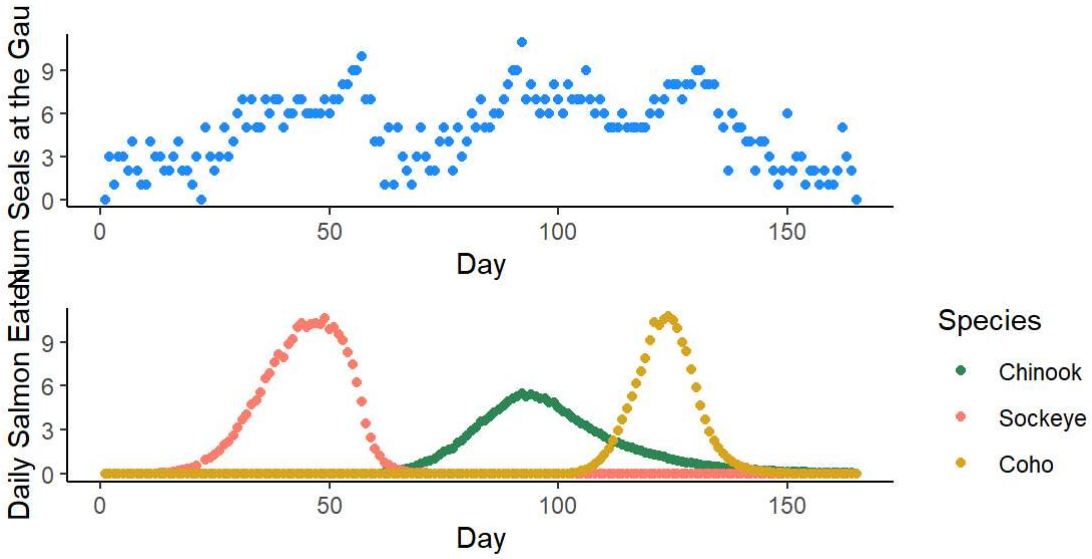
Parameter Manipulation

2024-06-26

Purpose

This presentation is meant to document single parameter manipulations. The main comparison responses are the number of seals at the Gauntlet and the number of salmon escaped total of each species.

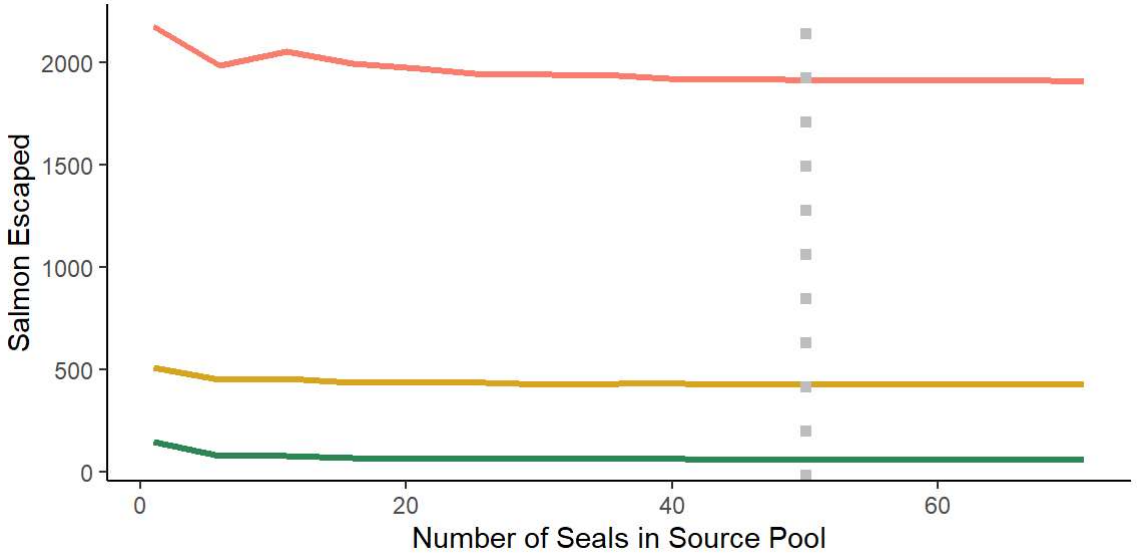
The Base Run Realm



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986

num_seals

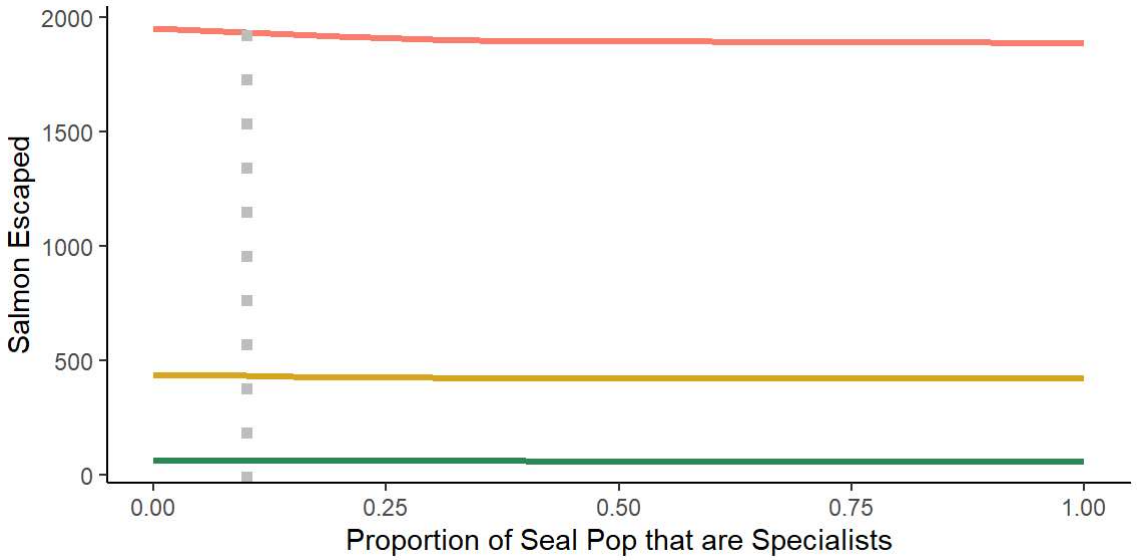


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
1	2180.366	145.59087	509.2628
71	1909.324	59.47124	424.9971

Declines to a minimum value, likely governed by the predator dependence/competition level.

