

Gulls at Great Lakes Beaches – Update

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Problem

Gulls at Great Lakes beaches impair beach quality and are an emerging public health and economic issue for coastal communities.

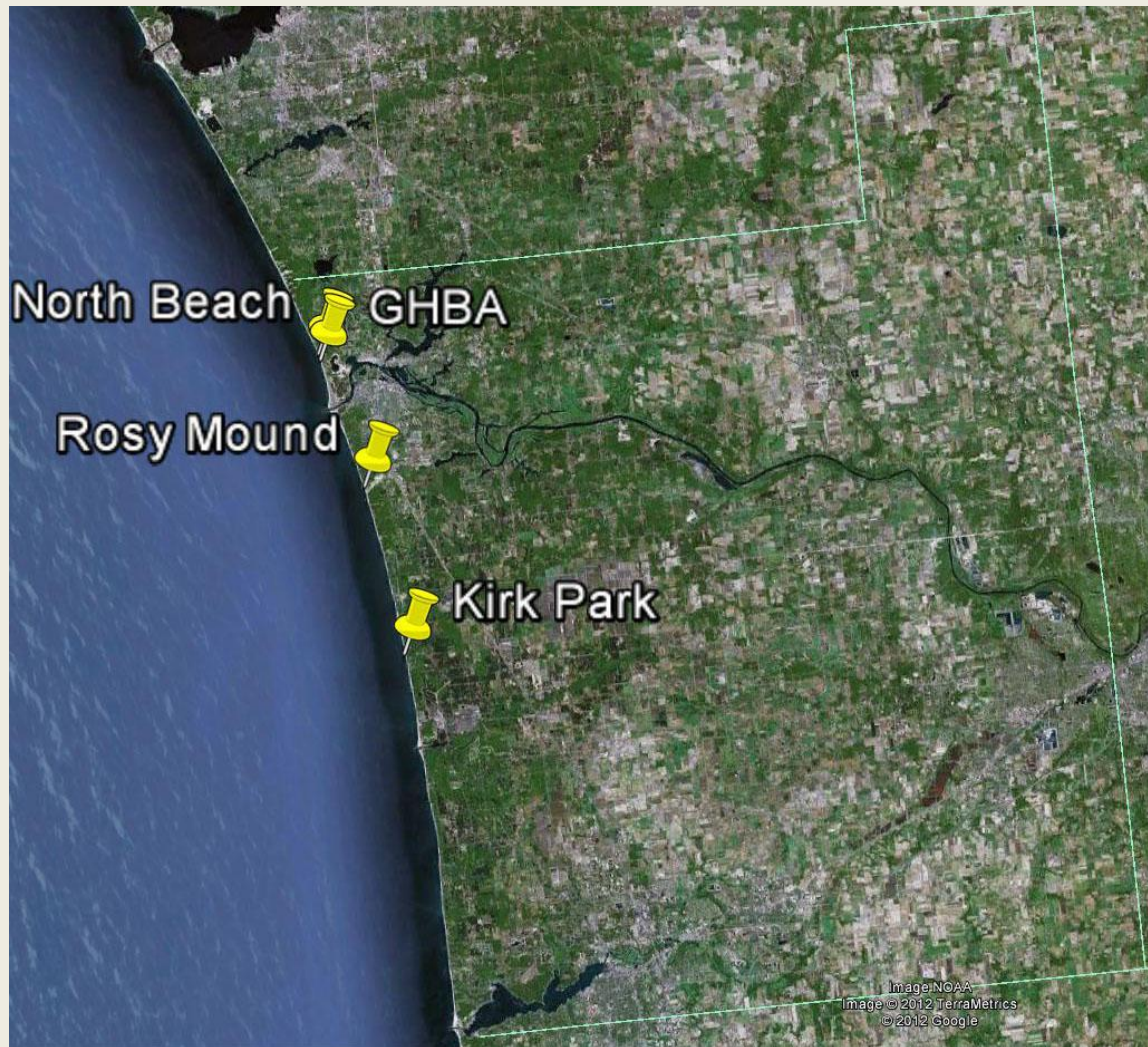


Specific Study Questions

- Can border collies be used effectively to keep gulls off beaches?
- If yes, is the microbial quality of the beach improved?

