New Zealand sea lion pup behaviour study at Davis colony

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Research done under contract to the Department of Conservation, NZ

Objectives

- Investigate the behaviour of pups around terrain traps (bogs, mud channels)
- Trial terrain trap solutions

Objective 1: Investigate the behaviour of pups around terrain traps

1. Deploy GPS loggers on pups x 20

2. Set up camera traps around main access points of terrain traps and adjust accordingly to pup movement x 5

3. Scan sampling – film 5 min videos at different terrain traps
   - Random or targeted (pup close bog edges, pup falls in or already in the bog)

GPS deployments

- Deployment duration: 1 – 22 Jan 2019 (~2.5 weeks)

- GPS locations recorded every 5 min

- Extreme weather event
  - 11 out of first 15 days rain/showers. Strong winds on most days.

- 15 out of 20 GPS recovered
  - 14 dead (70 % mortality)
  - 1 alive
  - 1 GPS lost on live pup
  - Remaining 4 pups could not be found

Camera traps

- Deployed at some of the same bogs as last year:

    - giant bog,

    - medium bog (previously small bog),

    - mud channel 2

Medium bog

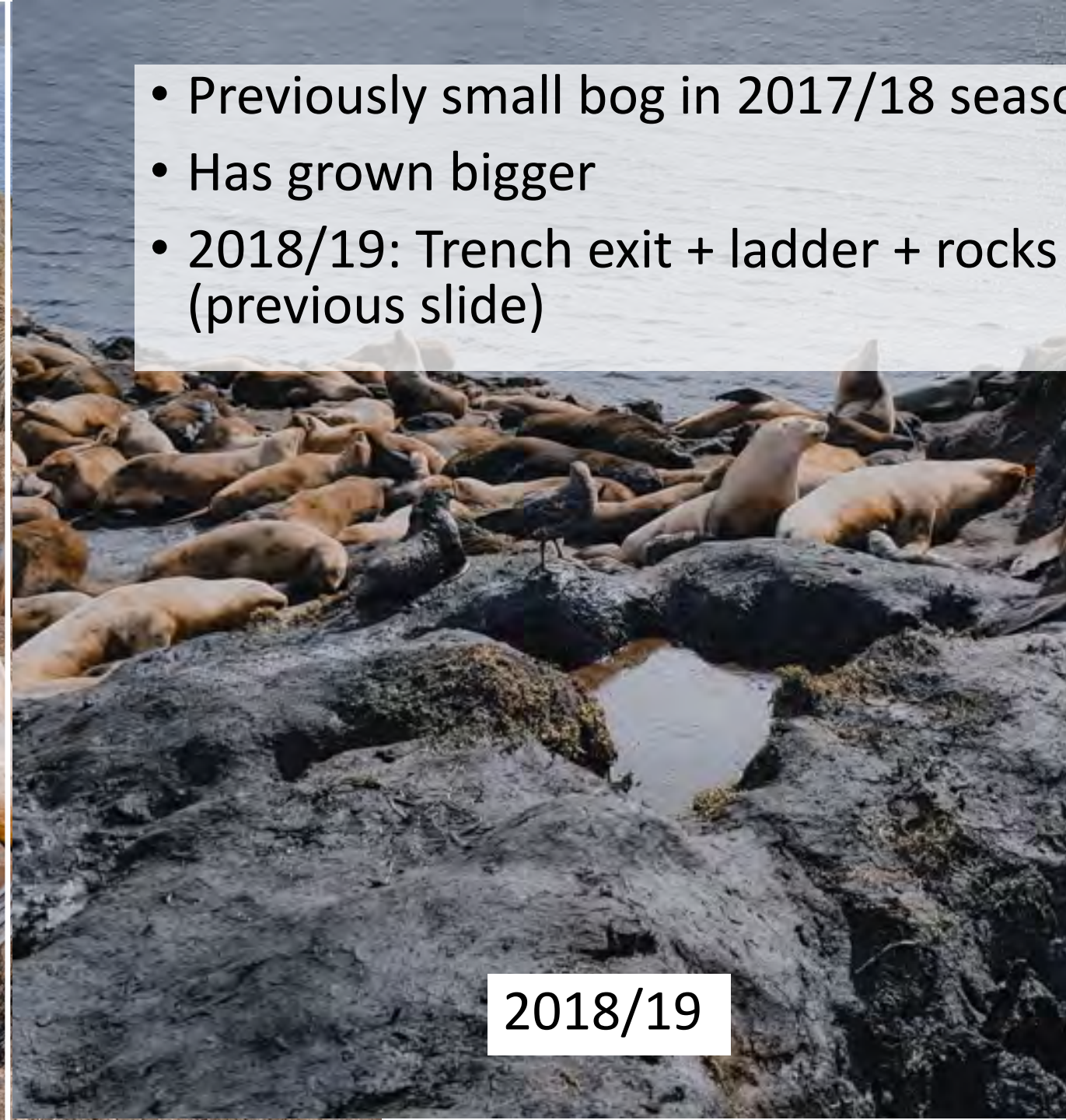# Objective 2: Trial terrain trap solutions

- Solutions: moving existing ladders, coir log, hessian sacks, filling up bogs with rocks on site, digging trenches

- Employ solutions after at least 4 days of pup behavioural data collection

Medium bog

- Previously small bog in 2017/18 seaso[n]
- Has grown bigger
- 2018/19: Trench exit + ladder + rocks (previous slide)

2017/18

2018/19

Mud channel 2

Discouragement
- Nice shelter at entry point which attracts weak pups to stay up there instead of exploring and finding an exit down stream

Mud channel 2

Discouragement

Filled hessian bag with rocks and dirt to fill up the shelter to discourage pups from sleeping in there.