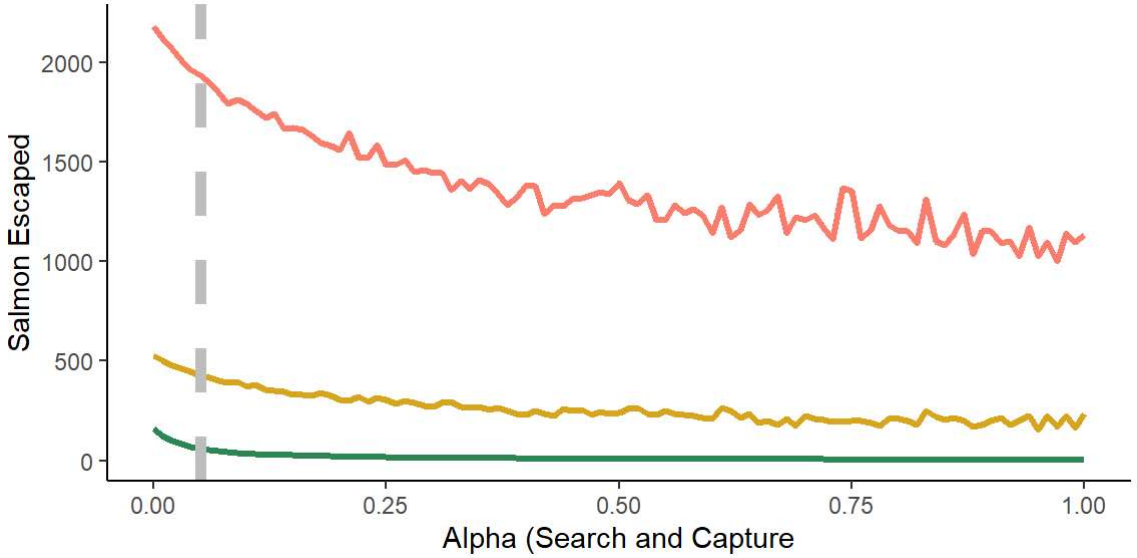
prop_specialists



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1952.865	61.89612	435.7098
1	1887.844	56.89145	418.2374

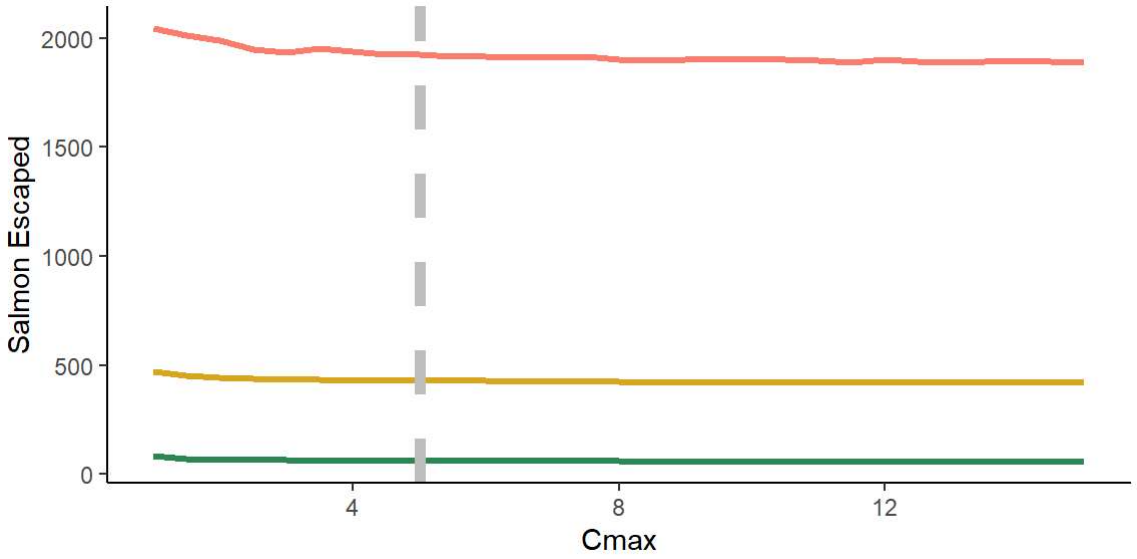
alpha (search and capture rate)



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	2180.366	161.96729	527.7105
1	1133.262	4.46658	237.3389

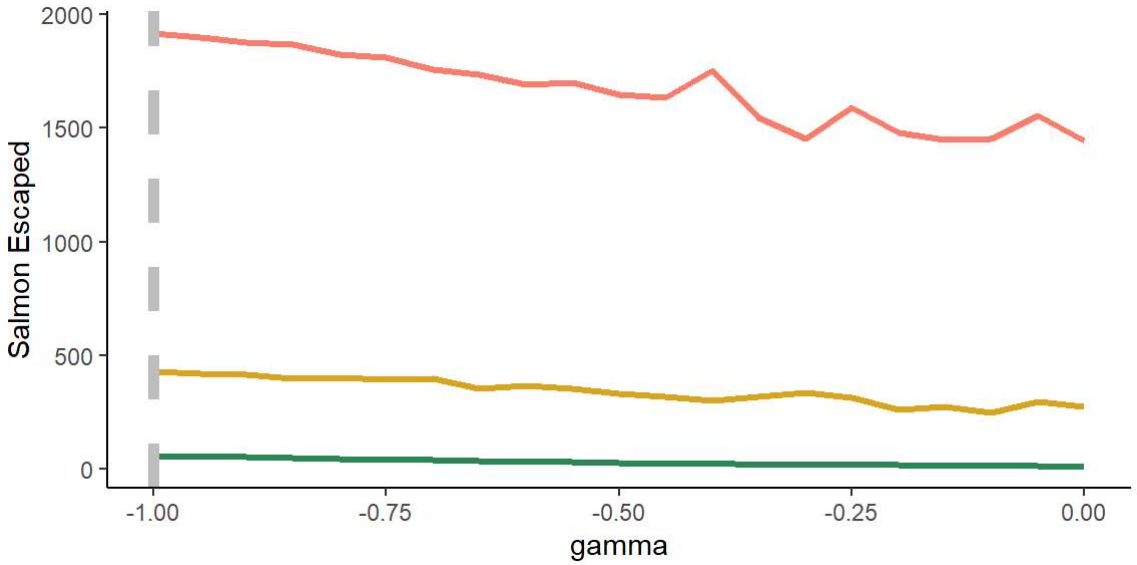
Cmax



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
1	2045.716	82.09666	469.4146
15	1887.871	56.89207	419.4214

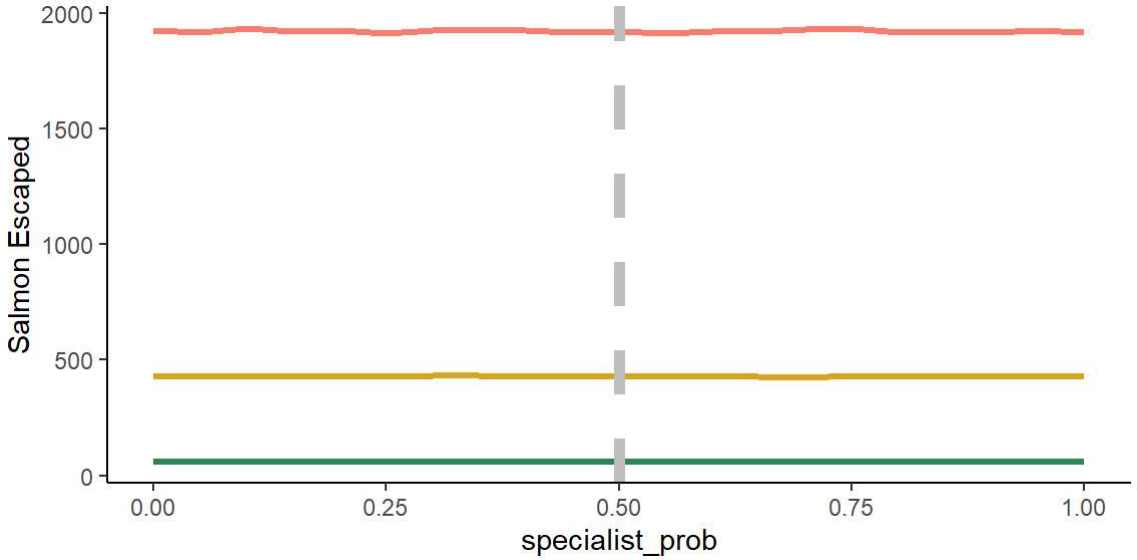
gamma



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
-1	1917.886	60.30103	430.9599
0	1445.914	11.57797	275.0899