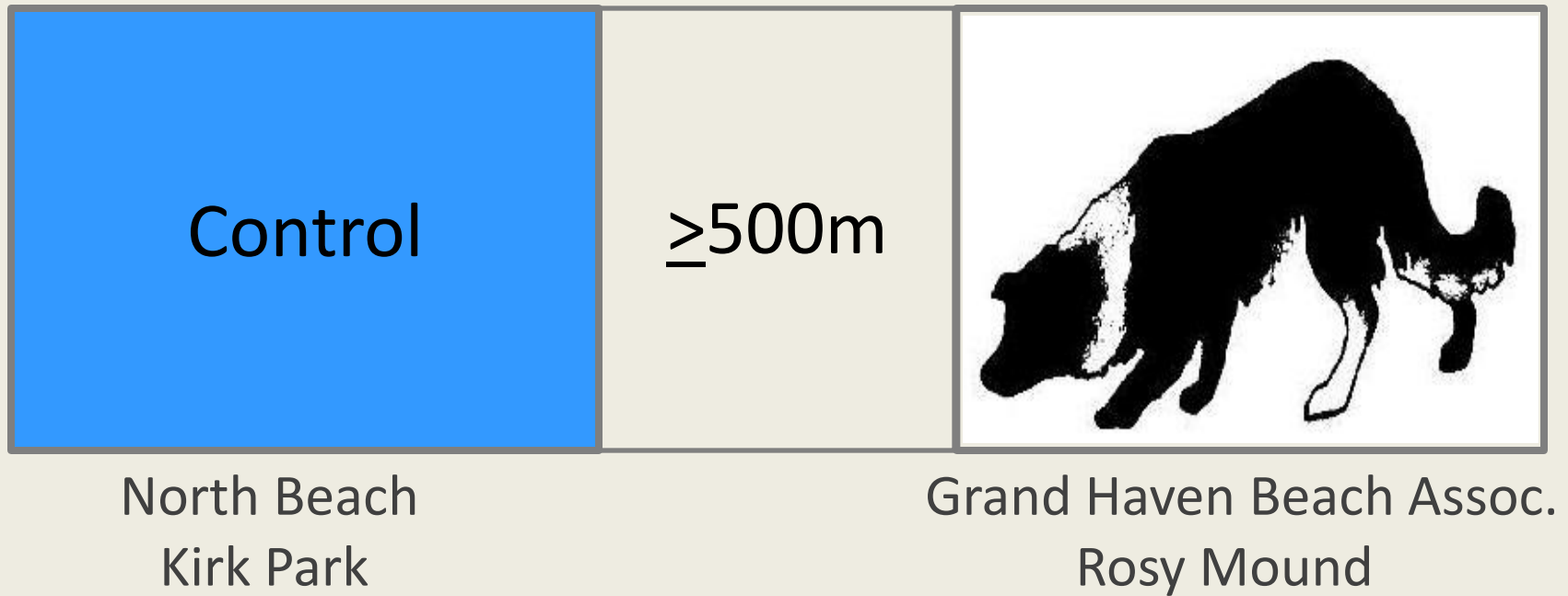


Study Beaches



Study Design

- Paired beaches – 1 control, 1 treated with dog



Study Design

Trial 1

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
May						
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
June					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23

