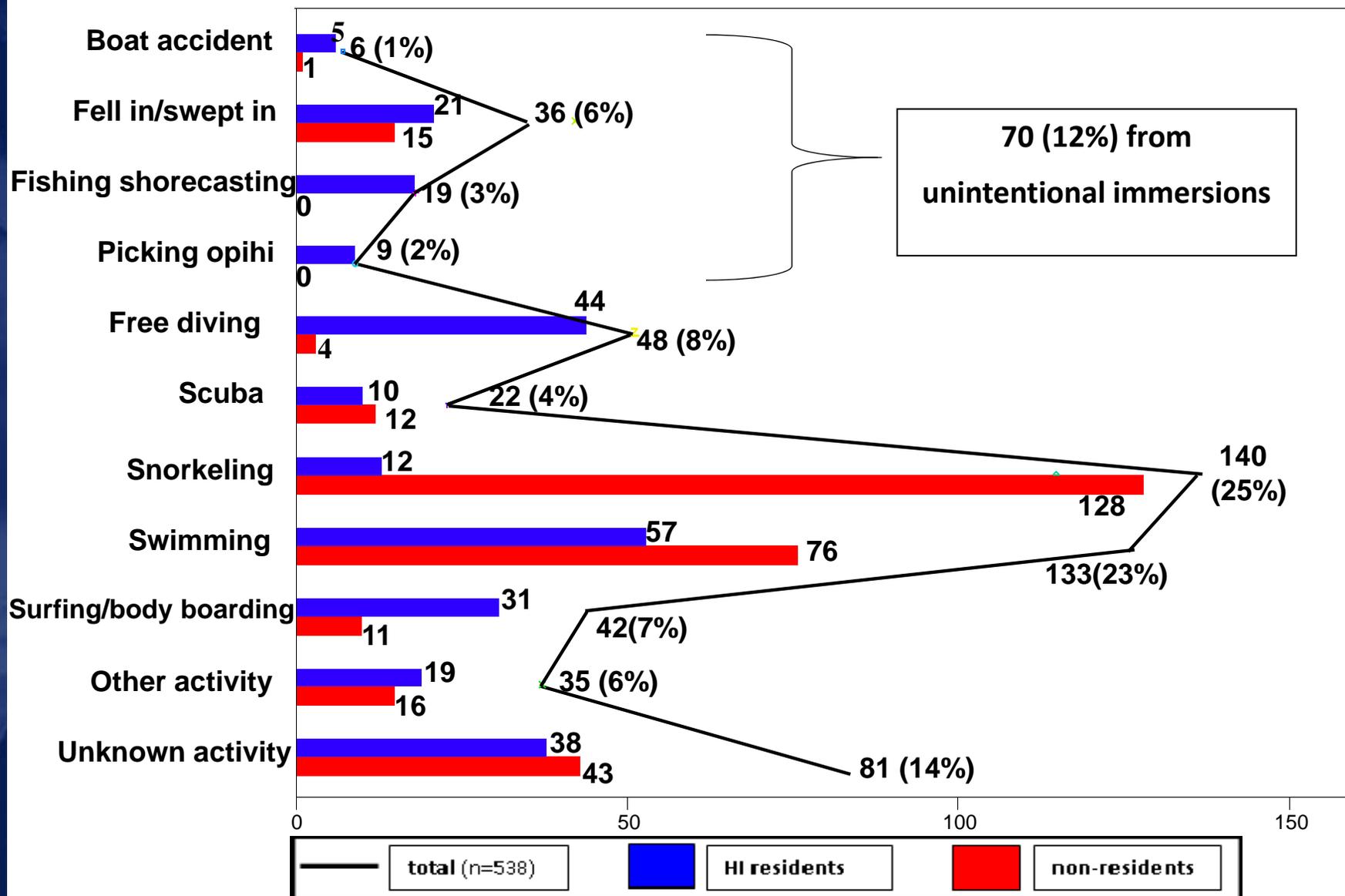
- Average of 57 per year (range from 46 to 68)
 - No clear trend
- Slightly more non-residents (54%) than Hawaii residents (46%)
 - Varies by county: ~56% for Hawaii and Oahu, ~75% for Kauai and Maui
 - Widening gap? – 60% of victims in last 2 years were non-residents



Number and ten-year rate of ocean drownings in Hawaii, by residence of victim, 2005-2014

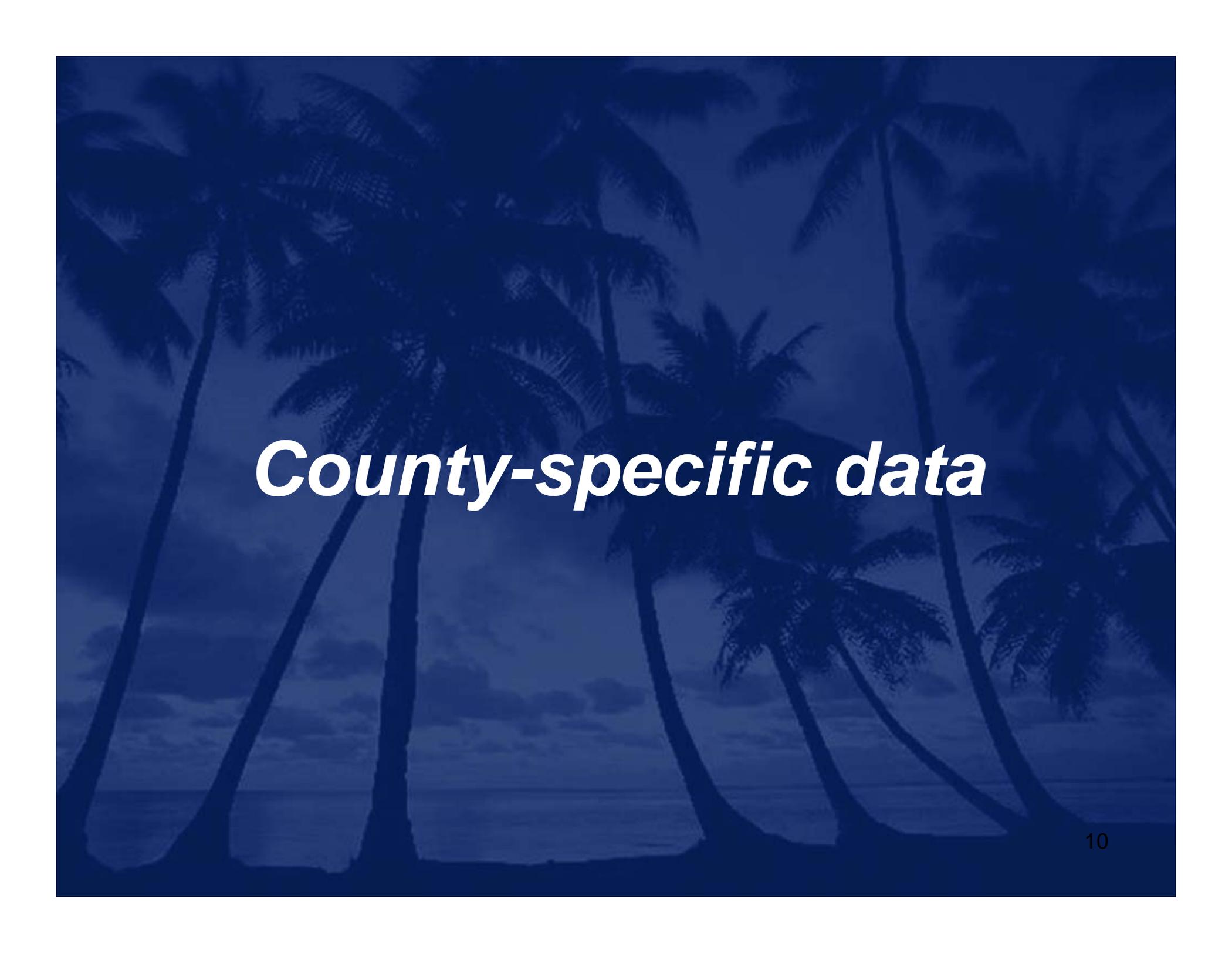


Ocean drownings in Hawaii, by residence and activity of victim, 2005-2014

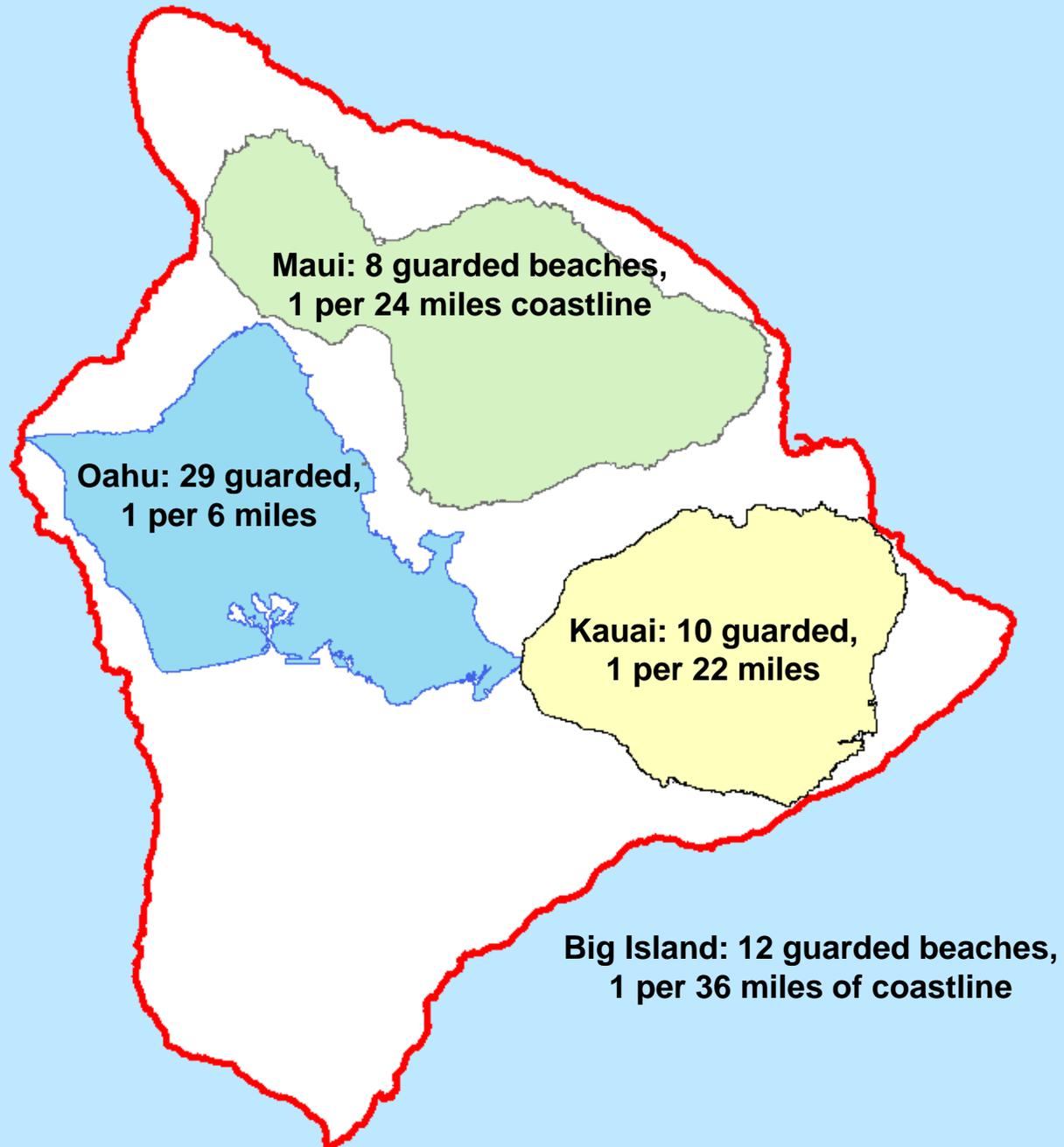


Summary of autopsy records for drowning victims, Honolulu, Maui and Kauai counties, 2004-2011

