

Abstract

Purpose: To understand how noise pollution affects the environment and what can be done to prevent noise pollution from harming living organisms?

Methodology/Data Collection Process:

- ♦ An online survey and one-on-one interviews with residents of Hawaii
- ♦ Secondary data
- ♦ Qualitative data
- ♦ Quantitative data

Results: Percentage of living organisms that were impacted negatively by noise pollution.

Introduction & Research Question

What is noise pollution?

Regular exposure to loud levels of sound that can negatively impact living organisms.

Examples include:

- ♦ Construction sounds like drilling or hammering
- ♦ Household items like vacuum cleaners, fans, and washing machines.
- ♦ Street traffic such as cars, ambulances, garbage trucks crowds.
- ♦ Loudspeakers, fireworks, explosions
- ♦ Airplanes taking off or landing
- ♦ Train stations

Effects of noise pollution on...

Humans:	Animals:	Plants:
♦ Stress	♦ Feeding habits	♦ Pollen transfer
♦ High blood pressure	♦ Reproductive patterns	♦ Seedling location
♦ Hearing loss	♦ Migration/Navigation routes	
♦ Sleep disturbances	♦ Communication	
	♦ Foraging	

Research question: Does noise pollution negatively affect the health of living organisms?

Hypothesis: Organisms that live in an urban area have increased health issues because there are more surrounding noises.

Independent Variable: Location, depth of noise (hertz), length of hearing the elevated sounds

Dependent Variable: Health status created by noise pollution

Research Design & Data Collection

Research Design/Method:

Measurements:

- ♦ Online survey
- ♦ One-on-one interview with each participant
- ♦ Secondary data
- ♦ Qualitative data
- ♦ Quantitative data

Data Collection:

- ♦ Surveyed students from University of Hawaii at Manoa, University of Hawaii at West Oahu, Kapiolani Community College, and a student from Pacific Rim University
- ♦ Surveyed other residents (non-college students)
- ♦ Interviewed each person one-on-one
- ♦ Secondary data from online

Results

Percentage impacted by a 3 dB level increase:

- ♦ Plants: 29%
- ♦ Invertebrate: 36%
- ♦ Fish: 25%
- ♦ Amphibian: 16%
- ♦ Reptile: 38%
- ♦ Bird: 7.5%
- ♦ Mammal: 5%

Percentage impacted by a 10 decibel level increase:

- ♦ Plants: 6%
- ♦ Invertebrate: 5%
- ♦ Fish: 3.5%
- ♦ Amphibian: 3.5%
- ♦ Reptile: 2%
- ♦ Bird: 2%
- ♦ Mammal: 1%