specialist_prob

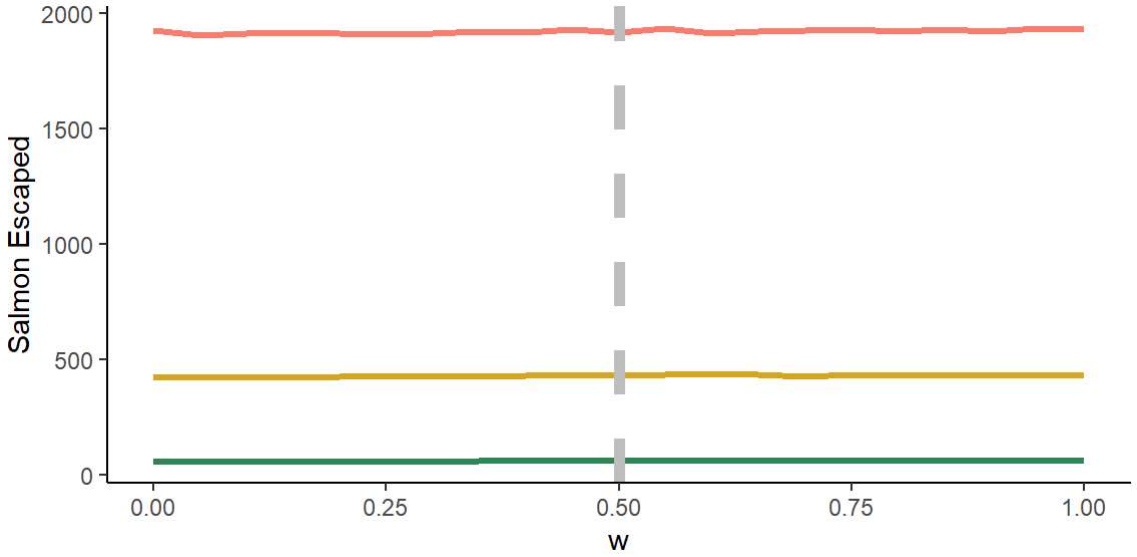


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1925.249	60.64157	428.7966
1	1917.851	60.03113	427.6660

This has pretty much no impact at all, so we could actually probably get rid of this feature completely if we want.

w (relative goodness of the Gauntlet)

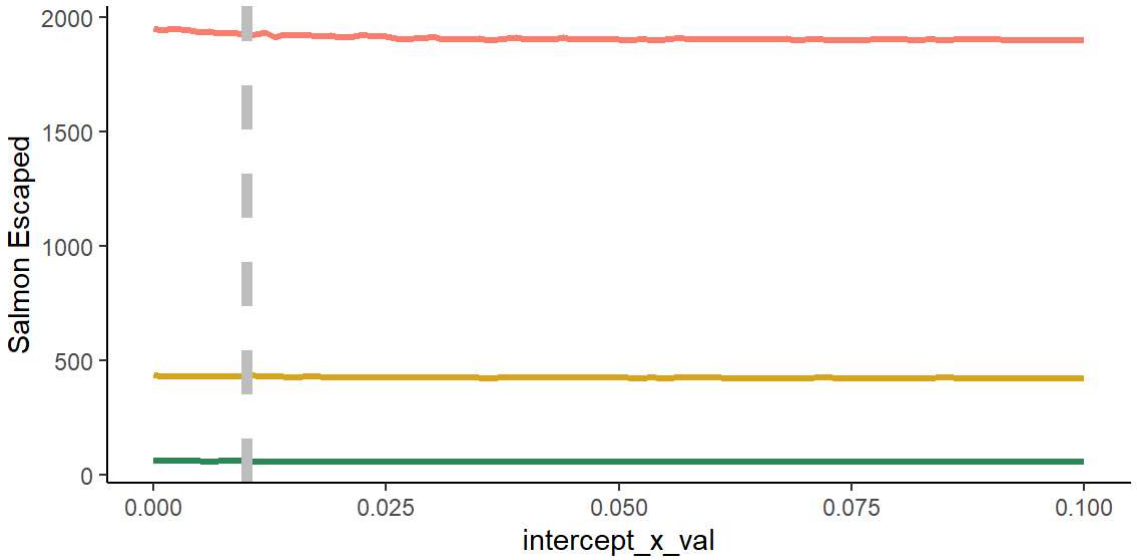


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1927.469	57.68638	423.1118
1	1928.569	63.27751	434.7910

This also has a very small impact, pretty much level.

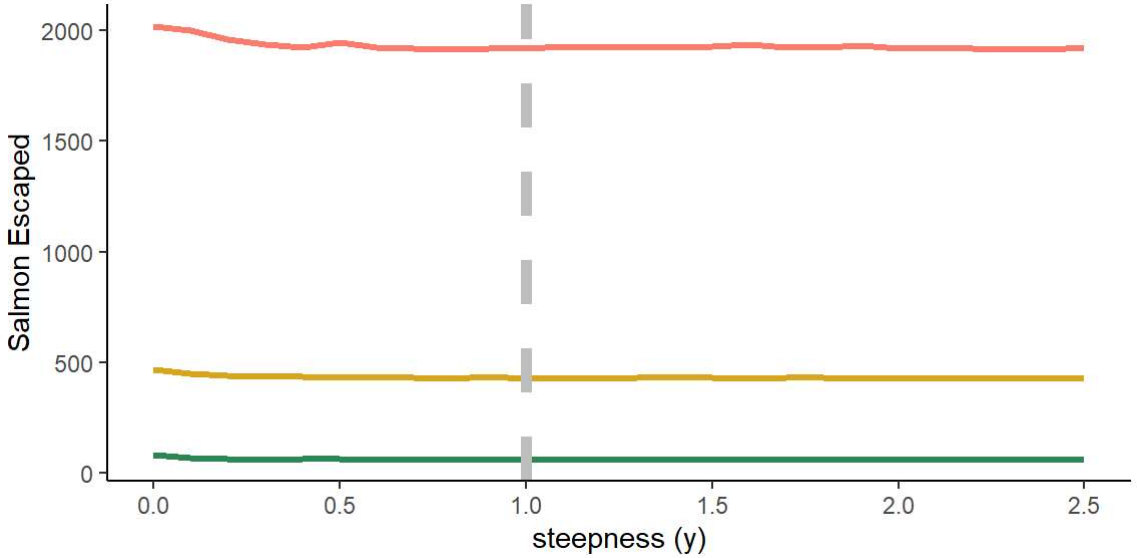
intercept_x_val



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1951.467	61.76674	438.0698
0.1	1898.293	59.27117	422.7966

