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California Sea Lion (*Zalophus californianus*) Ethogram & Handedness Study

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Tricia Flesner, University of Missouri-St. Louis

INTRODUCTION

Importance

Lateralized Behavior is a visible measure of brain function thought humanly unique BUT is a core behavior to many organisms & their life histories.

- Vital care info for caretakers, ecologists, and conservationist - foraging/hunting, enclosure design, engagement, etc.

Subjects

- Captive male California sea lions - Boulder, Nipper, & Lou

Goals

- Examine the time budget (how time is spent)
- Assess asymmetrical swimming preference



METHODS

Location: Holekamp Aqua Tunnel of the Sea Lion Sound exhibit located at the St. Louis Zoo in St. Louis, Missouri

Date: January 31 & February 7 of 2018

Time: 1pm - 4pm



Feeding Times

- 10:15a, 1:45p, 3:15p

Sampling

- Behavior(s) observed & recorded
- Activities viewed & categorized

Trials

- 100 turns/seal lion

Conditions

1/31/2018 - cloudy

55°F (real feel 45°F)

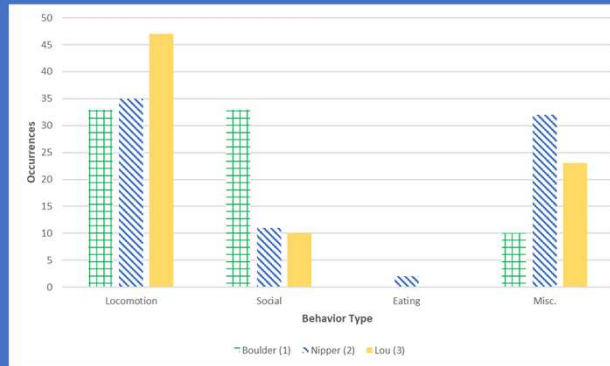
2/7/2018 - cloudy

32°F (real feel 23°F)



RESULTS

[Hypothesis 1] Time budget spent differently



Locomotion: Boulder-43.4%, Nipper-43.8%, Lou-58.8%

Social: Boulder-43.4%, Nipper-13.8%, Lou-12.5%

Eating: Boulder-0%, Nipper-2.5%, Lou-0%

Miscellaneous: Boulder-13.2%, Nipper-40%, Lou-28.8%

RESULTS: Each subject spent most of their time on locomotion, but individuals differed in the time they spent on other activities.



LOCOMOTION

- BRE - head breaks surface
- TUR - turn (L or R)
- SUT - swim to belly down
- SDT - swim to belly up
- SUA - swim off belly down
- SDA - swim off belly up
- SOT - swim over tunnel
- DIV - dive into pool

SOCIAL

- FLP - complete flip
- SPN - spin upright
- BUB - blow bubbles
- IWP - interact with people
- IWS - interact with sea lions

EATING

- FWV - visible water feeding

MISCELLANEOUS

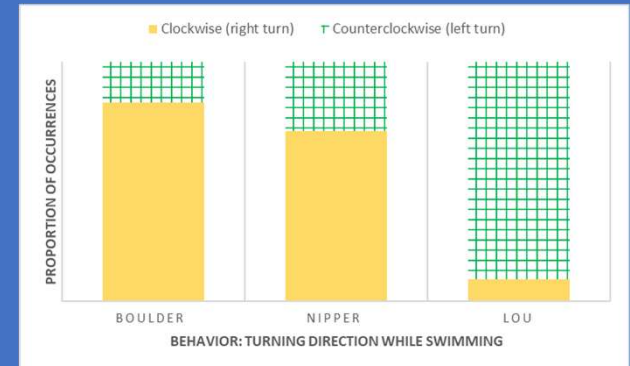
- OOS - out of sight

- EXC - excretes in pool



RESULTS

[Hypothesis 2] Asymmetrical preference expressed



Boulder: Right - 83% Left - 17%

Nipper: Right - 71% Left - 29%

Lou: Right - 9% Left - 91%

RESULTS: Each subject expressed statistically significant preference for right or left.

	Chi-Square	P-value	Significant
<u>Boulder</u>	24.44	<0.0001	(p-value<0.05) = Y
<u>Nipper</u>	9.23	0.00240	(p-value<0.05) = Y
<u>Lou</u>	40.41	<0.0001	(p-value<0.05) = Y

DISCUSSION

[Prediction 1] Time budgets will vary between each individual sea lion

Supported: More analysis needed

[Prediction 2] Individuals will show lateral preference

Supported: Yes

Future Studies

- Preference - under solitary conditions
 - Social effects on swimming preferences
- Preference - between sexes
 - Sex effects on swimming preferences

REFERENCES

- Wells et al. *Lateralised swimming behaviour in the California sea lion*. 2006.

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