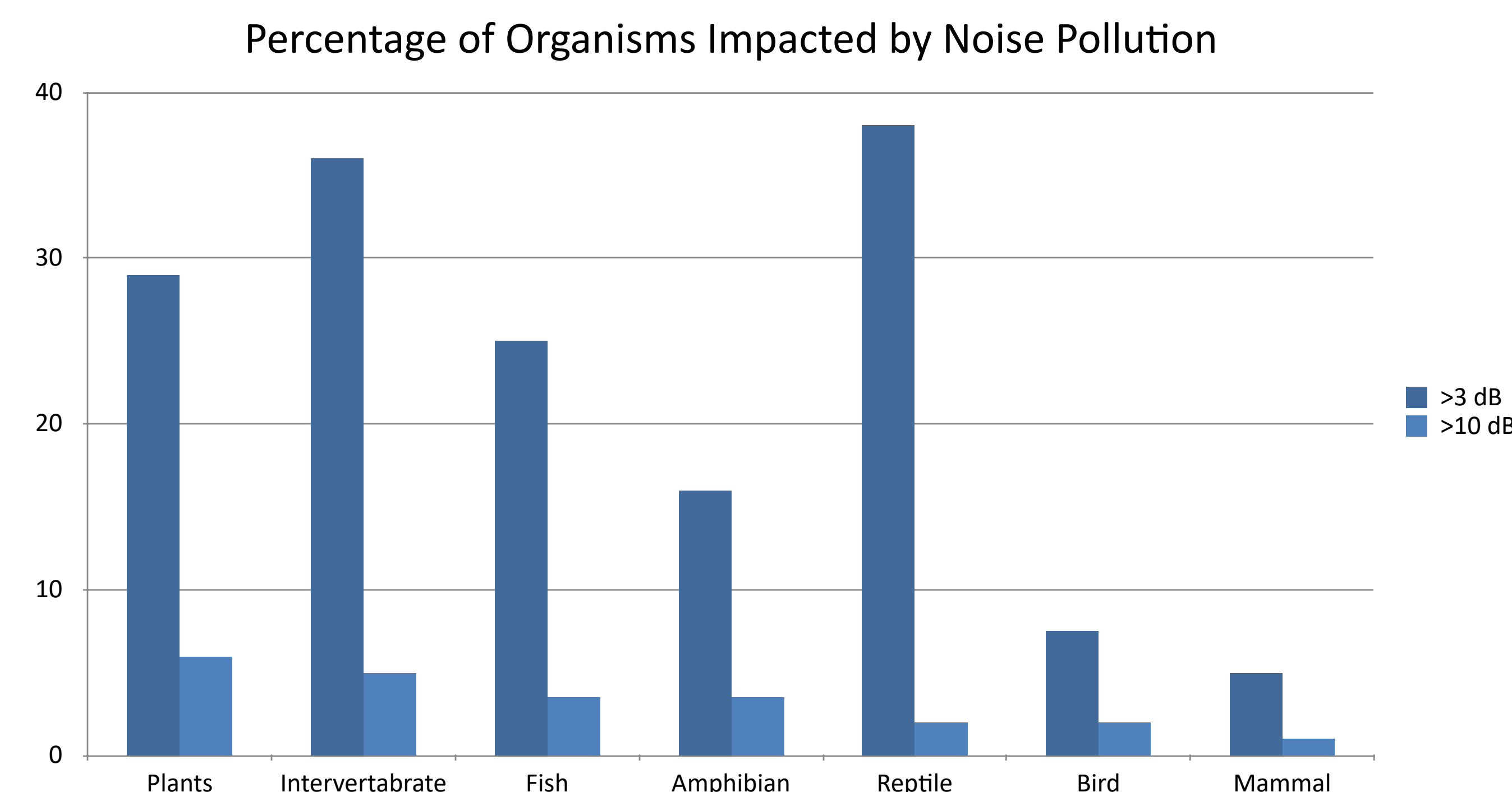


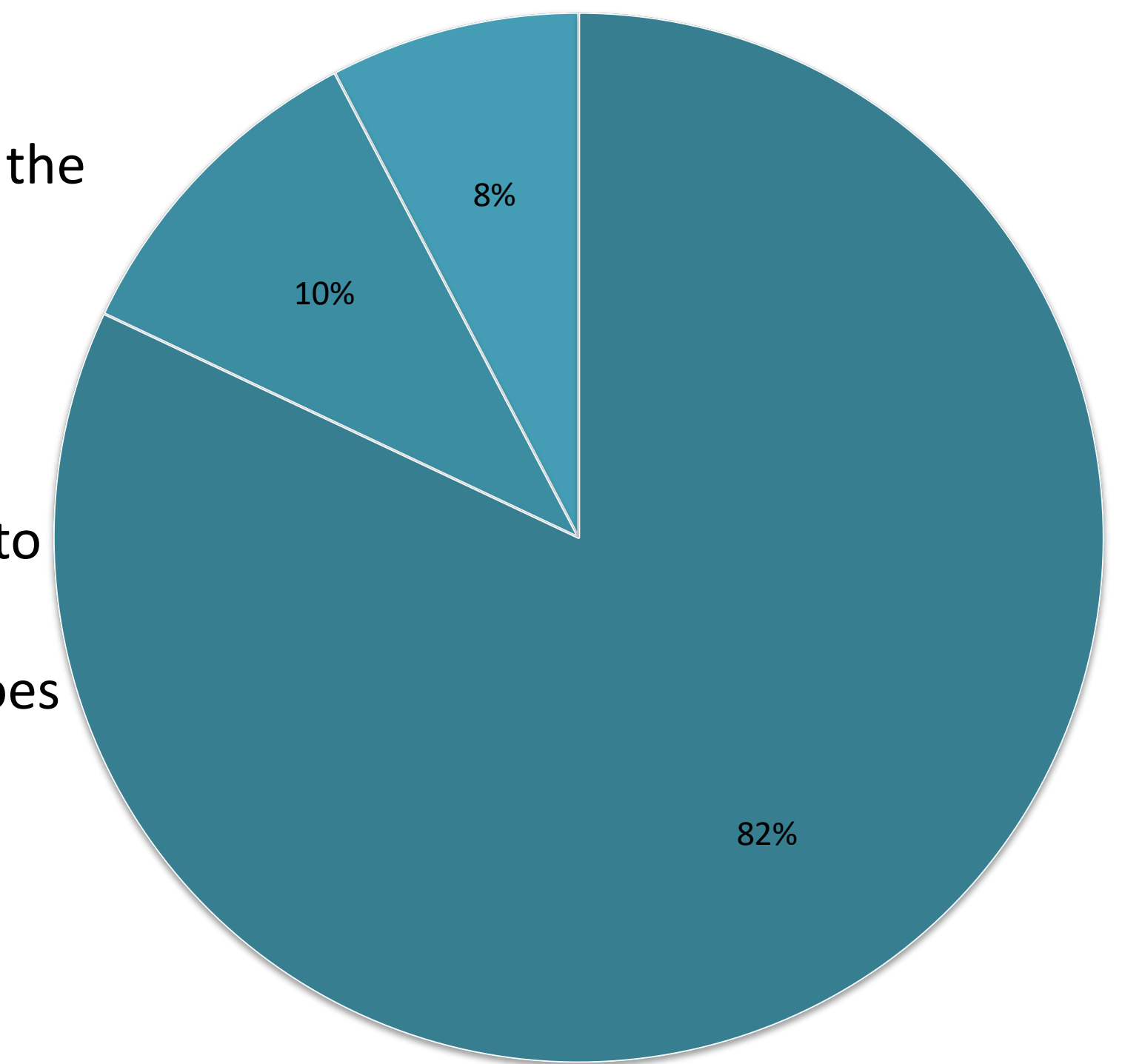
Chart 1. *>3dB = three levels above the natural level
*>10dB = ten levels above the natural level

Analysis

Does noise pollution negatively impact the health of living organisms?

*Survey/Interview with 40 people

*Other = Said that organisms get used to hearing the loud noises and learn to block it out, which means that noise does not affect their health.



Implication

- ♦ Use apple watches to track the heart rate of the people who were surveyed to see if they started to feel more stressed/anxious from the loud noises.
- ♦ Play different noises to one plant and silence to another, to see if one plant grows better than the other. (For long term research)

Preventive Measures/Conclusion

Preventive Measures:

- ♦ Wear earplugs
- ♦ Avoid wearing headphone for long periods of time
- ♦ Avoid jobs with regular elevated sounds
- ♦ Turn appliances off when not in use
- ♦ Lowering the volume
- ♦ Shut the door after turning machines on
- ♦ Use noise absorbents
- ♦ Plant trees (absorbs noise)
- ♦ Use proper lubrication on machines
- ♦ Regularly check noise levels

Conclusion:

- ♦ Simple increases in decibel levels can impact the of living organisms. Some more than others.
- ♦ My hypothesis is correct because 82.1% of people agreed that noise pollution does negatively impact the health of living organisms.
- ♦ There are preventive measures that can be taken, as mentioned on slide 7 of my presentation.

Contact

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