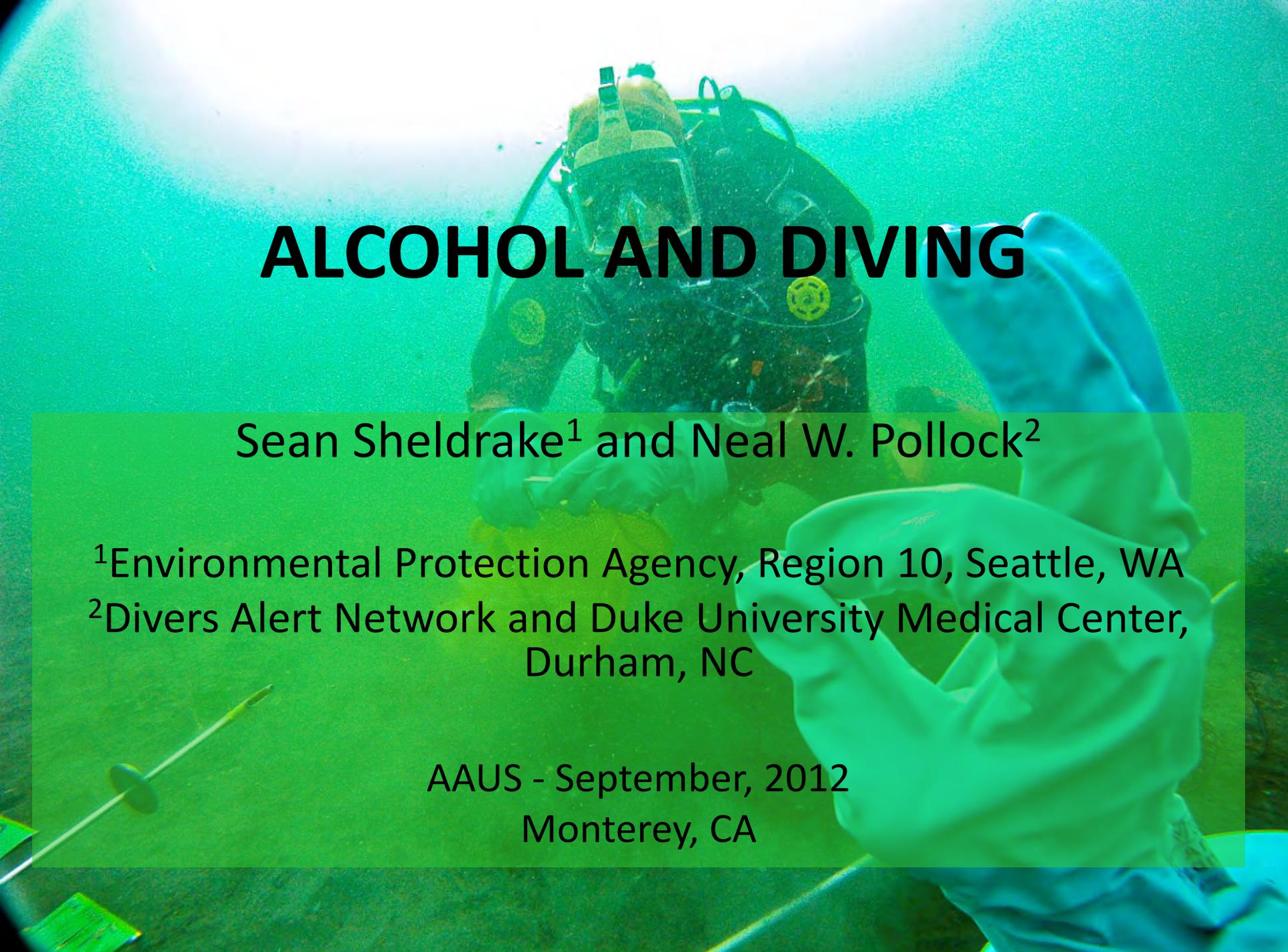


US EPA ARCHIVE DOCUMENT

# ALCOHOL AND DIVING

The background of the slide is an underwater photograph of a diver in full gear, including a tank and mask, positioned in the center. The water is a clear, light blue. In the foreground on the right side, a large, white, textured glove is visible, partially obscuring the view. The overall scene is dimly lit, typical of an underwater environment.