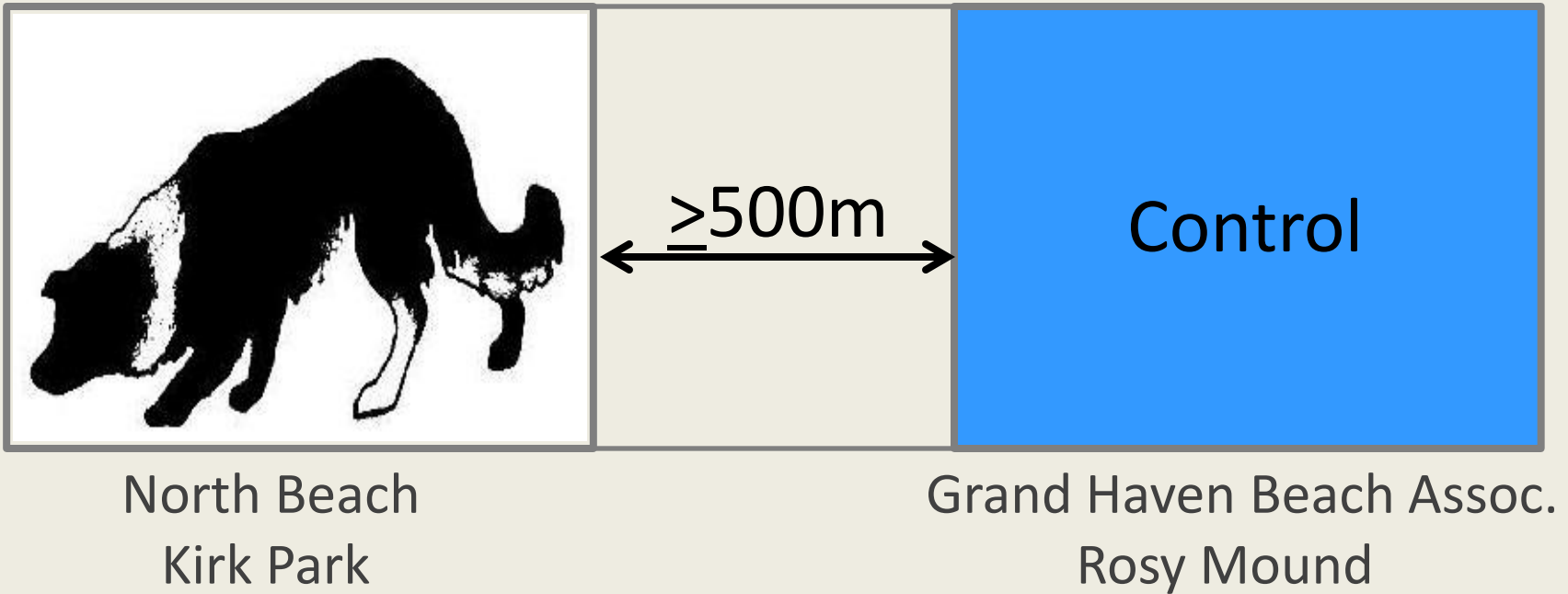
Study Design

Trial 1

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May						
13	14	15	16	17	18	19
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June					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
July						
1	2	3	4	5	6	7

Study - Design

- Cross over



Study Design

Trial 1

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
May						
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
July						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				
August			1	2	3	4
5	6	7	8	9	10	11
12	13	14				

Trial 2

Exclusion

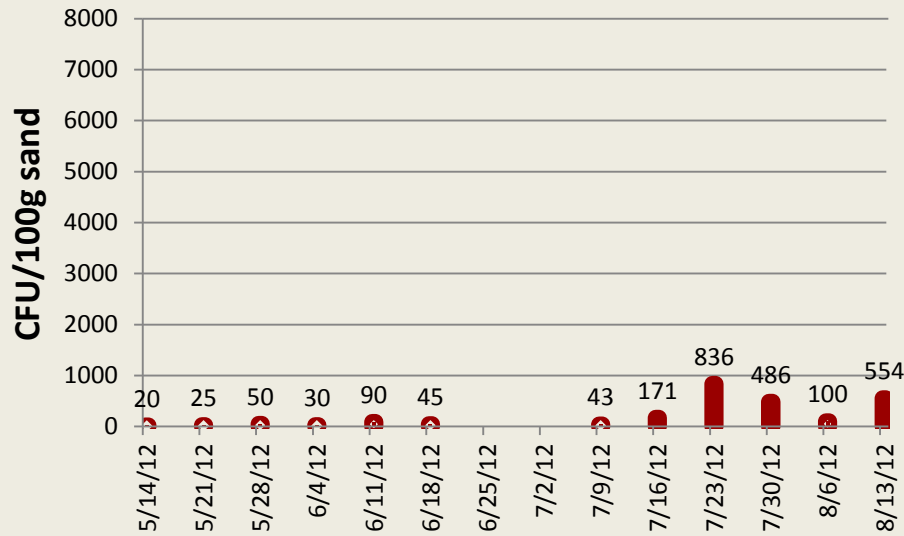
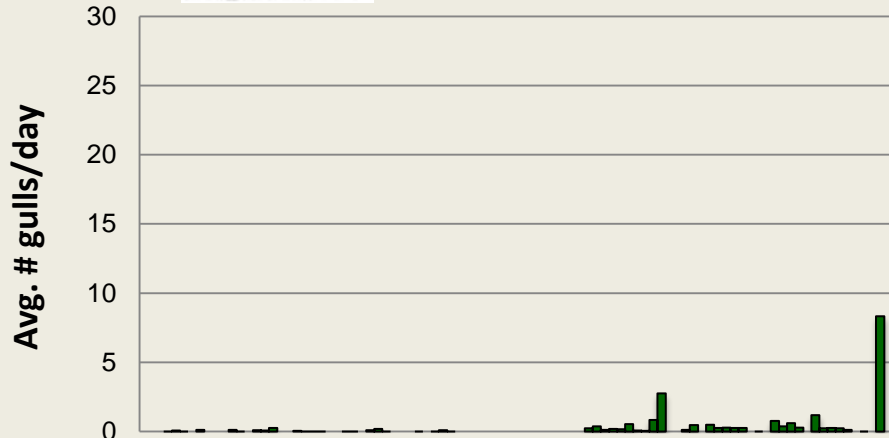