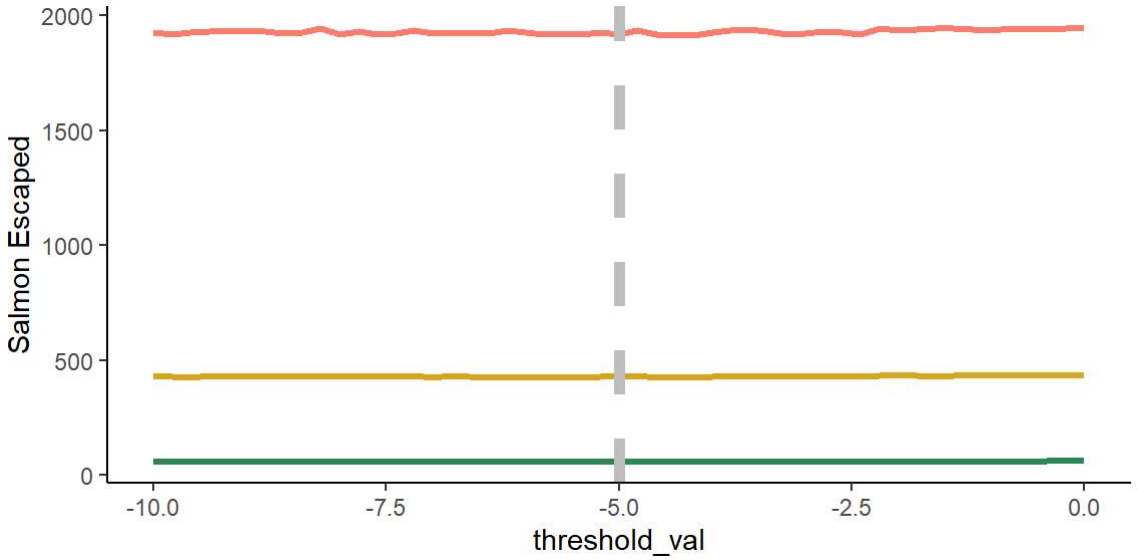
steepness (y –> Py)



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	2020.036	82.05787	465.8442
2.5	1923.379	59.93115	430.9041

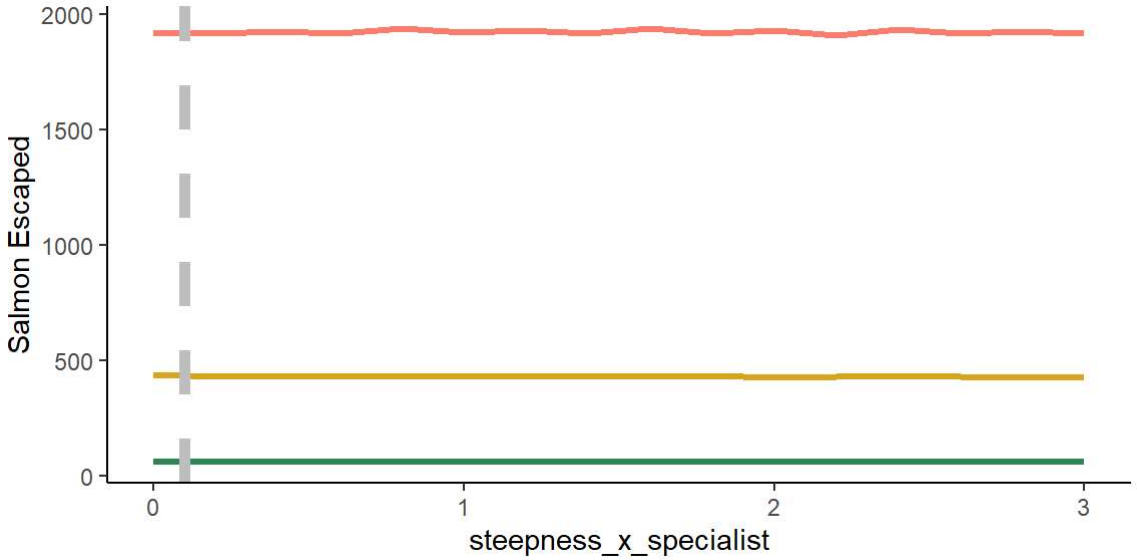
threshold_val (y –> Py)



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
-10	1928.552	60.04570	428.2526
0	1945.765	61.49914	437.1152

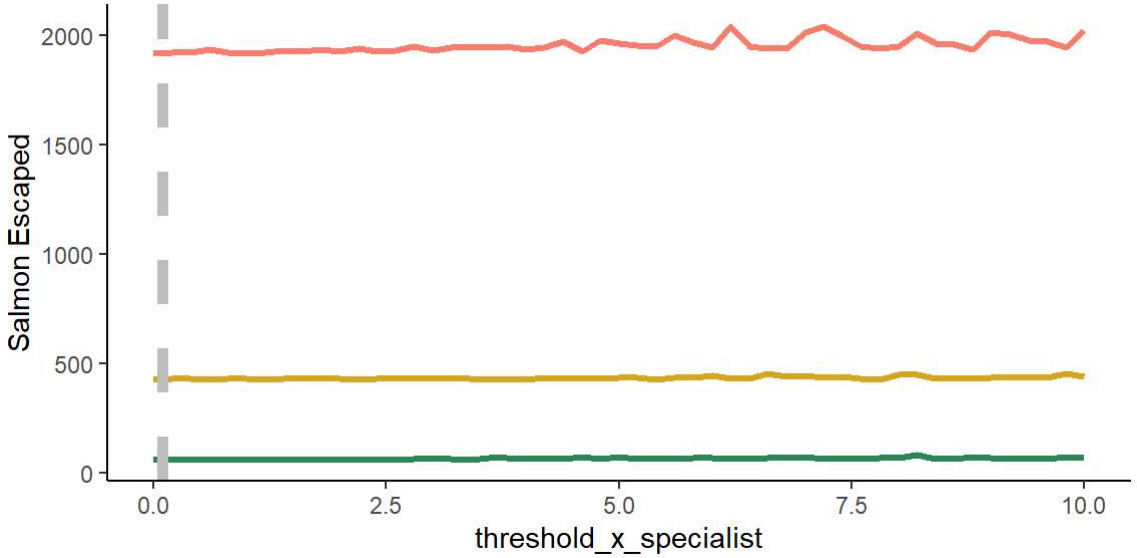
steepness_x_specialist



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1925.233	60.35488	437.1543
3	1920.886	60.67279	430.0379