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Monterey, CA

## Disclaimer

*This presentation is an illustration of steps that diving control boards might take to minimize the risk of injury related to alcohol consumption and is not the official view of the USEPA Diving Safety Board.*

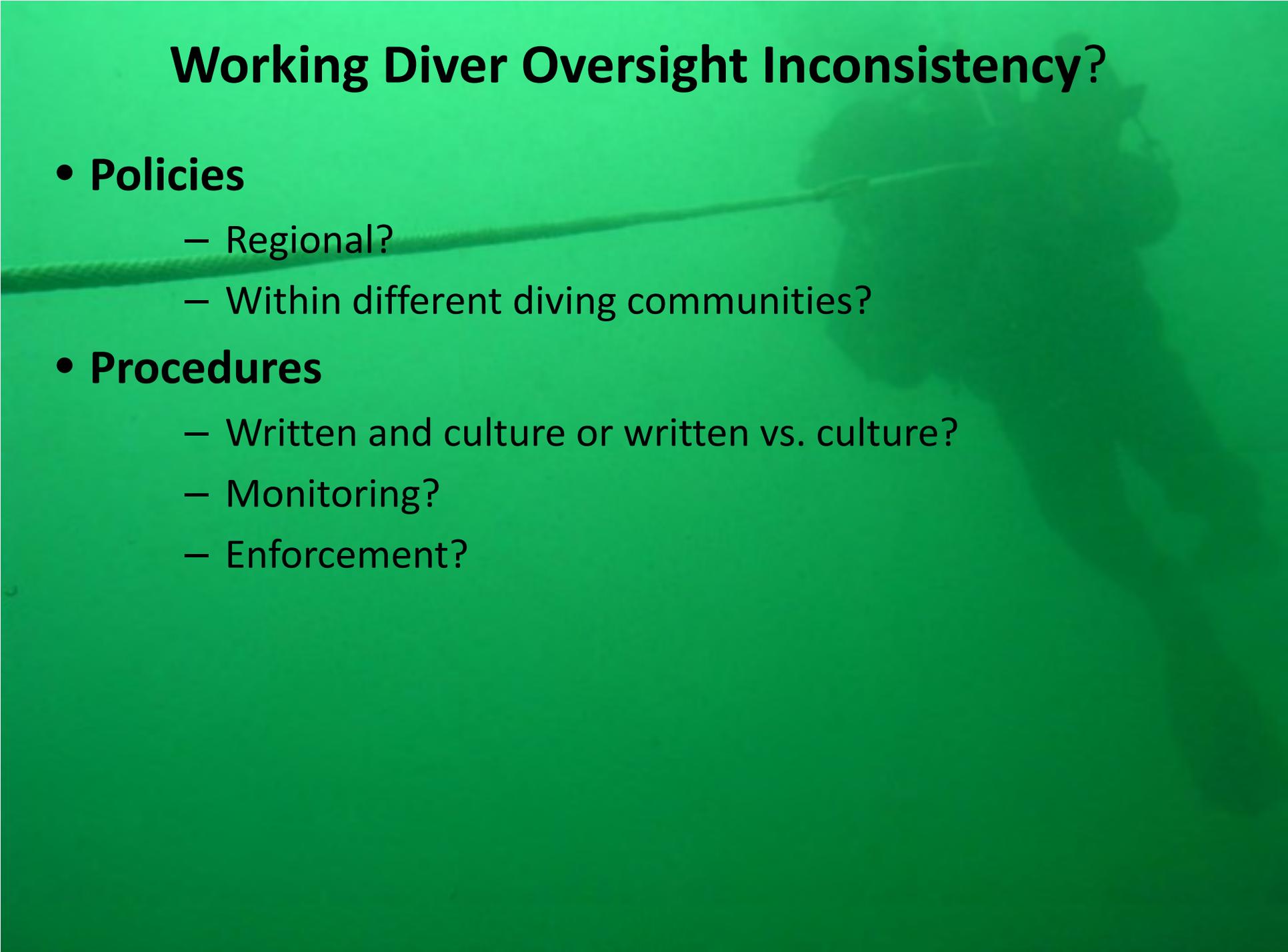
# Background

- Alcohol consumption can impair performance
  - Attentiveness, judgment, reaction time, coordination
- Alcohol is a common factor in accidents
  - E.g., driving and sports
- Alcohol is slowly metabolized/eliminated
  - ~0.3 oz of pure alcohol per hour (depending on body size)
    - e.g., 12 oz, 3.2% beer - 0.384 oz of pure alcohol
    - e.g., 1 oz, 96 proof shot - 0.48 oz of pure alcohol
    - e.g., 12 oz, 5% beer - 0.60 oz of pure alcohol
  - Blood alcohol content (BAC) is expressed as percentage of alcohol in blood
    - 0.10 BAC = 0.10% of blood, by volume, is alcohol
    - Common state limit for driving – 0.08 BAC

# Background

- Additional risks in combination with diving
  - Extremely unforgiving environment
  - Possible potentiation of nitrogen narcosis
  - Possible masking of post-dive symptoms

# Working Diver Oversight Inconsistency?

A diver is visible in the background, holding a rope that runs across the frame. The scene is underwater, with a blue-green tint.