Mud channel 2

Travel corridor

Coir log placed in the lower section where there are entry points.

Coir log in Giant bog

- With the existing ramp + coir log -> increased chances of pup self-rescuing

Trench at small bog 2 update

2017/18

2018/19

• Grass grown in the trench that was dug in 2017/18

General observations

- Not as much interaction between pups and bogs this year due to extreme weather event
- Pups were not as mobile as last year, puppy piles tended to be on the exposed rock instead of nearer to the boggy area behind
  - i.e. Giant bog area actually provides good shelter
  - No pup fell off cliff during the time team was there
- Medium bog and mud channel 2: the two most problematic bogs this year.
- Total pups died in bogs or muddy/boggy substrate = 18
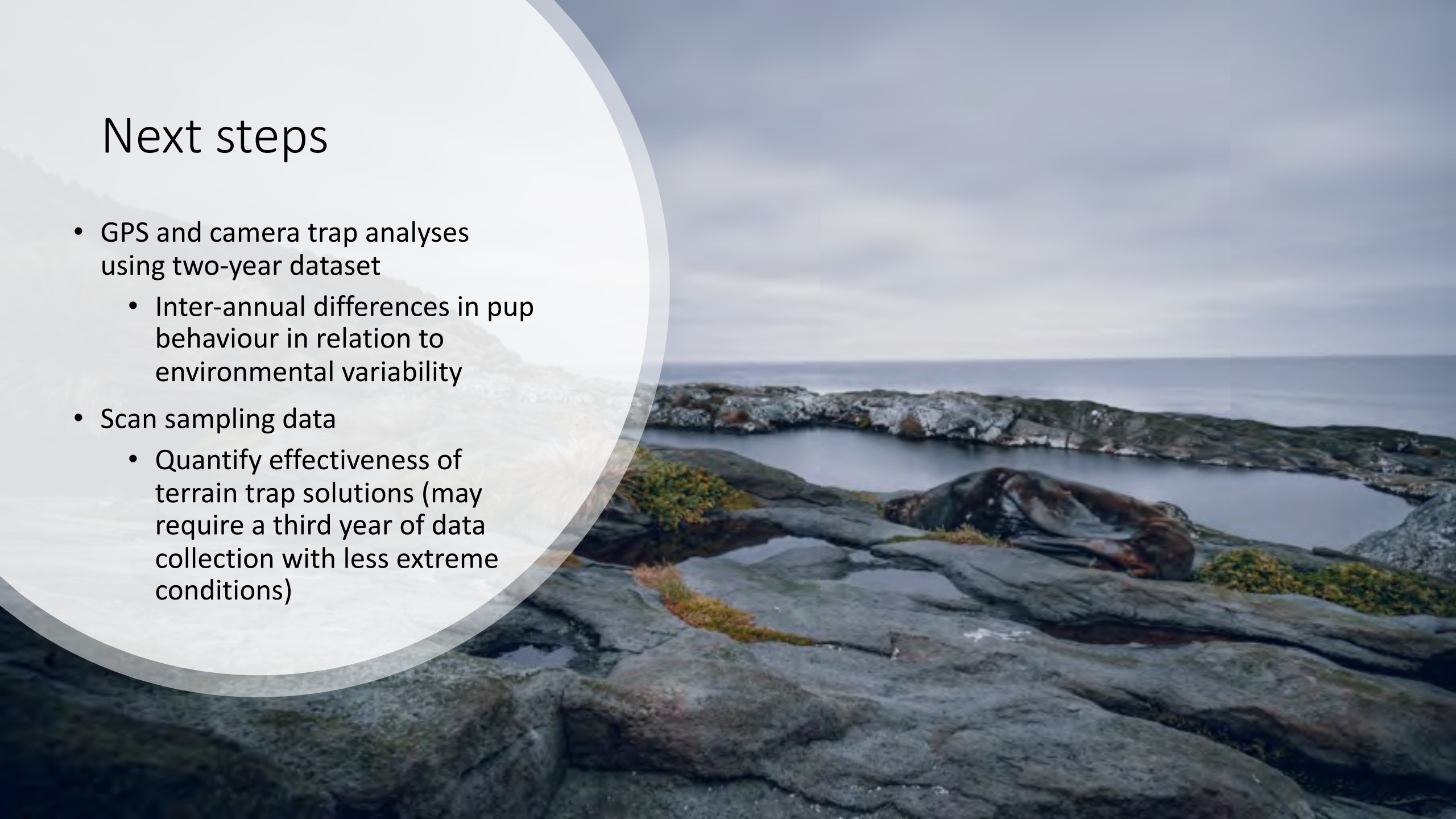- Total pups died in Bog colony this season = 194 (9% mortality from bogs)

Other observations…

- Seals seem to like sleeping on ladders behind mud pans or resting on coir logs
  - At least in more sheltered areas than mud pan

Next steps

- GPS and camera trap analyses using two-year dataset
  - Inter-annual differences in pup behaviour in relation to environmental variability
- Scan sampling data
  - Quantify effectiveness of terrain trap solutions (may require a third year of data collection with less extreme conditions)

Thank you!