threshold_x_specialist

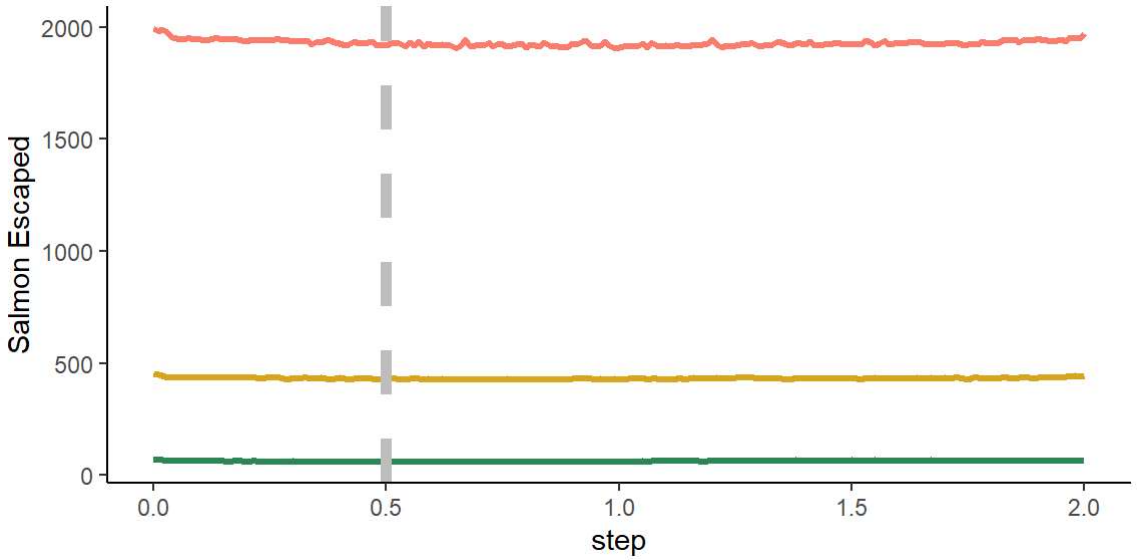


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1918.034	60.06349	426.6291
10	2022.845	66.34702	441.3156

Slight increase

step

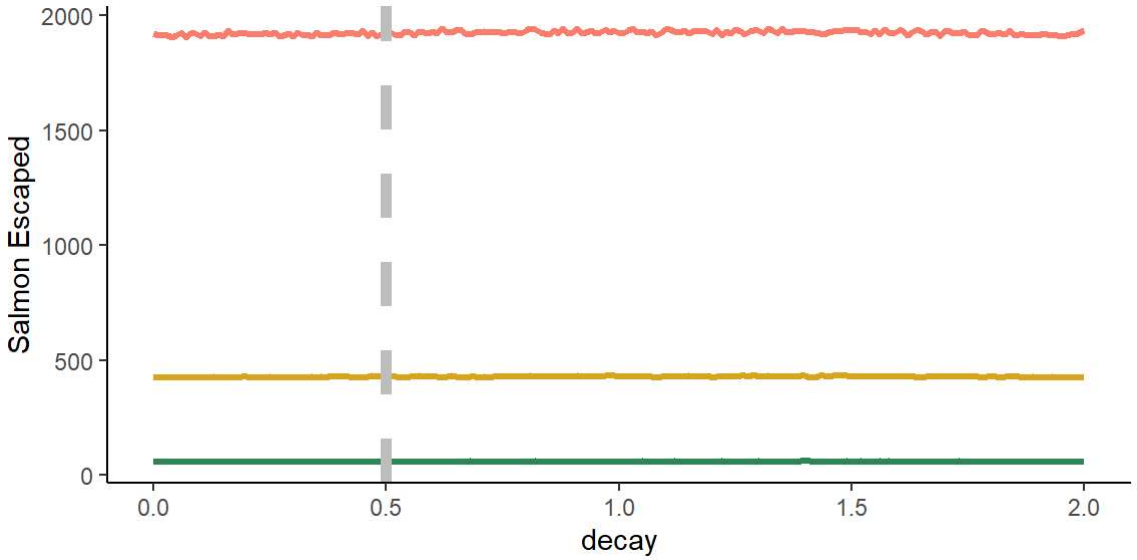


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1995.687	67.43438	452.8564
2	1970.547	65.43174	444.2567

Weird…needs some investigation…

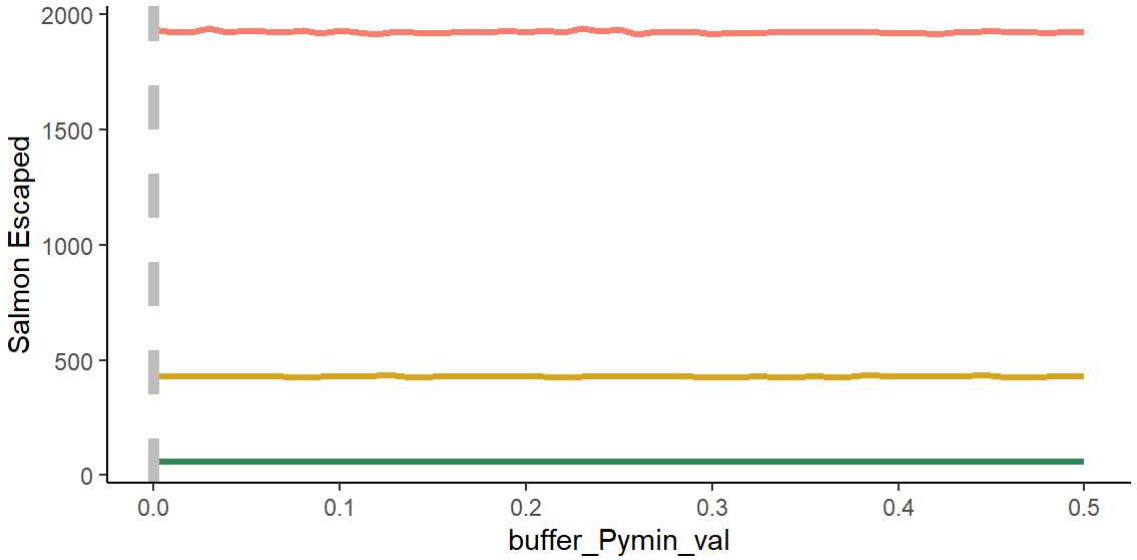
decay



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1924.027	60.33282	424.6429
2	1935.958	59.77286	424.9127