- **Policies**

- Regional?
- Within different diving communities?

- **Procedures**

- Written and culture or written vs. culture?
- Monitoring?
- Enforcement?

# Our Goals

- Identify range of policies and practices
- Recommend procedures and management

# Organizational Written Policies Reviewed

## Government

- CRA-DFG
- EPA
- NOAA
- USCG
- USGS
- US Navy

## NGOs

- ADCI
- AAUS
- Dive training agencies
- Reef Check Australia
- Univ. Of Queensland
- U. of Western Australia

CRA-DFG - California Resources Agency and Department of Fish and Game; EPA - US Environmental Protection Agency; NOAA - National Oceanic and Atmospheric Administration; USCG - US Coast Guard; USGS - US Geological Survey; ADCI - Association of Diving Contractors International

# Disparate Approaches Specific to Diving Programs

- Note: many organizations cover alcohol in umbrella policies

Organization	Alcohol consumption query on medical questionnaire	Written policy addressing worksite impairment	Written policy for random testing	Preventative Standard(s)
EPA	X			
NOAA	X	X	X	X
AAUS	X			
CRA-DFG	X			X
ADCI	X	X	X	
US Navy				
U. Queensland				X
Reef Check Aust.				X
U. Western Aust.				X
DOI	X		X	
USCG	X			

# Prevention & Challenges

- Pre-dive restrictions
- Post-dive restrictions
- Regulating off-duty activity
  - alcohol policy easier to enforce on dry, offshore vessels
  - more challenging for land-based dive ops
- Team training/culture
- Compliance monitoring
  - reporting
  - field sobriety testing

# Medical Questionnaire

- **NOAA**

- **Baseline and annual questionnaire**

- "12. Drink alcoholic beverages (how much)"

- **AAUS**

- **"Conditions Which May Disqualify Candidates from Diving**

- 6. Substance abuse, including alcohol. [24 - 25]"

- **"Appendix 3: Diving Medical History Form**

- 5. Substance abuse, including alcohol? Yes / No"

- **ADCI**

- **"2.3.6 Disqualifying Conditions**

- A person having any of the following conditions, as determined by a physician's examination, shall be disqualified from engaging in diving or other hyperbaric activities..... Chronic alcoholism, drug abuse or history of psychosis."

# Pre-Diving Consumption Restrictions

- Written policy with specific prohibition
  - 8 h – **CRA-DFG**
    - "**2.33 Diving Under the Influence of Drugs or Intoxicants** Alcoholic beverages will not be consumed eight hours before any dive."
  - 12 h – **NOAA**
    - "**5.2.6 Fitness to Dive. ....B.** Divers should refrain from alcohol consumption for a minimum of 12 hours prior to diving ..."
- Vague policies without specific prohibitions
  - e.g. EPA, USN, USCG, USGS
- No policies specify allowable consumption limits
  - i.e., number of glasses/pints/shots, etc.

# Post-Dive Consumption Restrictions

- **NOAA**

- "5.2.6 Fitness to Dive. ....B. Divers should refrain from alcohol consumption for a minimum of 12 hours prior to diving and **four hours after diving.**"

- No other stated policies found

# Random Testing

- **NOAA**

- "D. A verified positive drug test for any employees for which diving is not included in their position descriptions will result in denial of initial diving certification or, if already certified to dive, termination of NOAA diving privileges."

- **ADCI**

- **"5.3 Drug and Alcohol Screening**

1. A pre-employment drug screening program shall be in place.

2. A routine, random and "for cause" drug screening program shall be in place."

- **DOI**

- "Once employed, the diver will be subject to the DOI's random drug testing program."

- No other stated policies found

# Field Sobriety Exams

- No specific details found for:
  - Tests on the dive platform
  - Guidance on events/presentation to trigger exams
    - Particularly challenging for field team leaders
  - Reporting obligations

# Our Policy/Protocol Recommendations

- **Written standards**

- Pre-dive and post-dive consumption restrictions
- Addressing suspected on-site impairment
- Reporting obligations
- Punitive actions /Restoring diving status

- **Screening**

- Annual medical history questions - use & history of abuse

- **Programs**

- Random testing
- Counseling/Intervention/Punitive Actions/Restoring diving status

- **Diver education**

- Optimizing culture for awareness / intervention
- Initial diver training & dive supervisor training

# Future Research

- **Event analysis/documentation**
  - role of alcohol in incidents/accidents
  - policy violation patterns/response
- **Physiological effects in hyperbaric environment**
  - alcohol and decompression stress?

# Questions?

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