Primary data collected

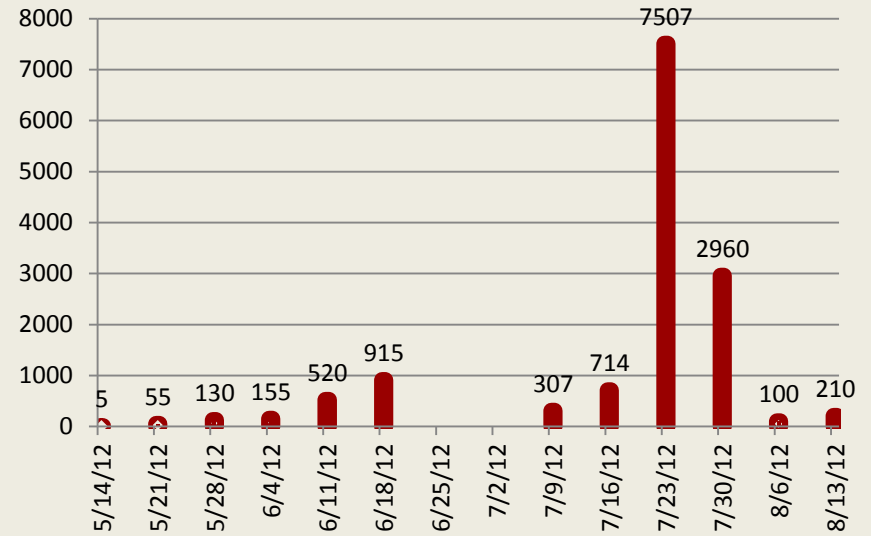
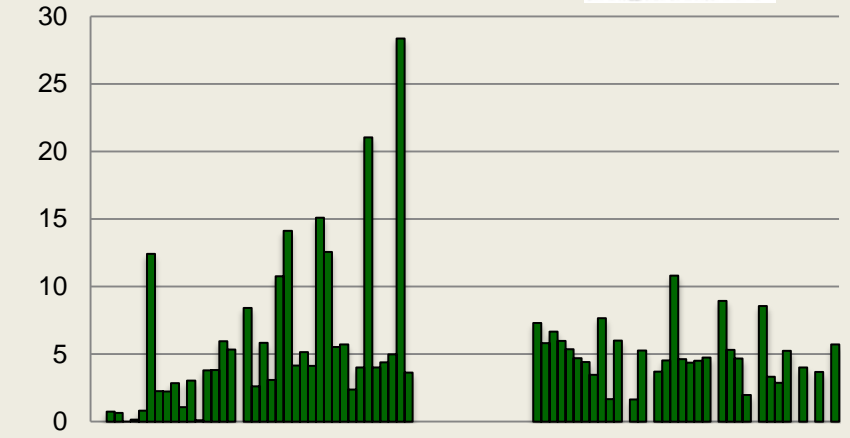
- Gulls on beach or over beach – every 15 min
- *E. coli* in beach water – once per week
- *E. coli* in beach sand – once per week