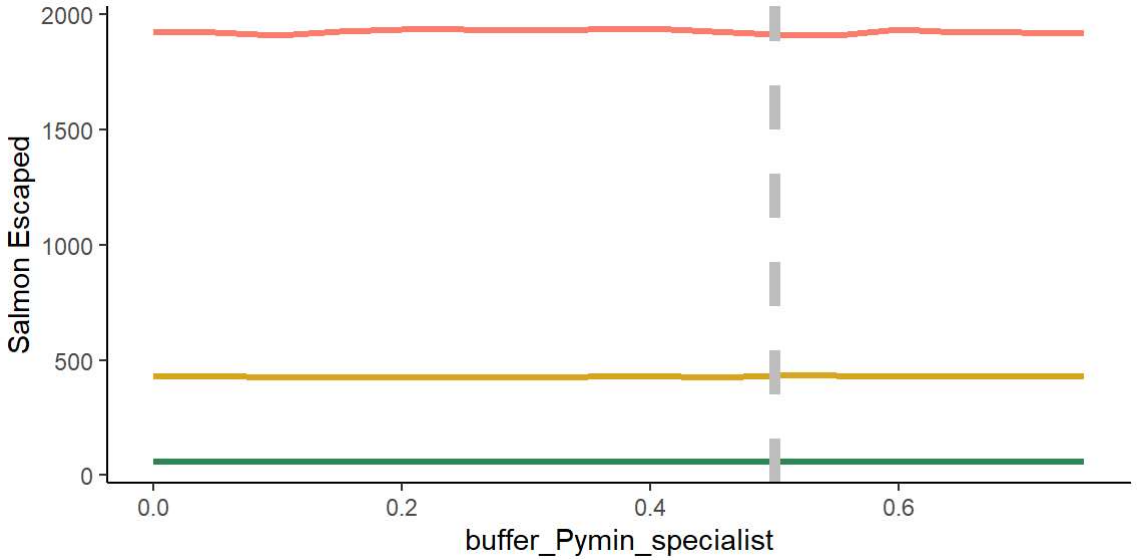
buffer_Pymin_val



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1933.809	59.66194	429.5248
0.5	1921.797	60.48468	428.4229

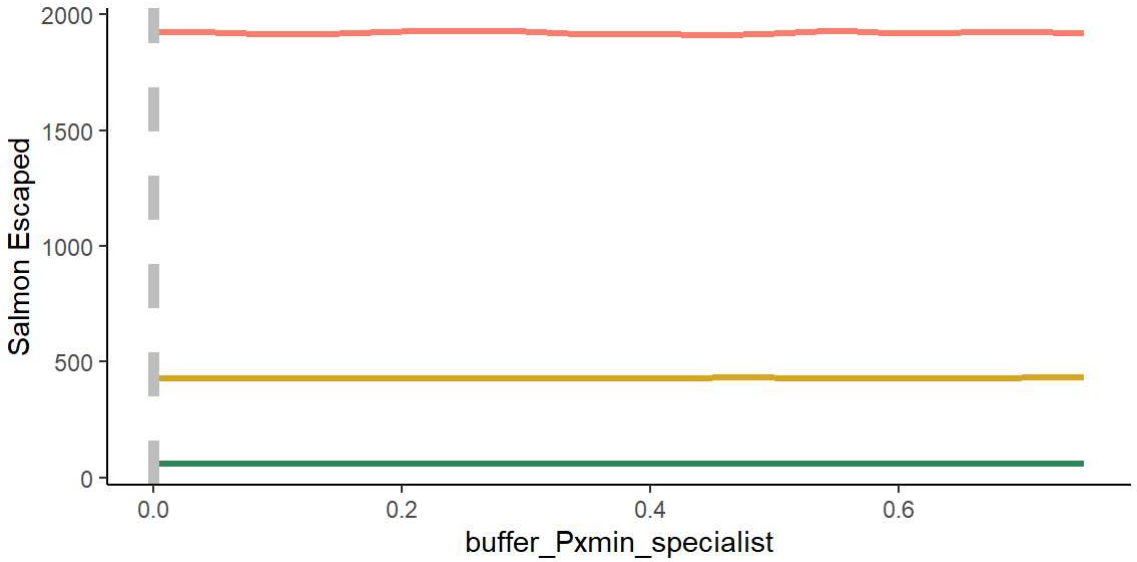
buffer_Pymin_specialist



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1925.546	59.84614	430.5217
0.75	1918.713	60.48055	432.0236

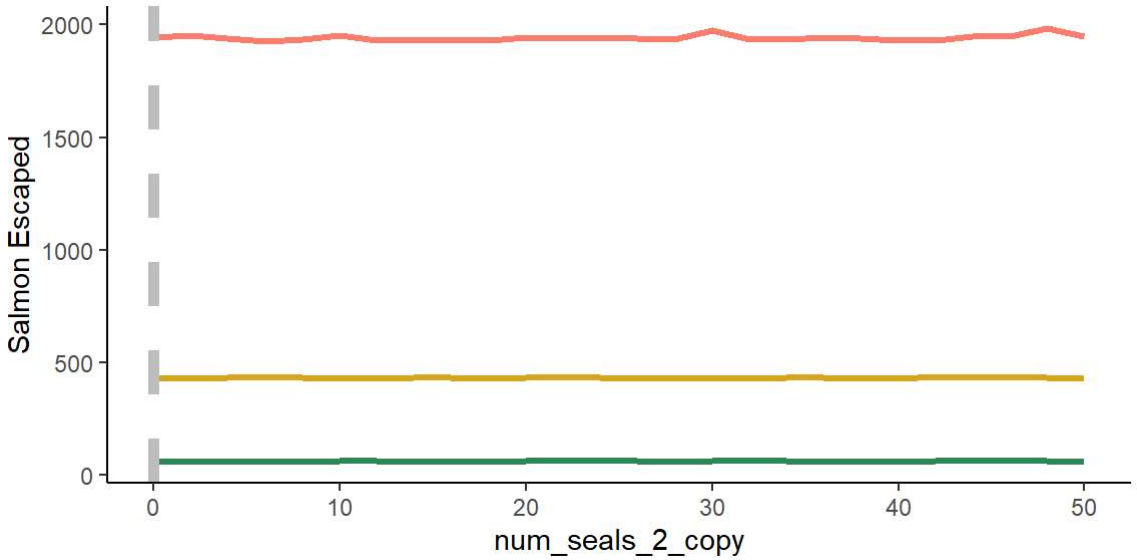
buffer_Pxmin_specialist



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1925.176	60.27150	431.5414
0.75	1918.057	59.85545	432.4451

num_seals_2_copy

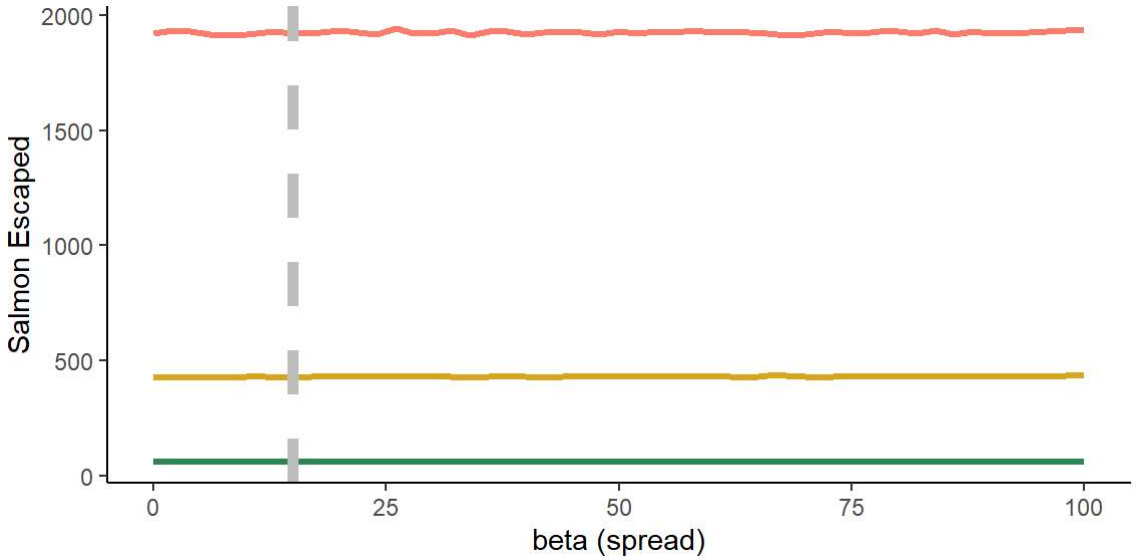


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1945.626	60.73563	427.9294
50	1946.887	60.62384	427.3756