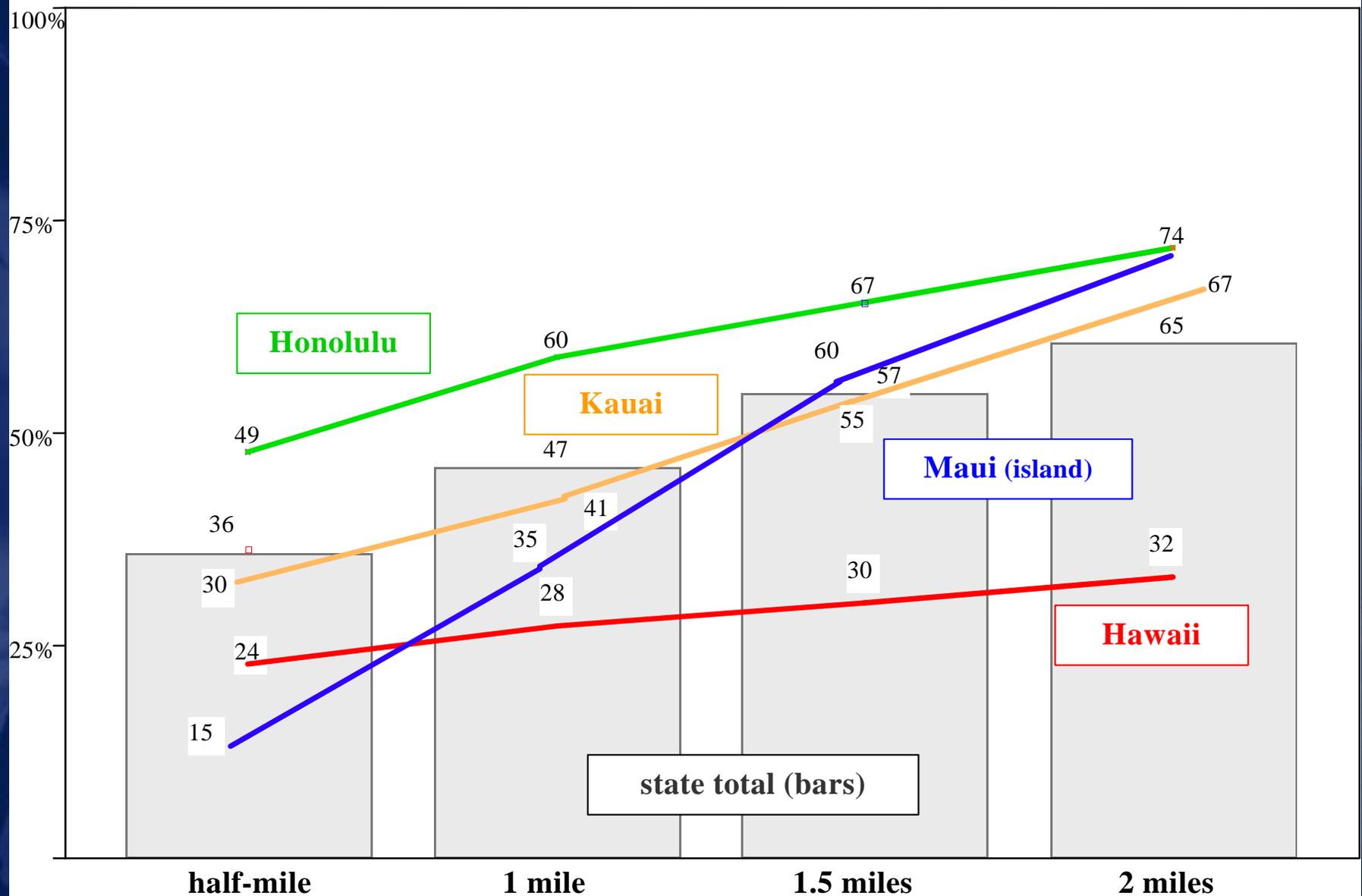
- **Intrinsic factors were prevalent among 67% of the victims of ocean drownings**
 - ***Circulatory diseases (mostly heart disease): 45%***
 - *Most (65%) of victims over 50 years of age*
 - ***Alcohol use 14%***
 - *Positive illicit drug tests for 11%*
 - ***Other factors: traumatic injuries (10%), and seizure disorders (3%)***



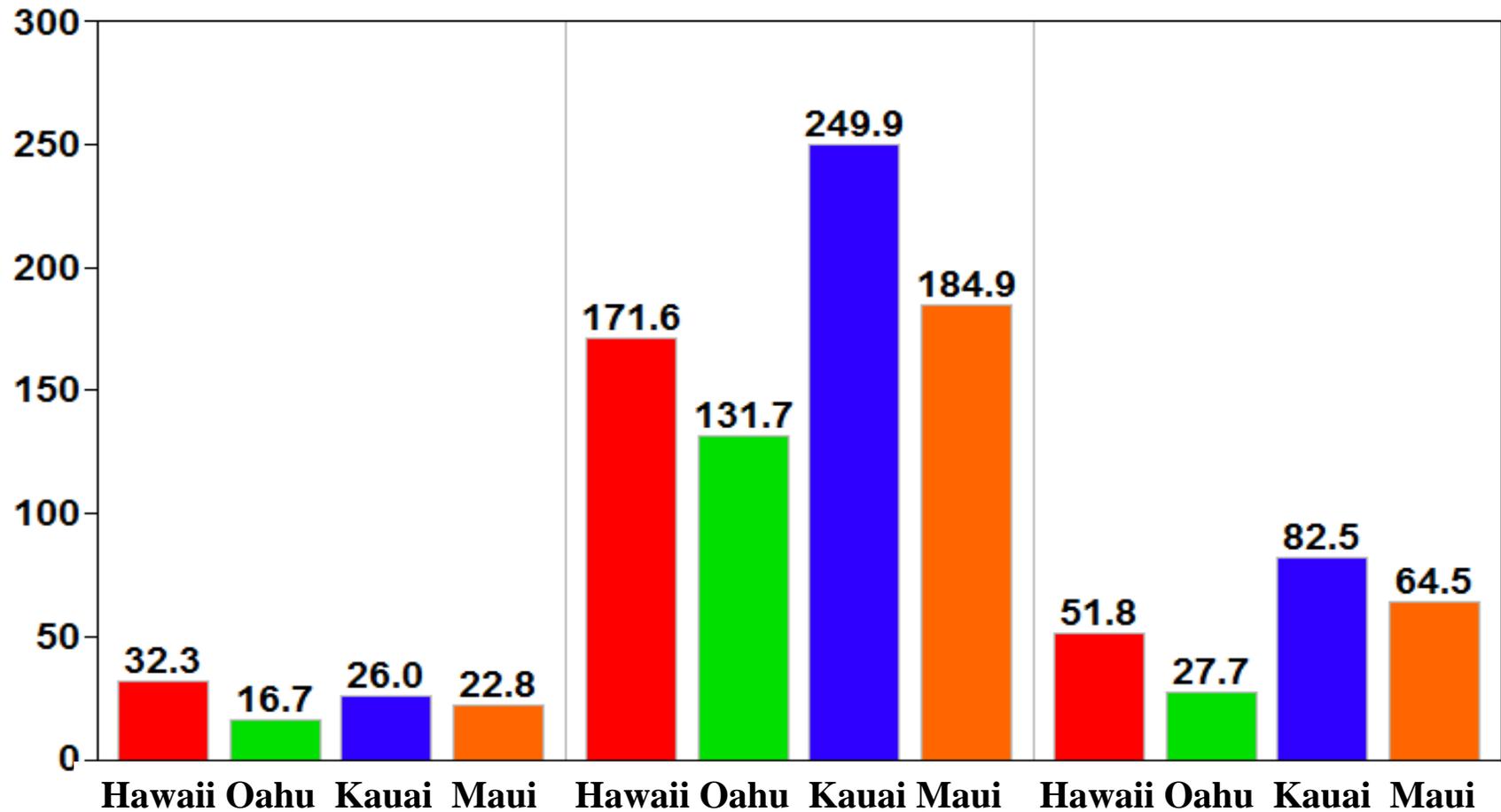
County-specific data



Ocean drownings, in proximity to lifeguard towers, 2005-2014



Ten-year rate (/100,000) of ocean drownings in Hawaii, by residence status and county, 2005-2014



Hawaii residents
(state ave. = 20.0)

non-residents
(state ave. = 164.8)

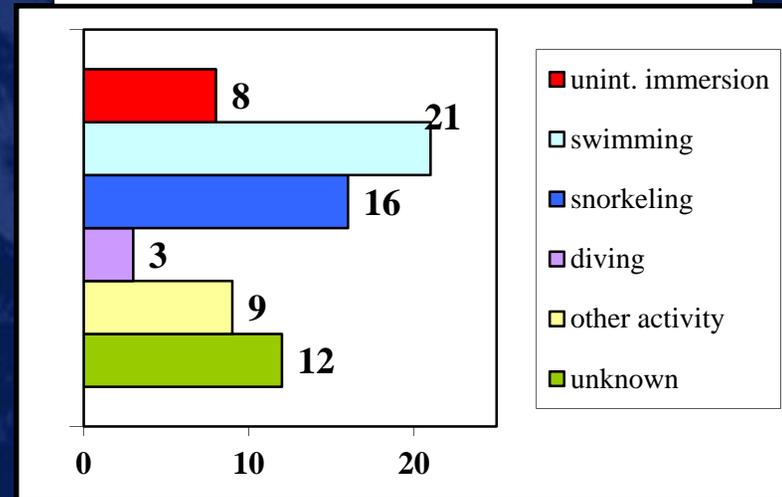
state total
(state ave. = 39.0)