Pair 1

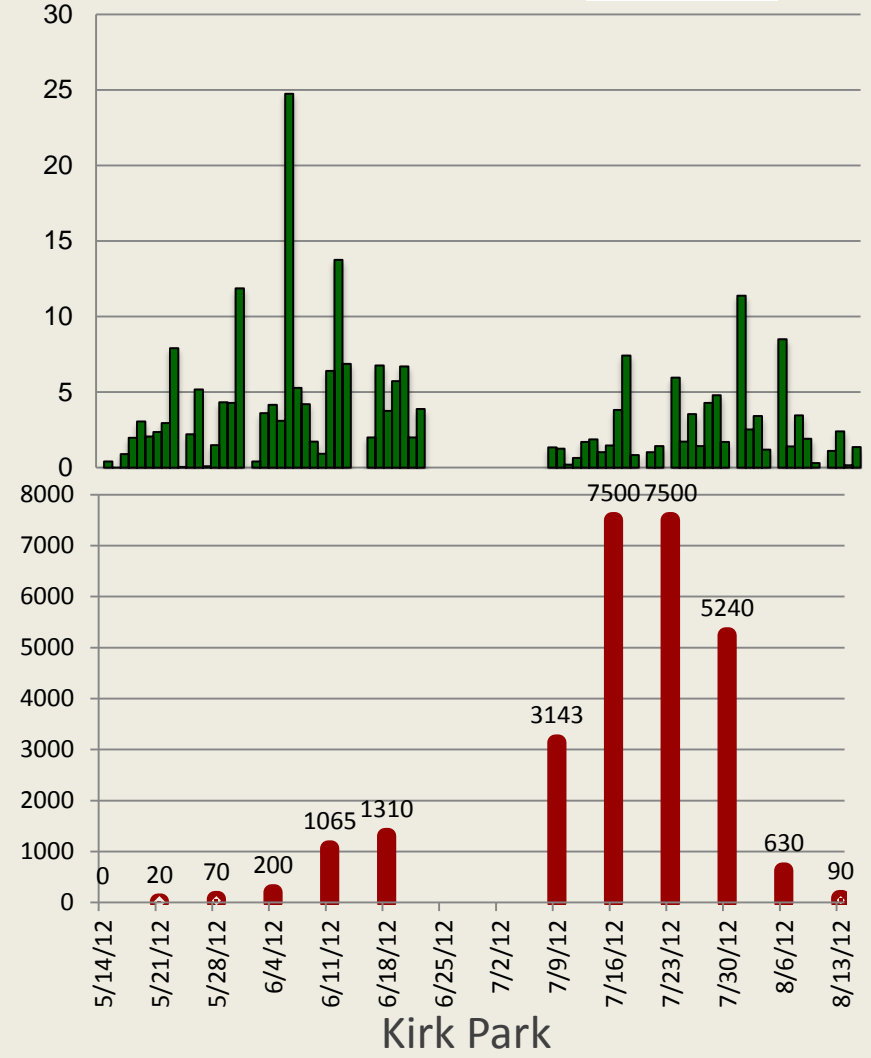
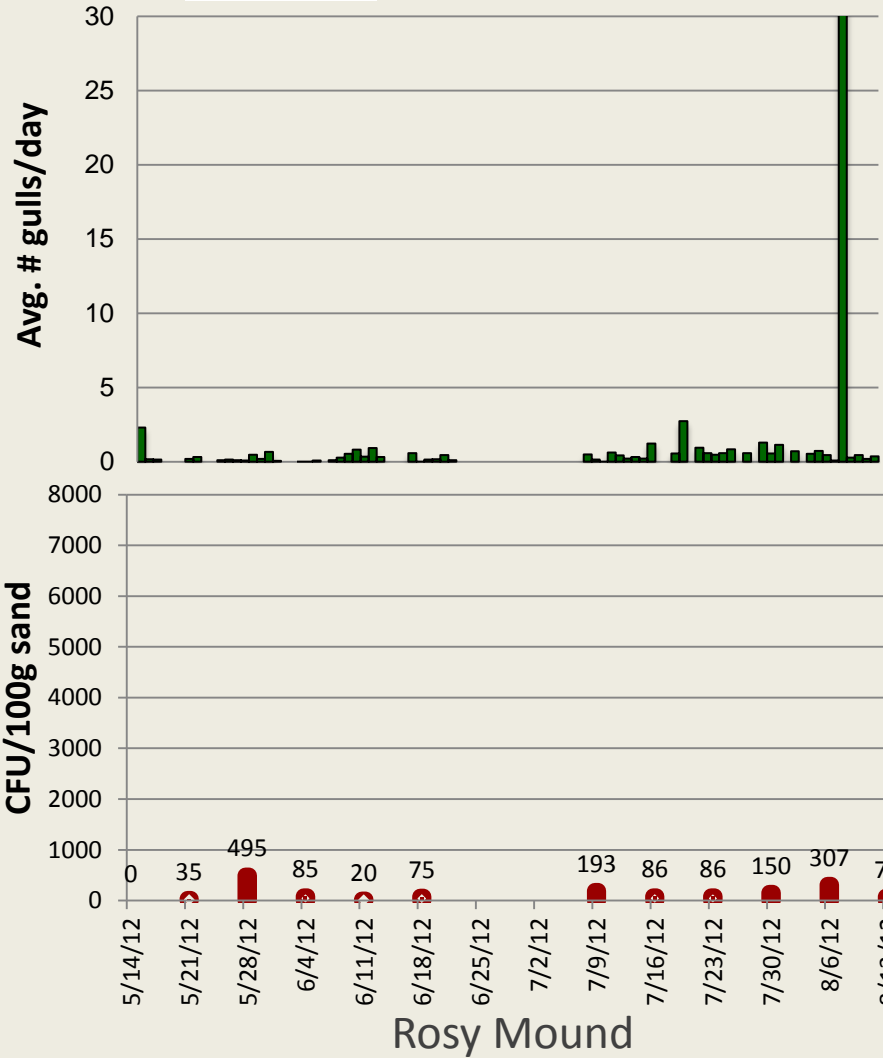