Surprisingly no effect.

beta (receptivity spread)

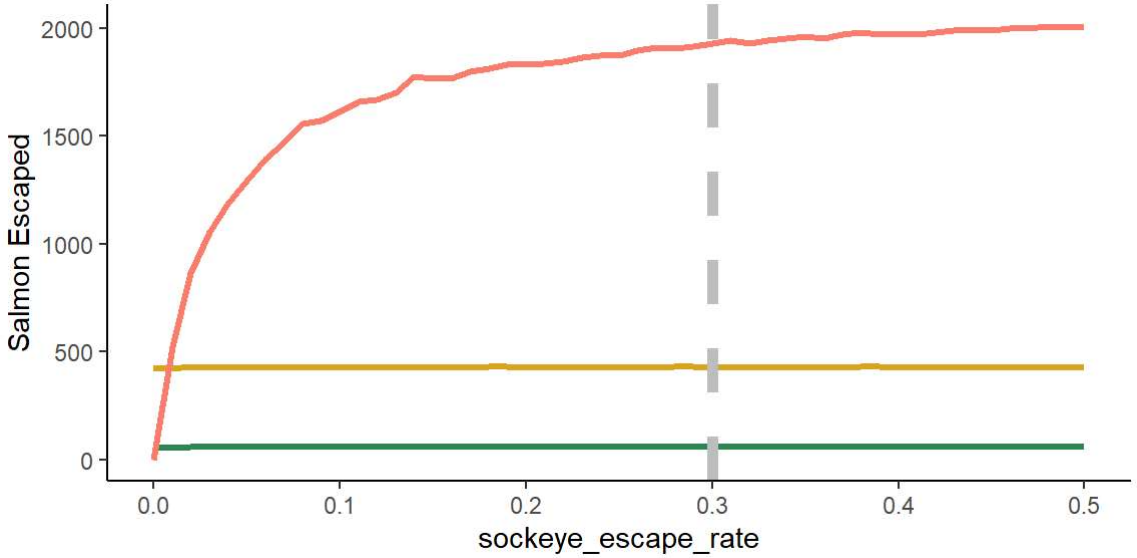


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1921.550	60.23043	425.5337
100	1936.251	60.49066	432.3029

Contagion not super relevant here…

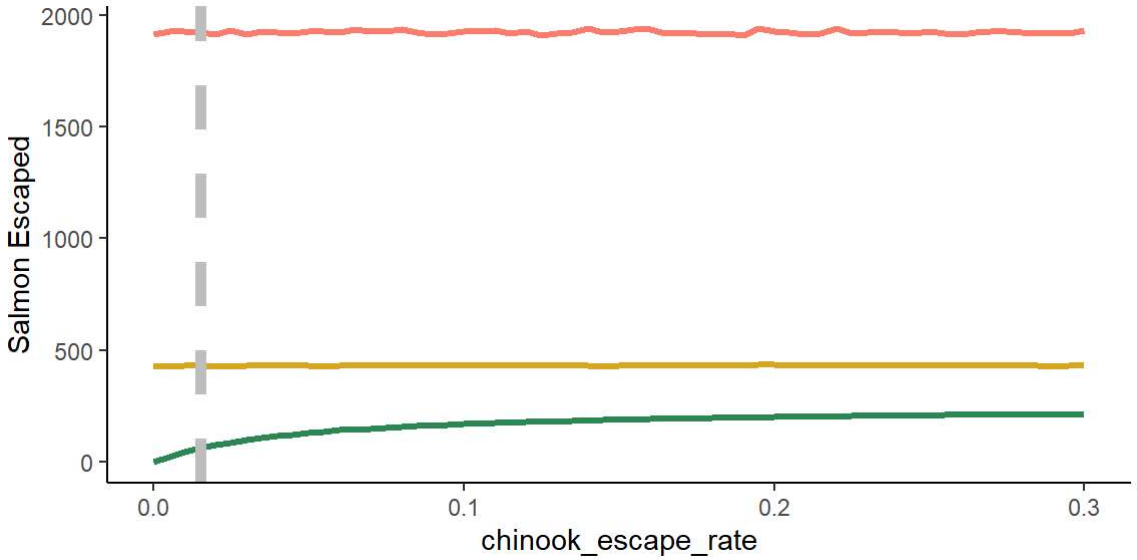
sockeye_escape_rate



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	0.000	57.27986	426.2996
0.5	2009.502	60.58737	429.0811

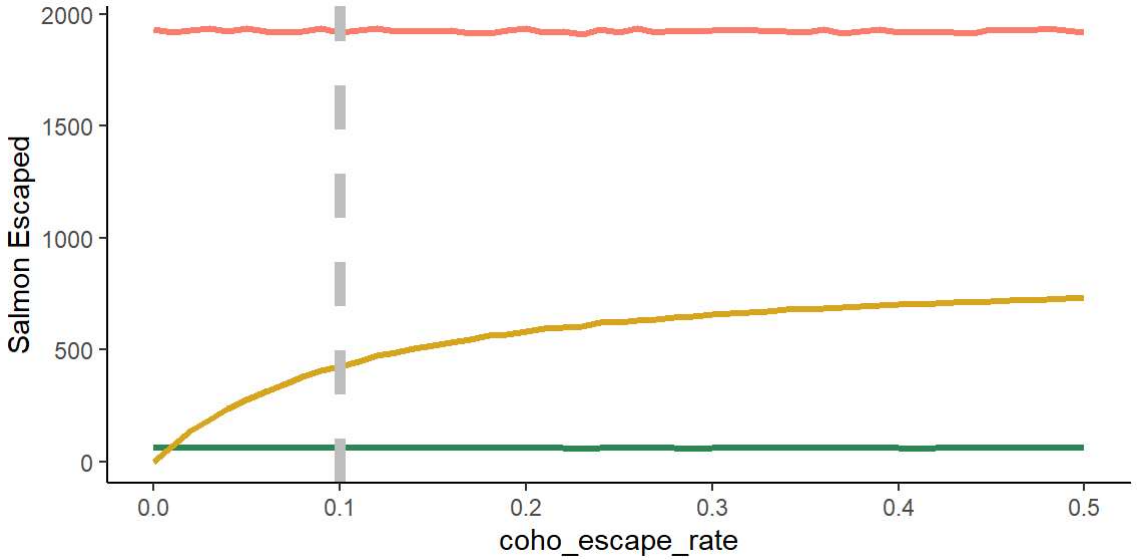
chinook_escape_rate



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1914.111	0.00000	427.0170
0.3	1933.670	212.85822	432.5880