Ocean drownings on Kauai, 2005-2014

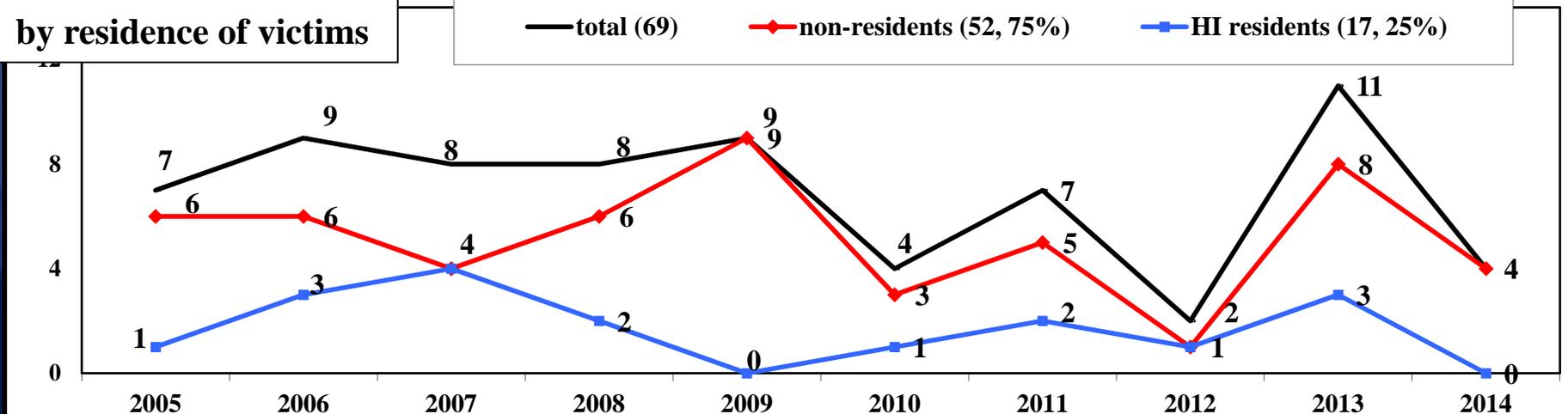
• Summary

- **69 total, 2 to 11 per year**
- **No clear trend**
- **Mostly (75%) non-residents**
- **Activity: Swimming (30%) and snorkeling (23%)**

Number of drownings, by activity

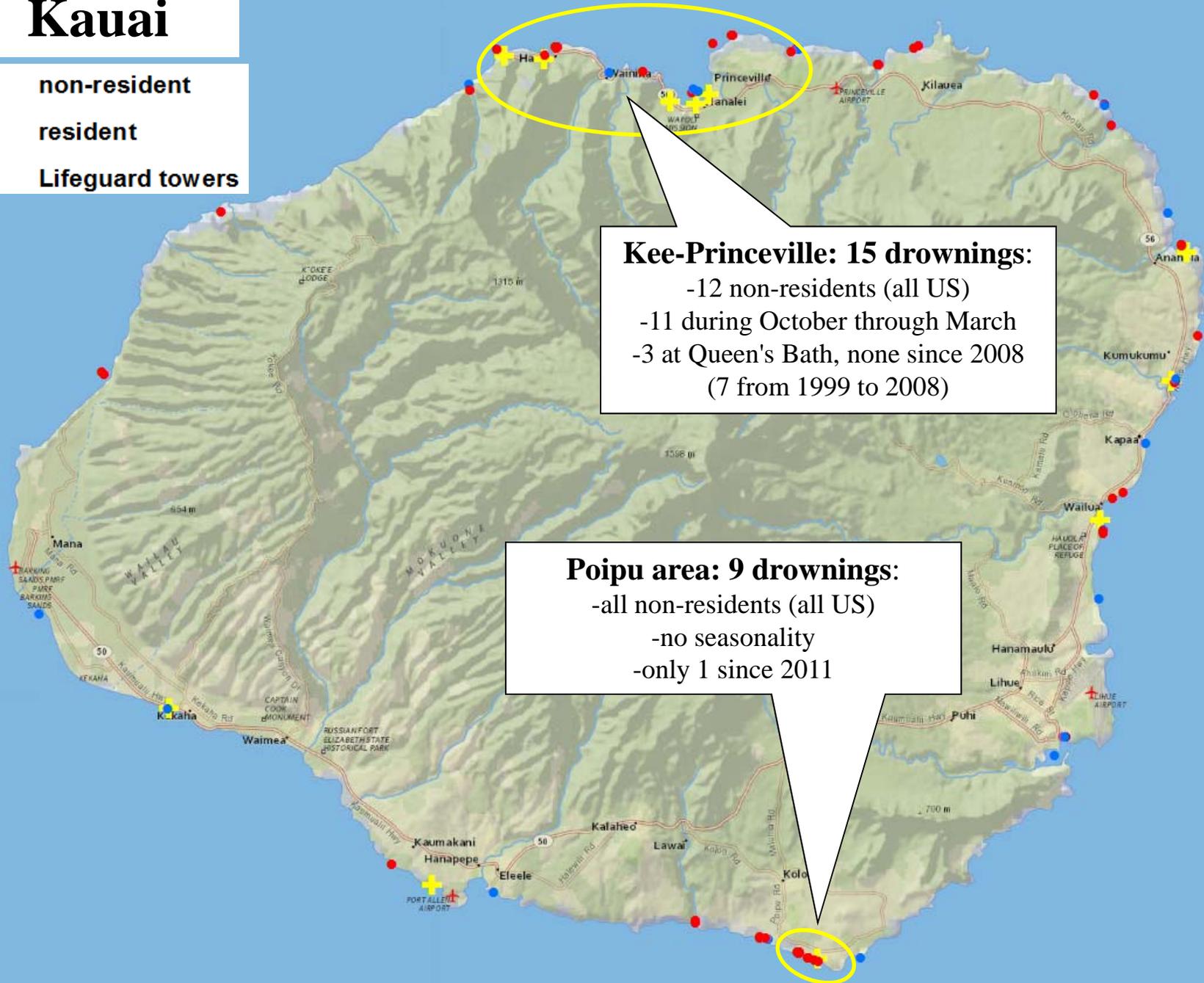


Annual trends,
by residence of victims



Kauai

- non-resident
- resident
- + Lifeguard towers

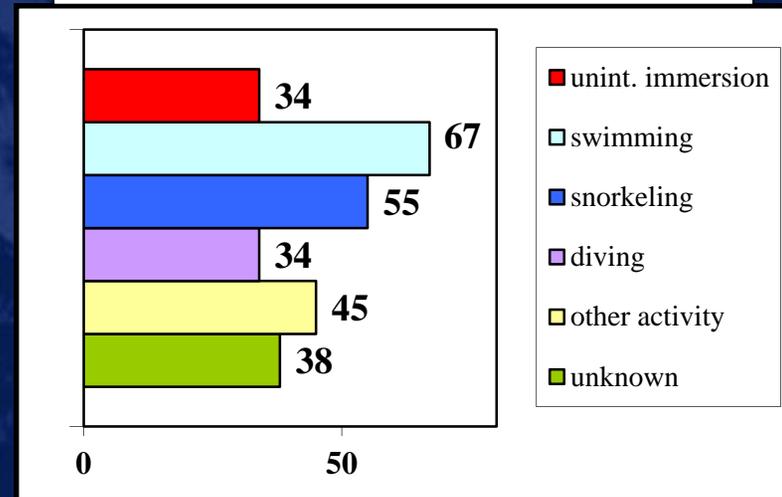


Ocean drownings on Oahu, 2005-2014

- Summary

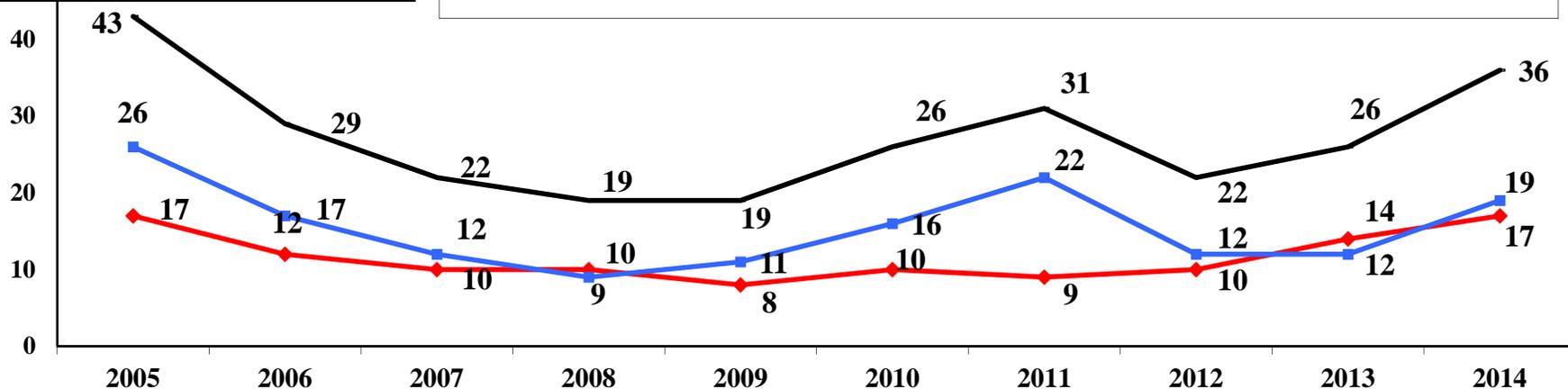
- **273 total, 19 to 43 per year**
- **No consistent trend**
- **Slightly more residents (57%)**
-
- **Activity: wide distribution**

Number of drownings, by activity



Annual trends,

by residence of victims



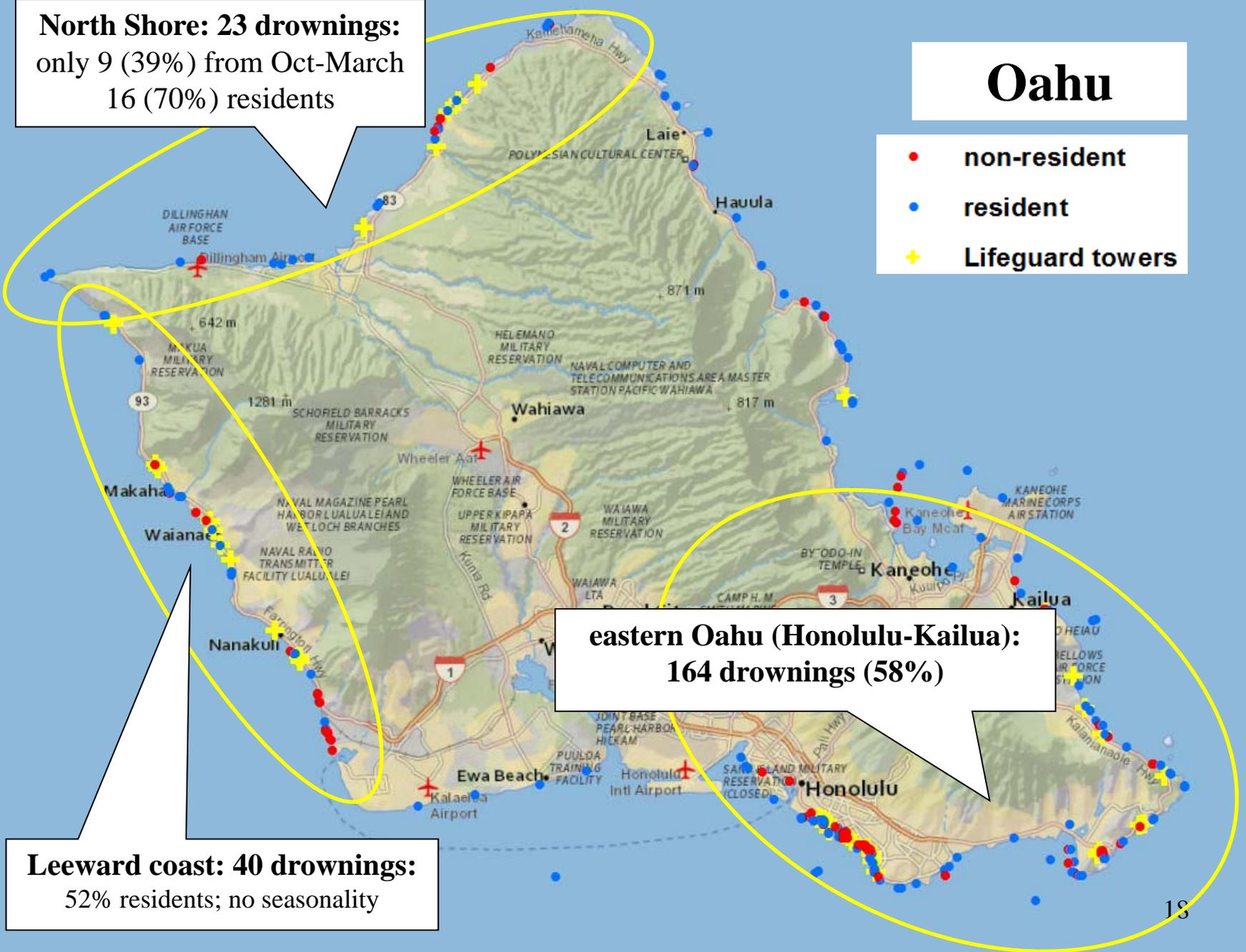
North Shore: 23 drownings:
only 9 (39%) from Oct-March
16 (70%) residents