Grand Haven Beach Assoc.



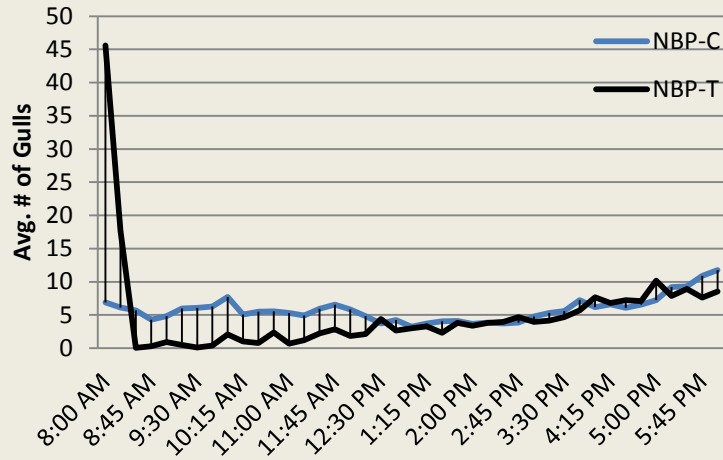
North Beach

Pair 2

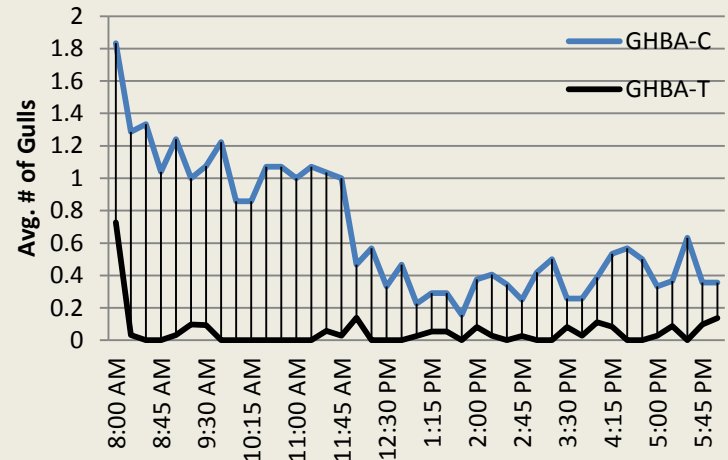


When are gulls on beaches?