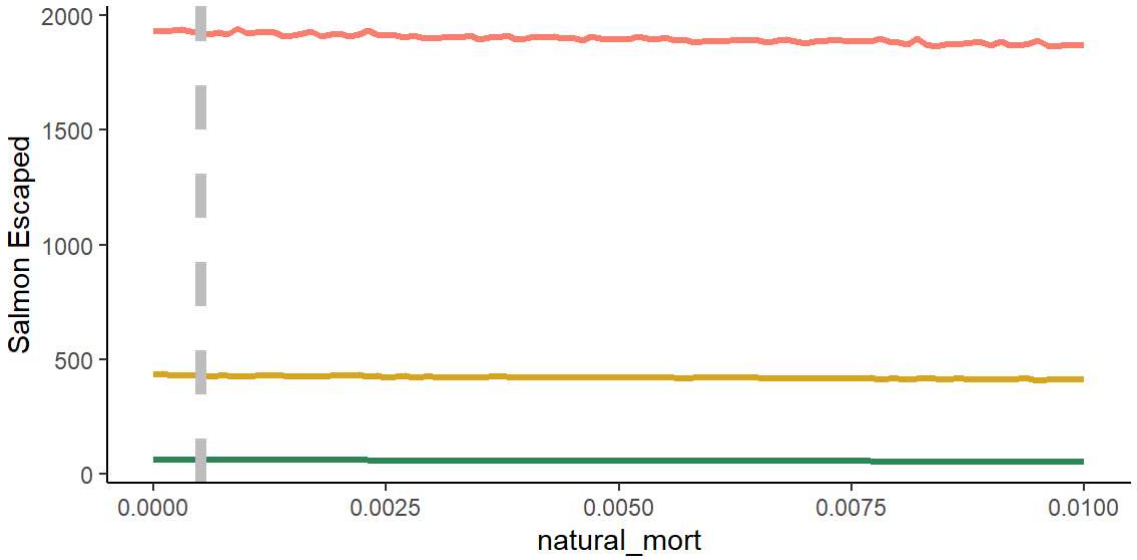
coho_escape_rate



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1930.638	59.80325	0.0000
0.5	1919.101	60.57911	729.8022

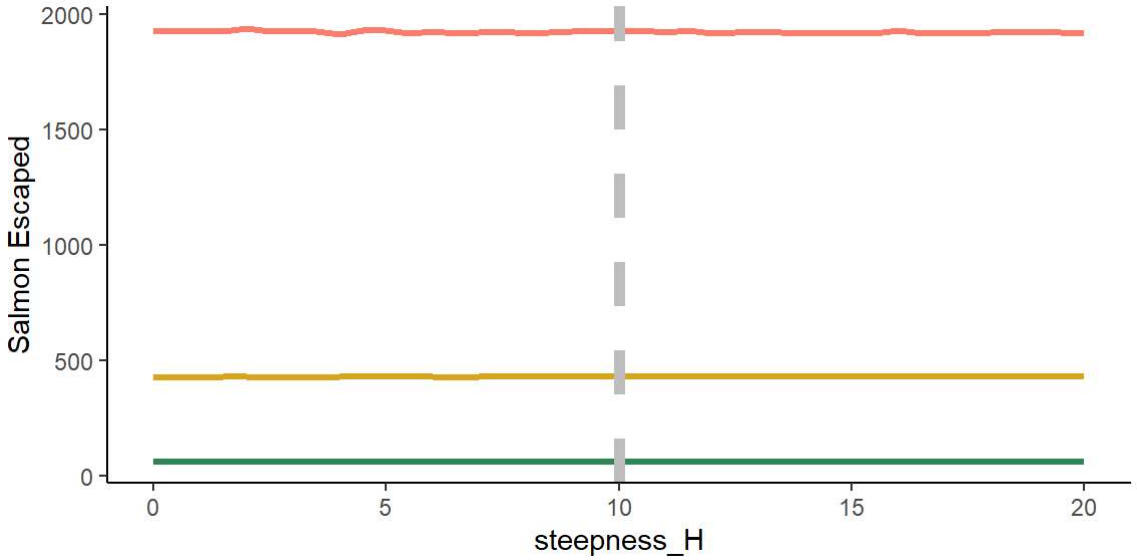
natural_mort



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1934.613	60.38875	432.5902
0.01	1875.134	52.67063	410.3124

steepness_H

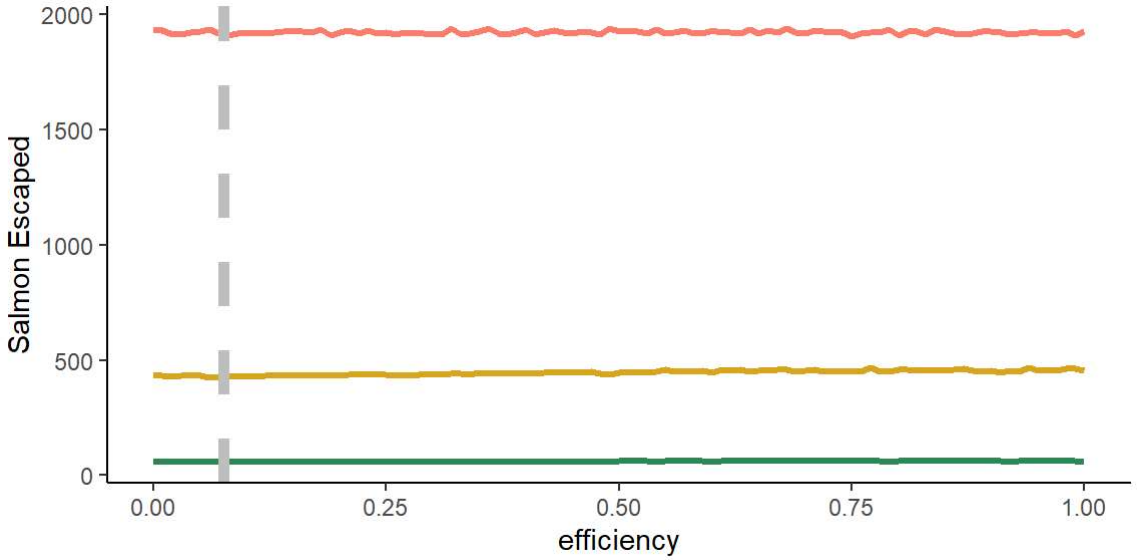


Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1927.715	59.92734	430.3361
20	1920.094	59.83748	430.4999

This makes sense that it won't have an effect when the total take is very little - need to evaluate at other levels of harvest.

efficiency



Escaped Salmon

Run	Sockeye	Chinook	Coho
Base	1936.664	60.18127	432.8986
0	1934.769	60.71428	437.0204
1	1927.715	60.84177	454.1988