Oahu

- non-resident
- resident
- + Lifeguard towers

eastern Oahu (Honolulu-Kailua):
164 drownings (58%)

Leeward coast: 40 drownings:
52% residents; no seasonality



east Oahu

Residence status

- non-resident
- resident

Point Panic-Ala Wai marina: 24:
-19 residents

Hilton Hawaiian-Kapahulu: 38:
-31 non-residents (10 US, 21 foreigners)

Hanauma: 27:
-25 non-residents
-8 US, 15 foreigners

Kapahulu-Portlock: 35 :
-26 residents
-12 at Portlock/Spitting Cave

Seasonality

- April-Sept
- Oct-March



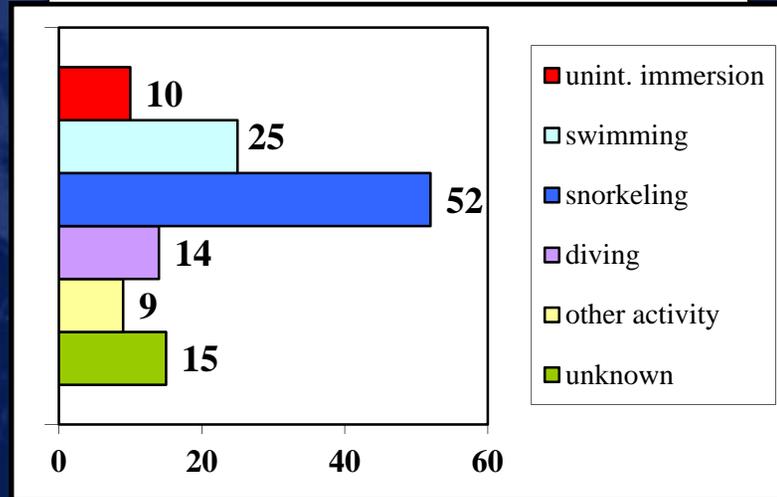
South Shore: 110 drownings:
-82 (75%) from April-September

Ocean drownings on Maui County, 2005-2014

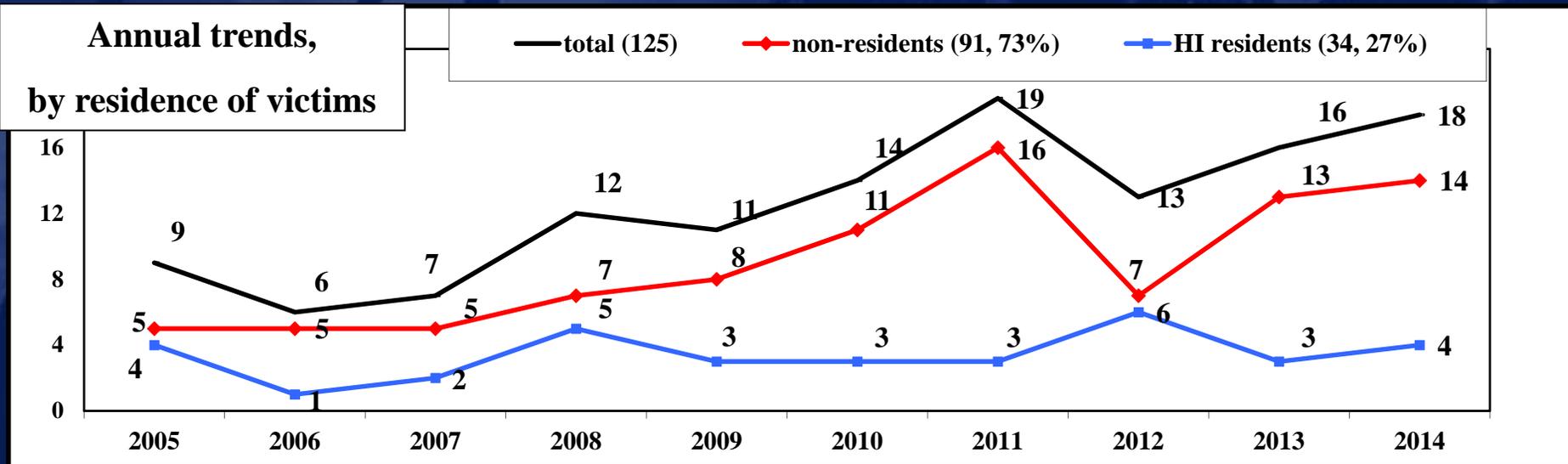
- **Summary**

- **125 total, 6 to 19 per year**
 - (115 on Maui, 7 Molokai, 3 on Lanai)
- **Increasing trend**
- **Mostly (73%) non-residents**
- **Activity: Snorkeling (42%) and swimming (20%)**

Number of drownings, by activity



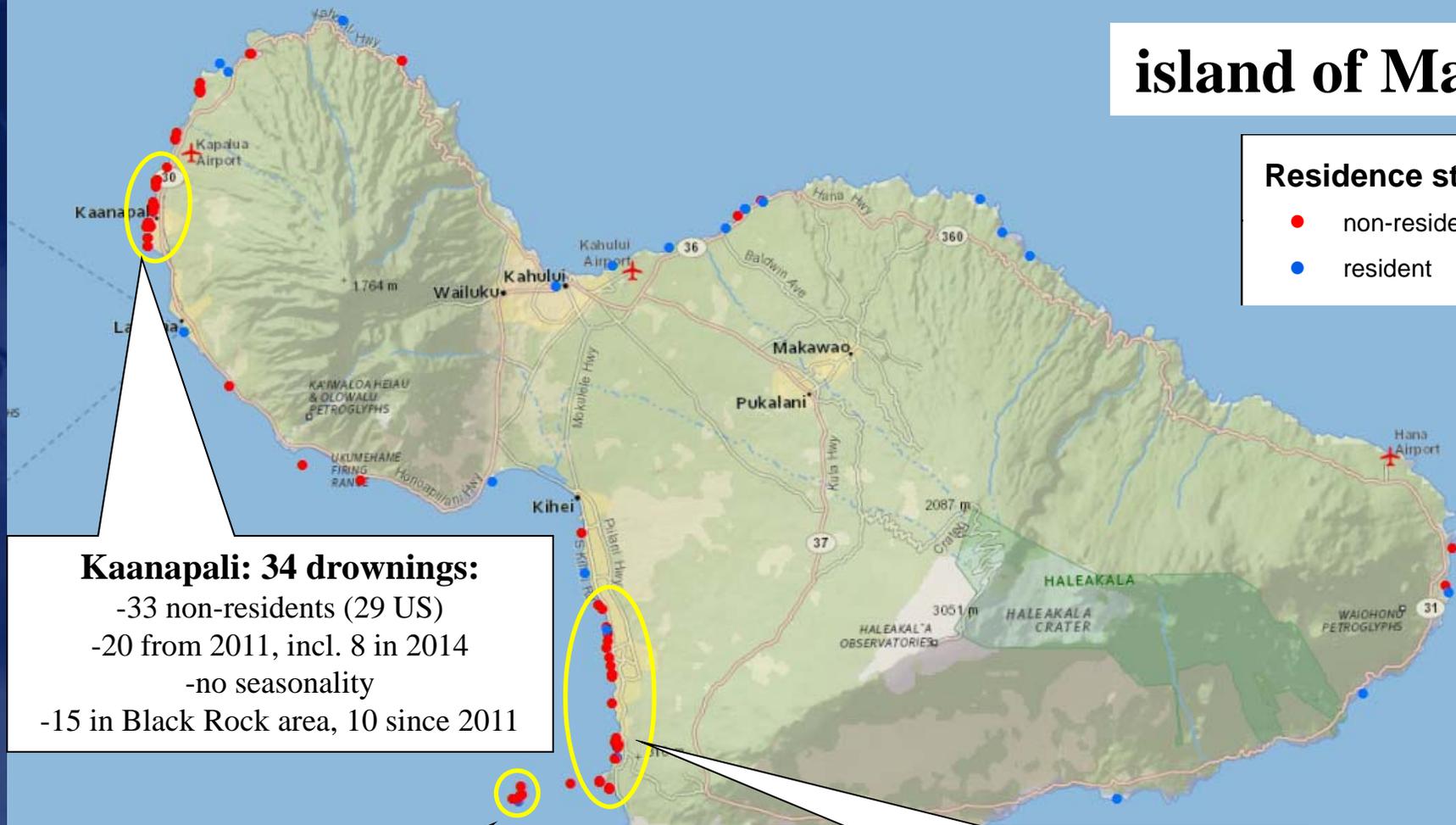
Annual trends, by residence of victims



island of Maui

Residence status

- non-resident
- resident



Kaanapali: 34 drownings:

- 33 non-residents (29 US)
- 20 from 2011, incl. 8 in 2014
- no seasonality
- 15 in Black Rock area, 10 since 2011

Molokini: 8

- 7 from 2011-2014

Kamaole-Oneloa (Big Beach) 27:

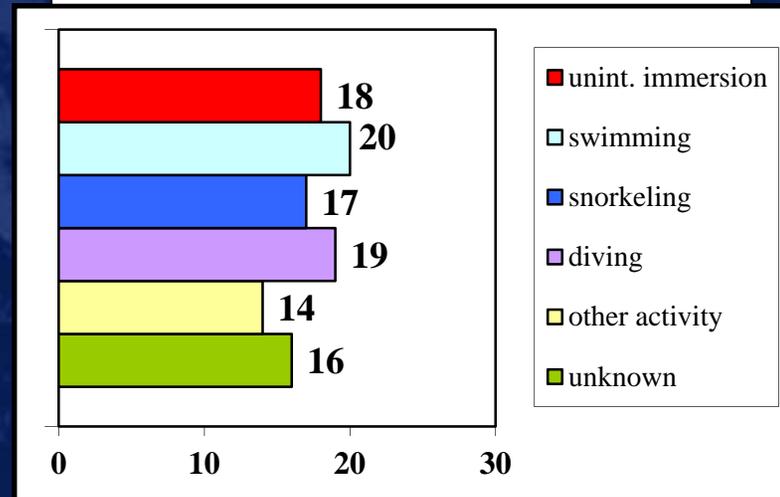
- 24 non-residents (20 US)
- 15 since 2010
- little seasonality
- 6 at Makena Big (3) or Little (3) Beach, but only 2 since 2010

Ocean drownings on Hawaii County, 2005-2014

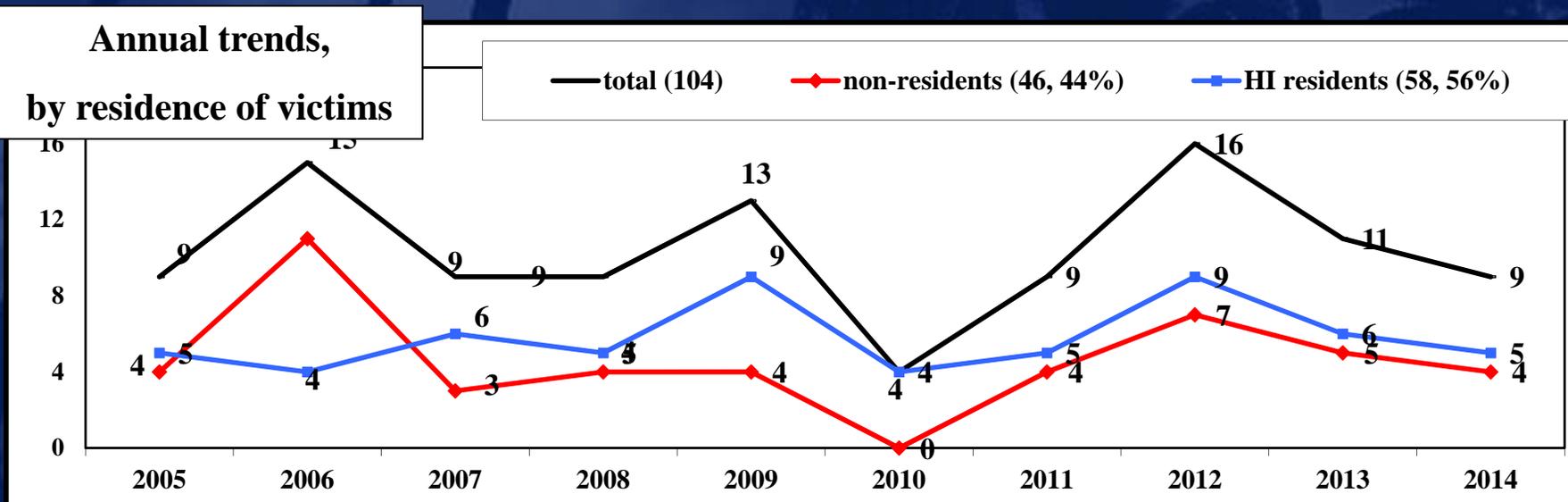
- **Summary**

- **104 total, 4 to 16 per year**
- **No consistent trend**
- **Slightly more residents (56%)**
- **Activity: wide distribution**

Number of drownings, by activity



Annual trends, by residence of victims



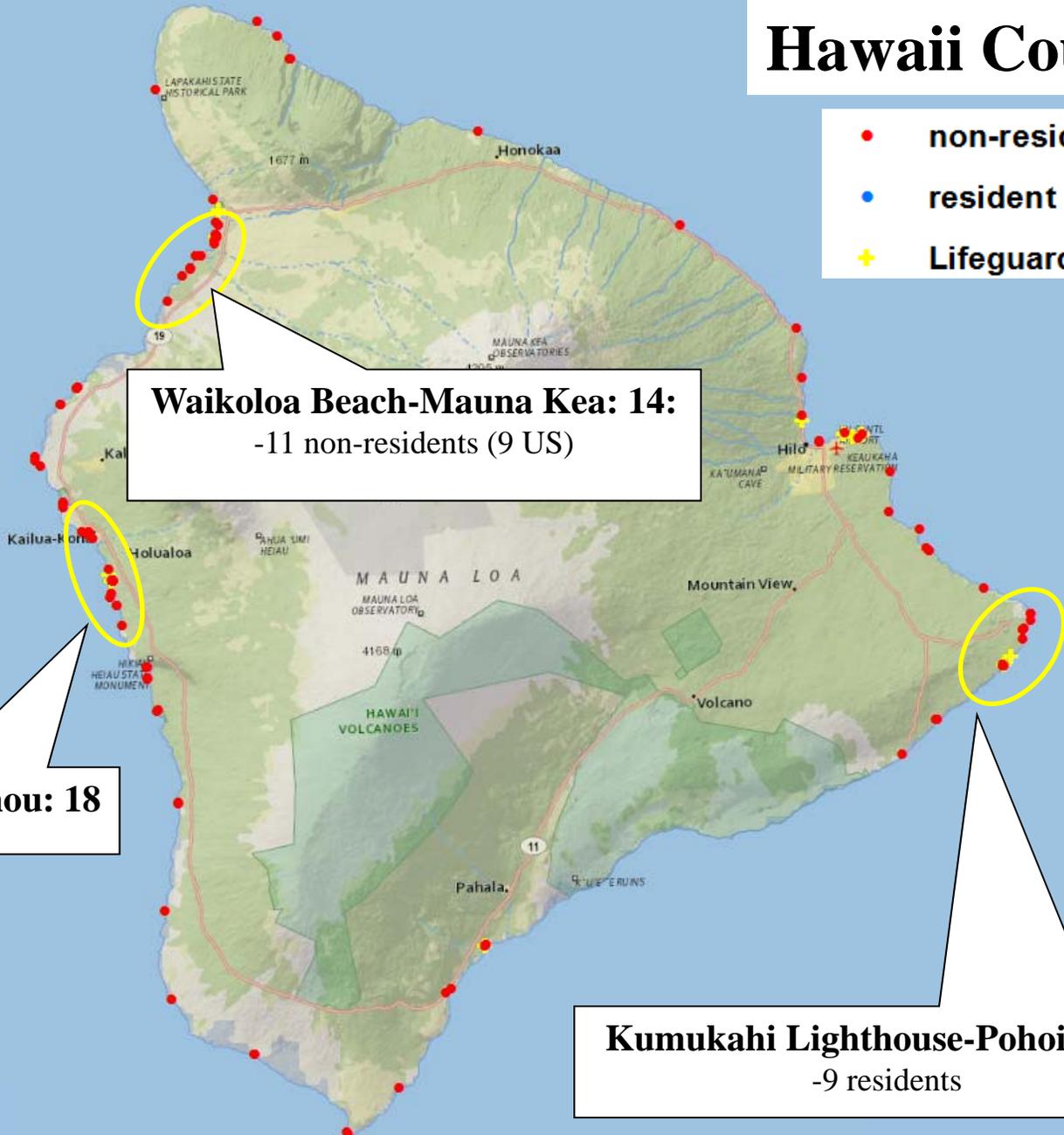
Hawaii County

- non-resident
- resident
- + Lifeguard towers

Waikoloa Beach-Mauna Kea: 14:
-11 non-residents (9 US)