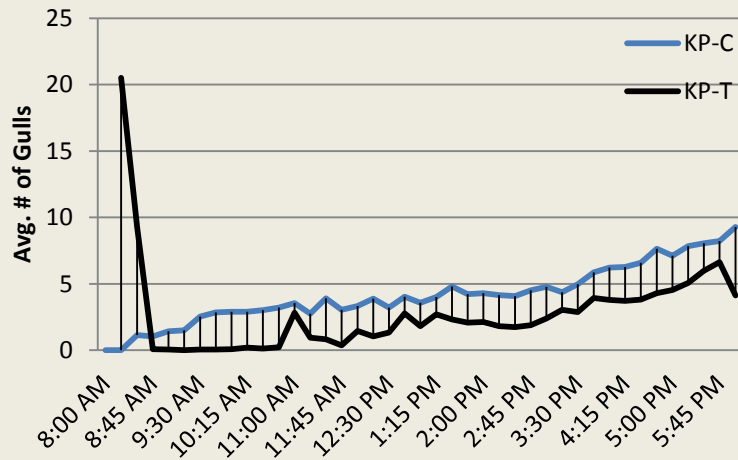
North Beach Park



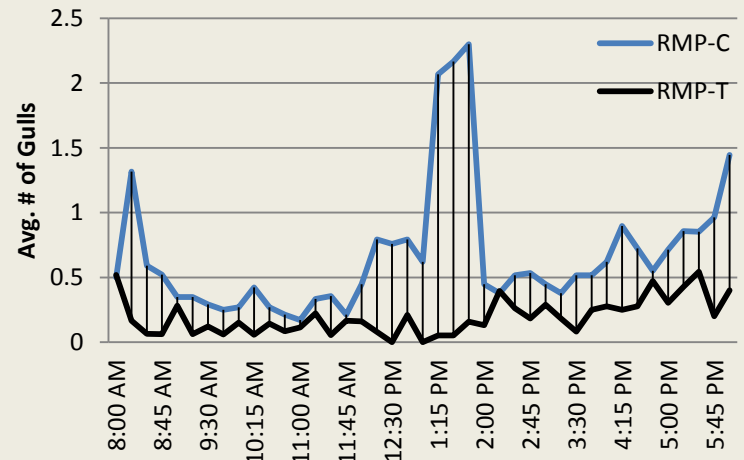
Grand Haven Beach Association



Kirk Park

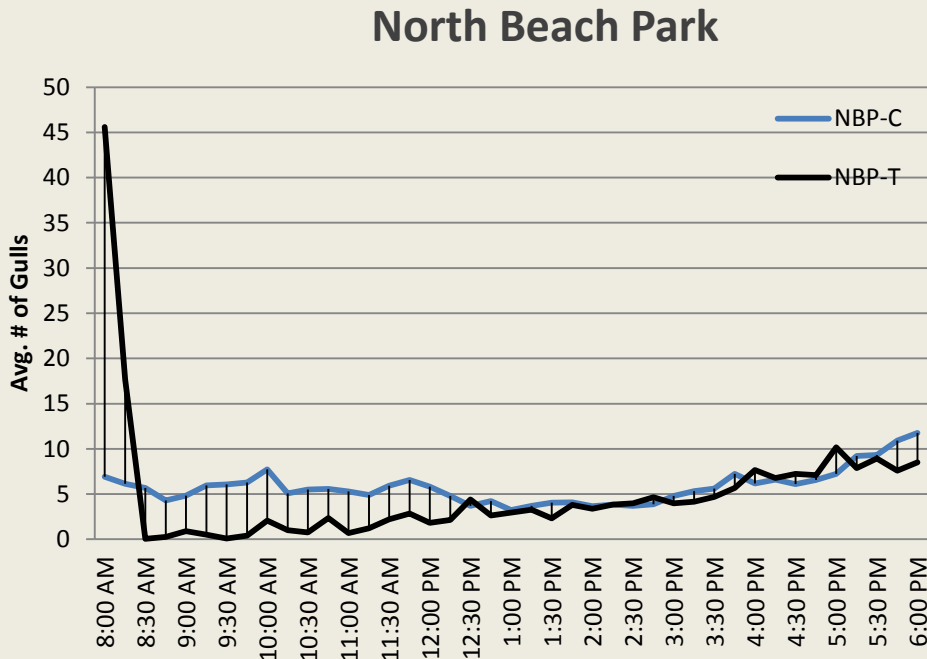


Rosy Mound Park



Modification thoughts for year 2

Focus dog treatment at early morning & evening



- Better capture gull abundance
- Further reduce dog/beach-user interactions
- Analysis of sand and water for zoonotic pathogens is on-going

Thank you

Ottawa County Parks & Recreation Commission

Grand Haven Beach Association

Vijay Kannappan & Ottawa County Health Dept

CMU gull team – Dusty, Jay, Justin, Kaley

CMU *E. coli* team – Rebeccah, Mike, Yuanyuan, Kara

Great Lakes Restoration Initiative

Discussion