Kailua Bay-Keauhou: 18

Kumukahi Lighthouse-Pohoiki: 10:
-9 residents

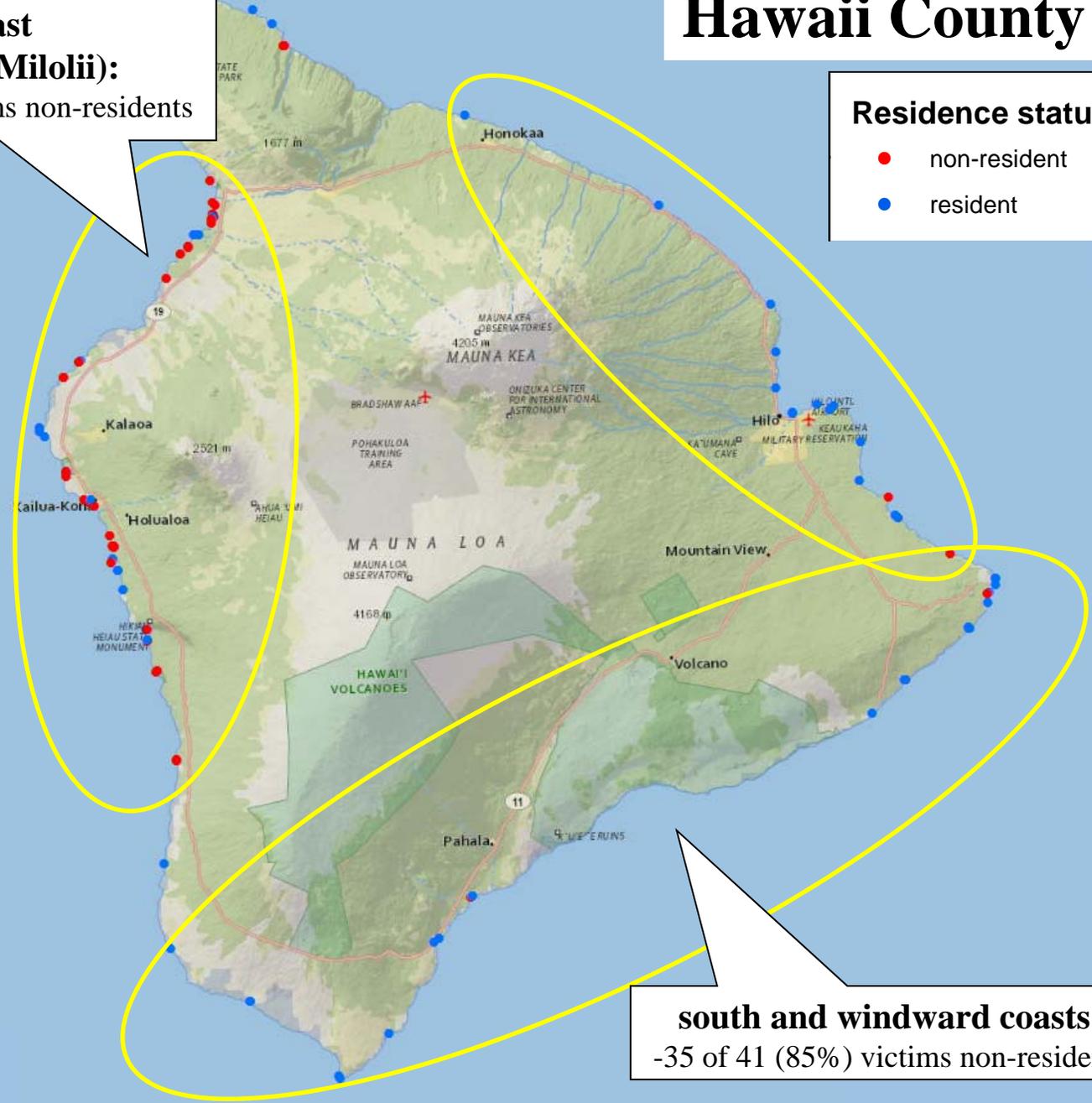


Hawaii County

**west coast
(Mauna Kea-Milolii):**
-37 of 55 (67%) victims non-residents

Residence status

- non-resident
- resident

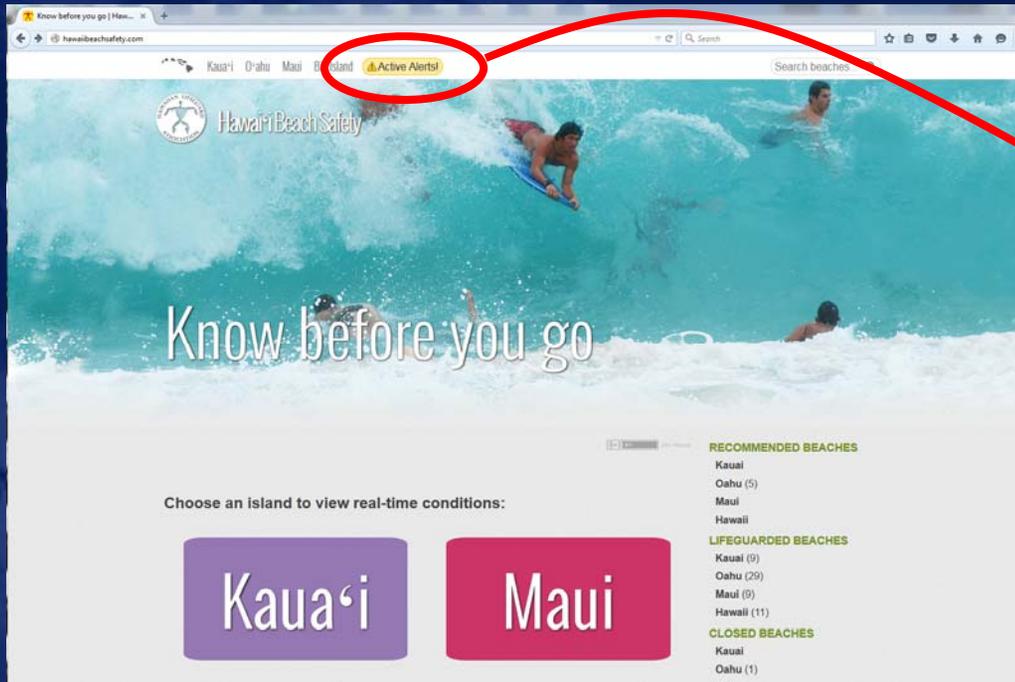


south and windward coasts:
-35 of 41 (85%) victims non-residents

Prevention strategies

- **Education:**
 - **General:** websites, printed media, in-flight messaging, baggage claim PSA's, hotel TV networks, etc.
 - **On-site:** signage, rescue tubes, and most importantly, lifeguards
 - Oahu tower lifeguards logged ~1.4 million “public contacts” and ~900,000 “preventive actions” in 2014
- **Emergency response:**
 - **Ocean safety/lifeguards**
 - Increasingly mobile agencies
 - **Fire Departments, USCG, other BLS 1st responders**
 - **EMS**
 - **Definitive care**

hawaiibeachsfaty.com/



Choose an island to view real-time conditions:

Kaua'i **Maui**

O'ahu **Hawai'i**

RECOMMENDED BEACHES
Kauai
Oahu (5)
Maui
Hawaii

LIFEGUARDED BEACHES
Kauai (9)
Oahu (29)
Maui (9)
Hawaii (11)

CLOSED BEACHES
Kauai
Oahu (1)

ACTIVE ALERTS
Kauai (1)
Oahu (2)
Maui (1)
Hawaii (1)

Select Language [v]
Powered by Google Translate

Hawaii's ocean and beach conditions are as unique as the islands themselves. This website constantly monitors the surf, wind, and reports from public safety officials that directly affect the conditions for safety of Hawaiian beaches. Use the hazard signs below to quickly assess conditions and help you find the appropriate beach for your visit.

[Find your beach](#)

Hazard Ratings
Choose a beach that best matches your ability and comfort level in the water. For the safest beach experience select beaches with a normal caution level identified (yellow square).

- Caution**
Approach with caution, conditions can change. This is the safest level of nearshore or offshore conditions.
- High Hazard**
Conditions are hazardous. People are advised to stay out of the ocean.
- Extreme**
Conditions are extremely hazardous. People are advised to stay out of the ocean.

Shores
Two ratings are calculated for each beach. Choose the appropriate rating based on your activity.

BEACH & NEARSHORE
This describes the beach, shoreline and surf conditions. This information is important to beach goers, swimmers, snorkelers and surfers.

OFFSHORE
This describes the ocean conditions. This information is important for kayakers and boaters.

ACTIVE ALERTS



Hanauma Bay Closure

Repeats every week every Tuesday until Thu Dec 31 2015.
Tuesday, July 7, 2015 (All day)
Hanauma Bay Nature Preserve is closed each Tuesday.

Beaches: Hanauma Bay

ADVISORY



High Surf Advisory

Tuesday, July 7, 2015 - 3:40am to Wednesday, July 8, 2015 - 6:00pm

...HIGH SURF ADVISORY FOR SOUTH FACING SHORES OF ALL ISLANDS THROUGH WEDNESDAY... HIGH SURF ADVISORY REMAINS IN EFFECT UNTIL 6 PM HST WEDNESDAY... A HIGH SURF ADVISORY REMAINS IN EFFECT UNTIL 6 PM HST WEDNESDAY. * SURF...ALONG SOUTH FACING SHORES... 7 TO 10 FEET THROUGH TONIGHT. * TIMING...THROUGH TONIGHT. * IMPACTS... MODERATE...EXPECT STRONG BREAKING WAVES...SHORE BREAK...AND STRONG LONGSHORE AND RIP CURRENTS MAKING SWIMMING DIFFICULT AND DANGEROUS. Beaches: Waikiki - Dukes, Hanauma Bay, Waikiki - Kapiolani Park, Waikiki - Queens, Waikiki - Kuhio, Maui Beach, Makaha Beach, Nanakuli Beach, Depot's Beach, Pokai Beach, Keawa'ula Beach, Sans Souci, Sandy Beach, Ala Moana Beach, Magic Island Lagoon, Hanakao'o Park, Kamaole 1, Kamaole 2, Kamaole 3, Kanaha Beach Park, Baldwin Beach Park, Ho'okipa Beach Park, Makana State Park, Spencer Beach Park, White Sands Beach Park, Kahalu'u Beach Park, Ahalanui Park, Richardson Ocean Park, Lelani Beach Park, Pohoiki Beach, Onakahakaha Beach Park, Hapuna Beach Park, Carlsmith Beach Park, Honoli'i Beach Park, Haena Beach Park, Ke'e Beach, Hanalei Bay, Anahola Beach Park, Kealia Beach Park, Lydgate Beach, Lydgate Pond, Poipu Beach Park, Salt Pond Beach Park, Kekaha Beach Park

TYPES OF ALERTS

These alerts are listed in order of lowest-to-highest order of concern.

- Statement**
A statement is issued to advise the community regarding events that are scheduled or can be reasonably predicted to happen that may affect beach or ocean usage.
- Watch**
A watch is issued to allow time for preparation for a beach event.
- Advisory**
An advisory is issued when events are occurring that are not a direct threat to life or property.
- Warning**
Warnings are issued when a beach event is occurring or imminent and action is needed to protect life and property.
- Closure**
Access to this city beach park is being denied for public safety purposes.

Prevention strategies

- **Education:**
 - **General:** websites, printed media, in-flight messaging, baggage claim PSA's, hotel TV networks, etc.
 - **On-site:** signage, rescue tubes, and most importantly, lifeguards
 - Oahu tower lifeguards logged ~1.4 million “public contacts” and ~900.000 “preventive actions” in 2014
- **Emergency response:**
 - **Ocean safety/lifeguards**
 - Increasingly mobile agencies
 - **Fire Departments, USCG, other BLS 1st responders**
 - **EMS**
 - **Definitive care**



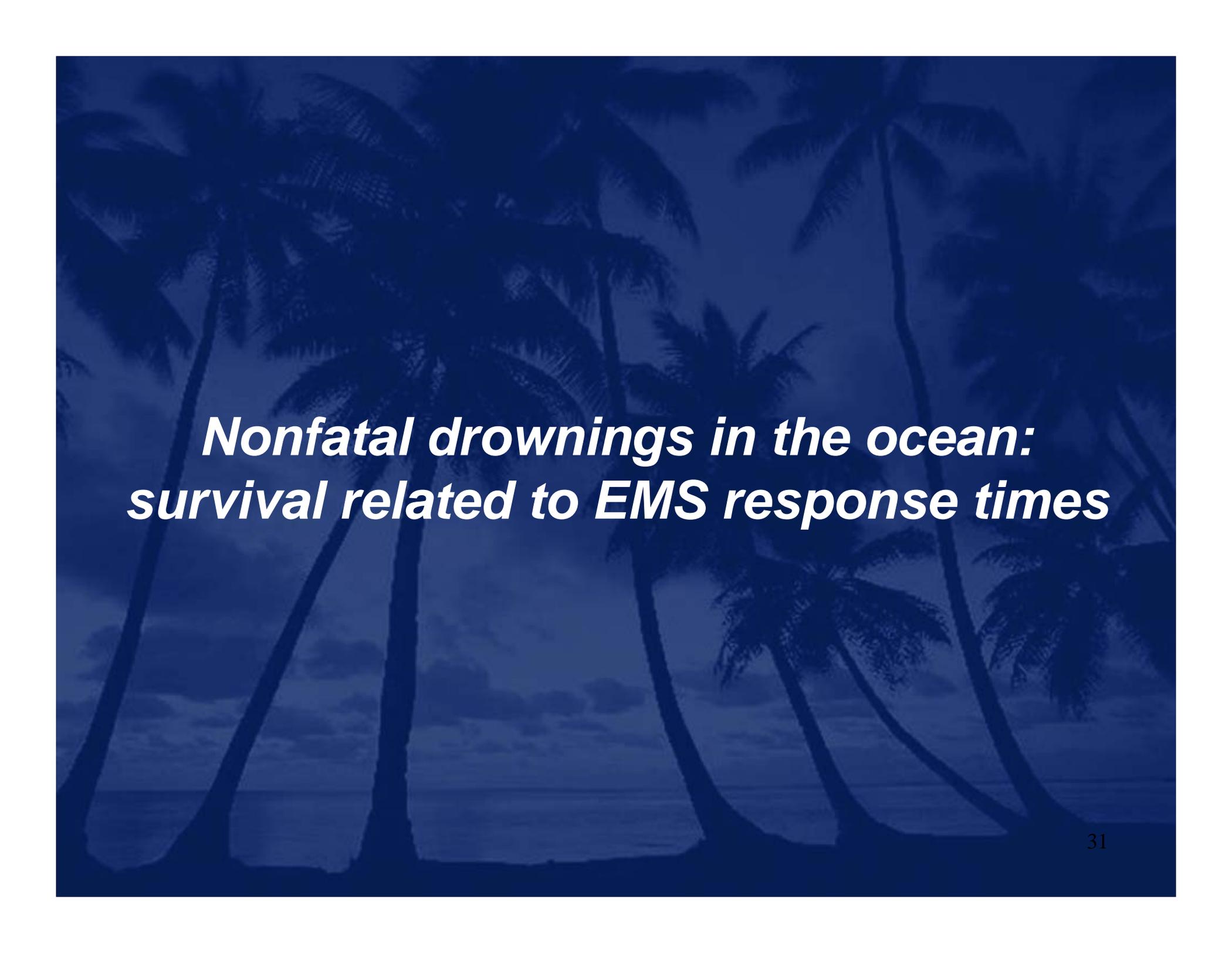
- **Rescue Tubes**

- **Started on Kauai, in 2009**
 - **Funded and maintained by Rotary**
 - **240+ tubes in place in Kauai → 100+ recorded saves**
- **Also being deployed in Hawaii County, Maui to follow**



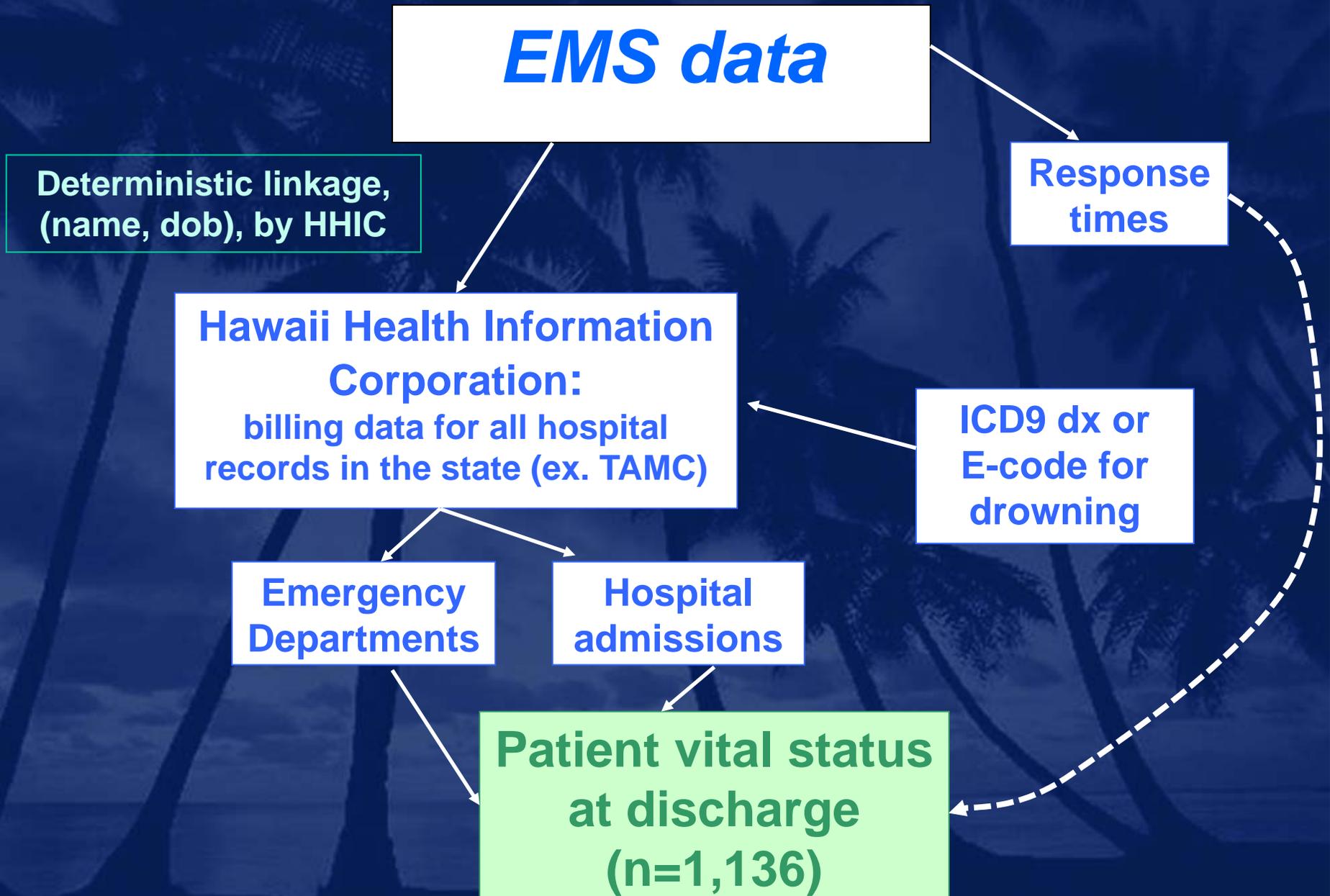
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***Nonfatal drownings in the ocean:
survival related to EMS response times***

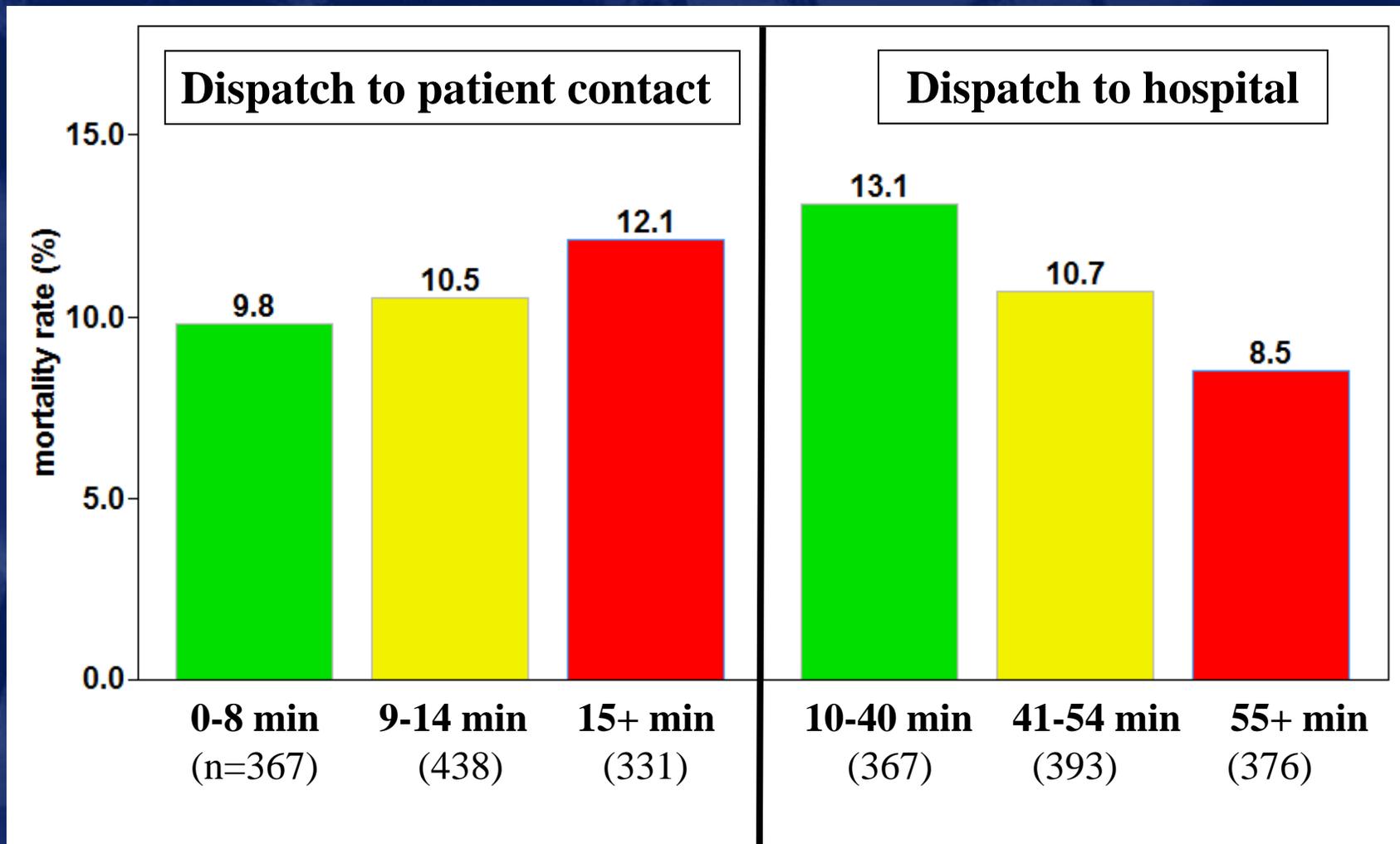
Summary of data linkage, 2008-2013



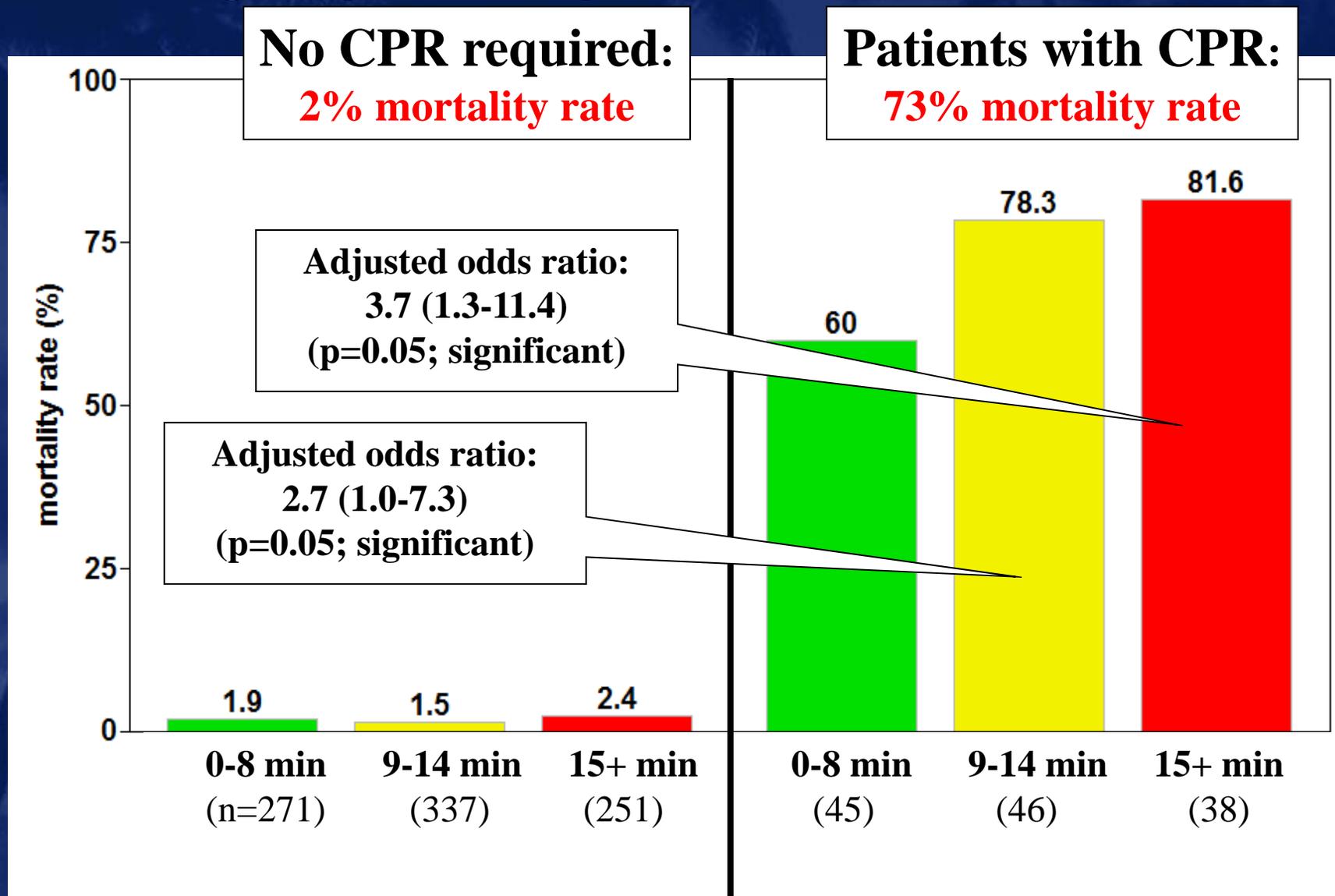
Linkage summary, 2008-2013

- **1,136 nonfatal drownings in ocean/saltwater**
 - **40%, or 450 on Oahu**
 - 183 in Hawaii County, 379 Maui, 124 Kauai
 - **Most patients (89%, or 1,014) survived**
 - 434 discharged from ED, 580 admitted
 - 11% (122) died
 - Fatality rate much higher among patients requiring EMS-administered CPR: 73% (94 of 129), vs. 1.9% (16 of 859)
 - **Transport time predictors:**
 - 1. Minutes from dispatch to patient contact
 - 2. Minutes from dispatch to hospital

Mortality rates among patients transported for nonfatal drownings, by two response time categories



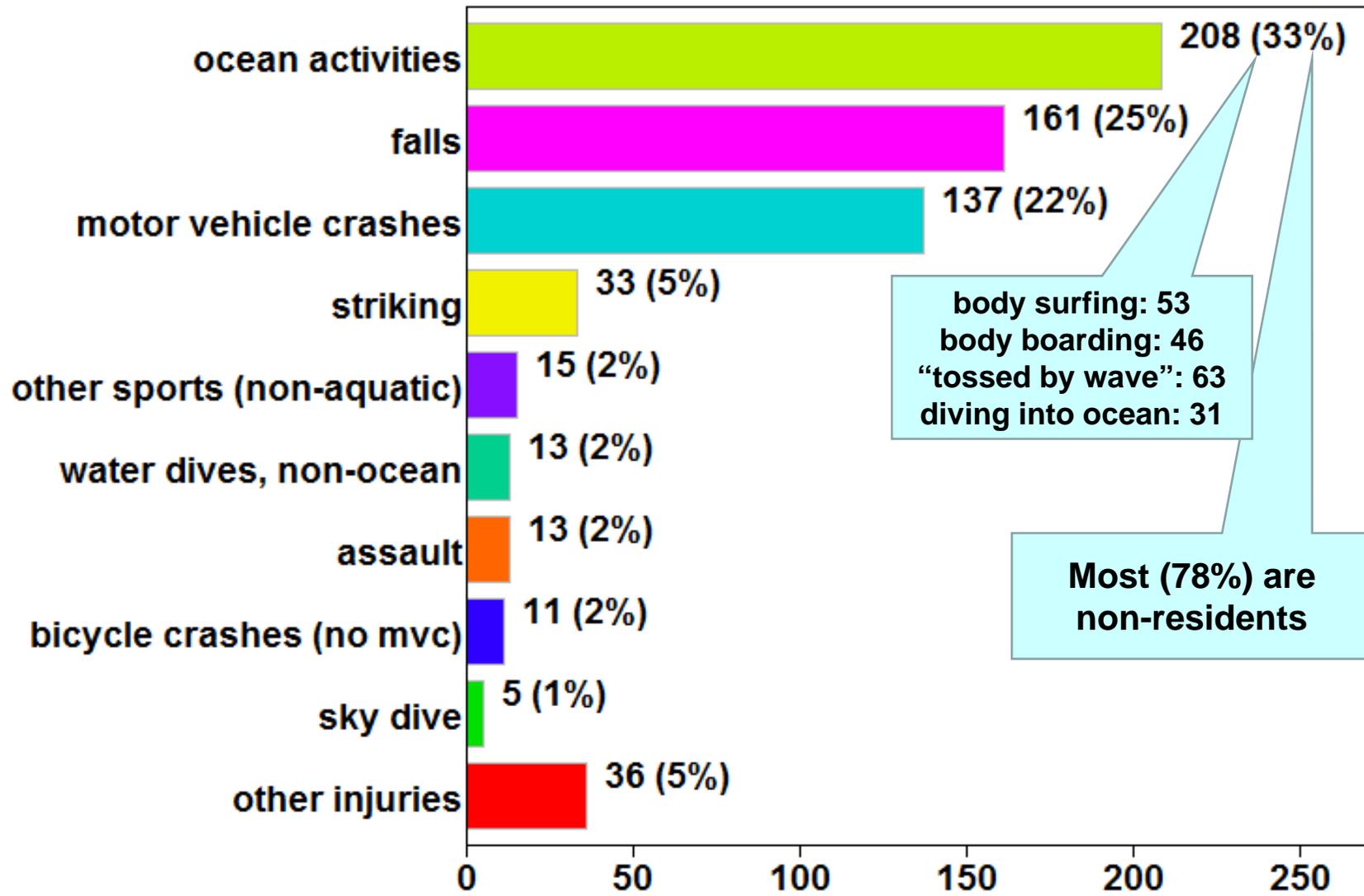
Mortality rates among patients transported for nonfatal drownings, by time to patient contact and CPR status



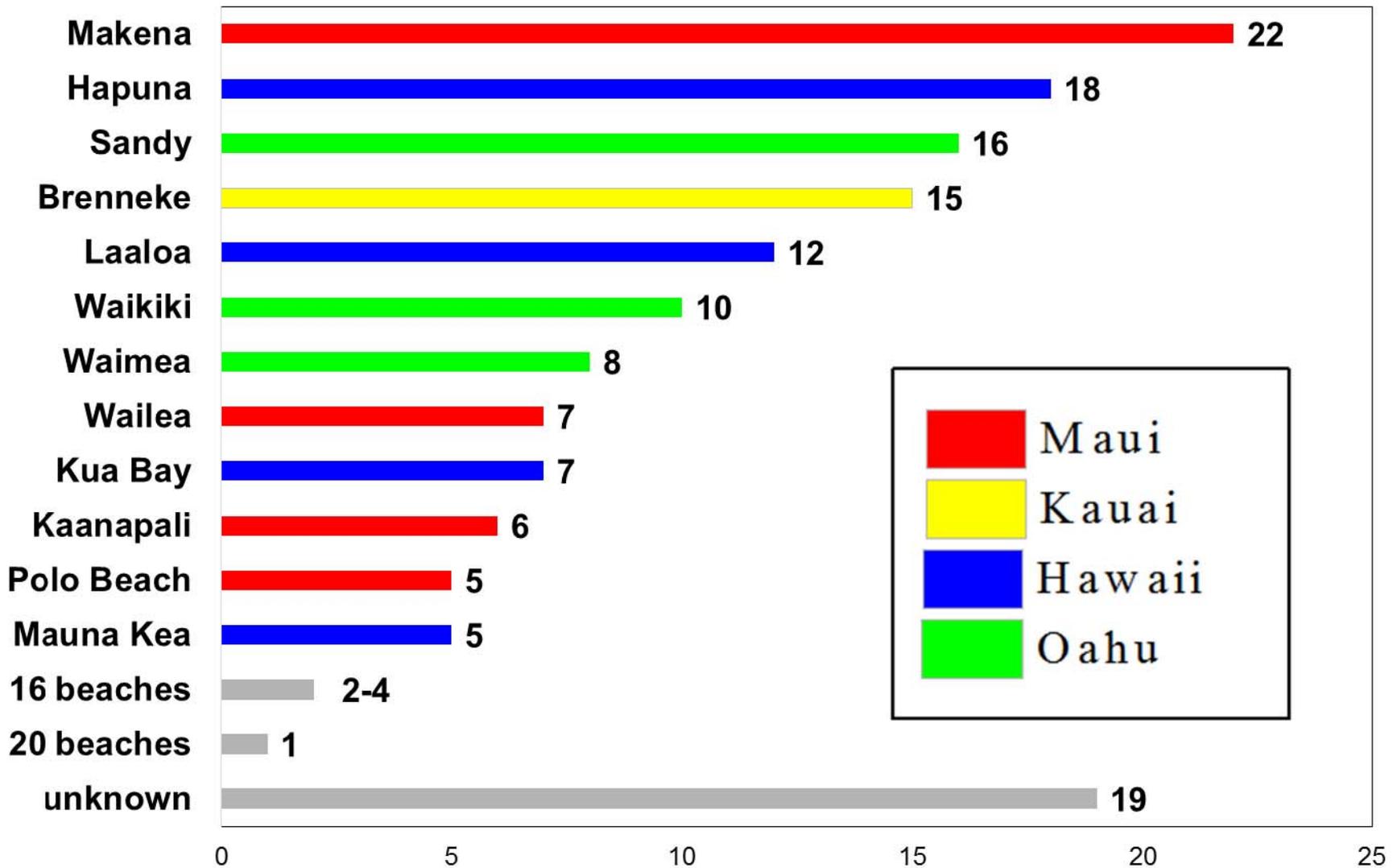


Spinal cord injuries, 2009-2013

Hawaii Trauma Registry: Leading causes of spinal cord injuries in Hawaii, 2009-2013



Hawaii Trauma Registry: Location (beach) of spinal cord injuries from ocean activities in Hawaii, 2009-2013



Summary

- **Part 1: Ocean drownings**
 - *Non-residents much higher rates*
 - Comprise majority of victims on Kauai and Maui counties
 - *Lowest rates for Oahu*
 - *Most extensive lifeguard coverage, shorter EMS times*
- **Part 2: Nonfatal drownings in ocean**
 - *Survival is associated with EMS response times*
 - Time to patient contact, among patients needing CPR
 - *Need to study role of lifeguard 1st response*
- **Part 3: Spinal cord injuries**
 - *Ocean-related activities are the leading cause*
 - Mostly non-residents
 - Statewide distribution, but also high-risk beaches