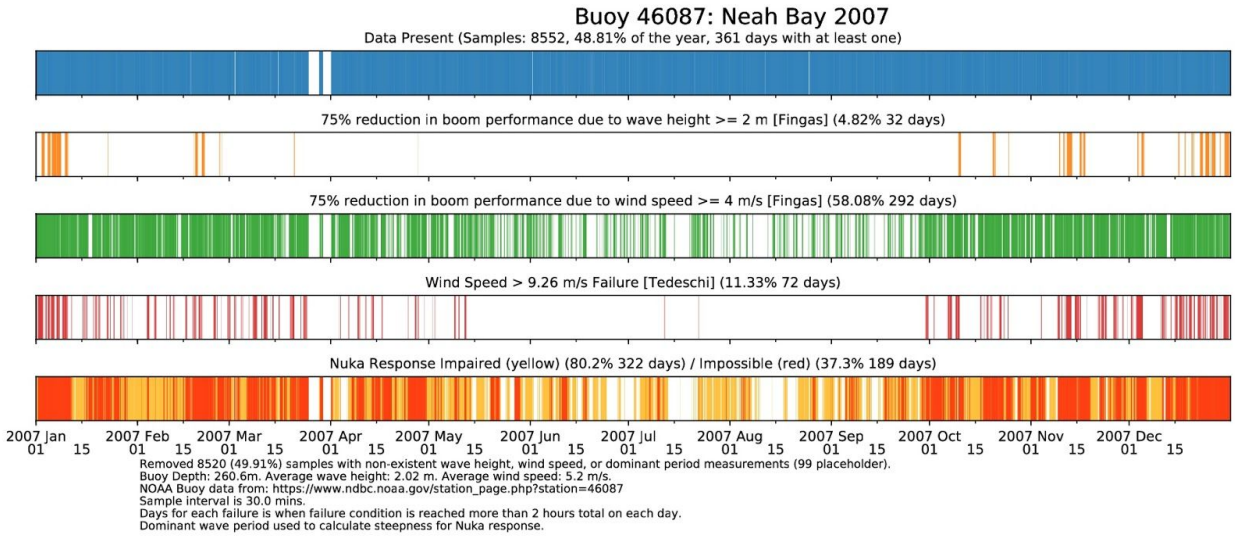
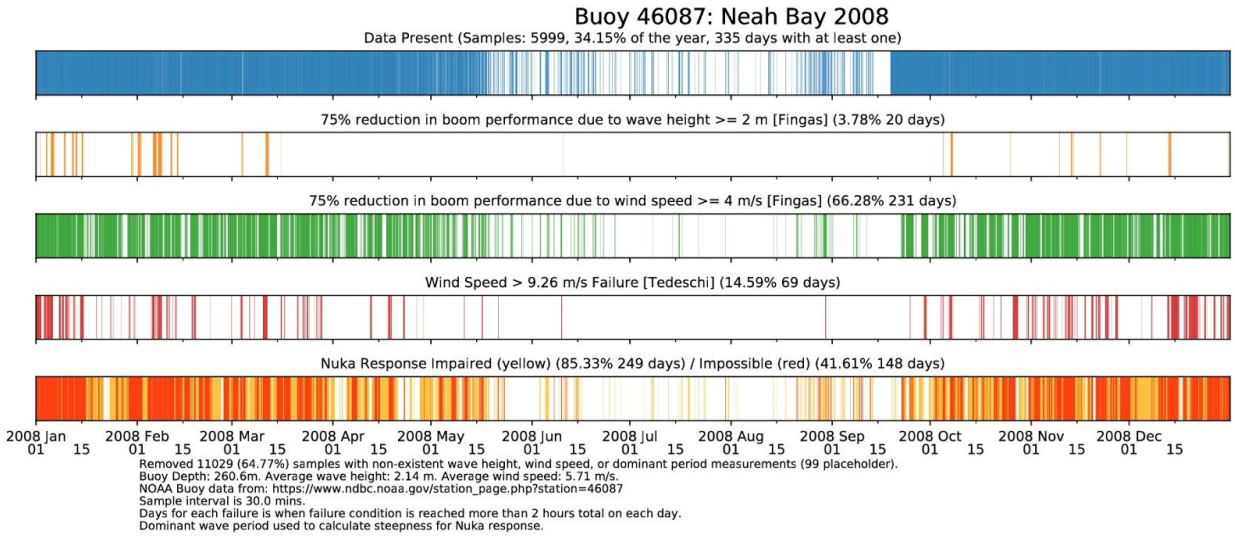
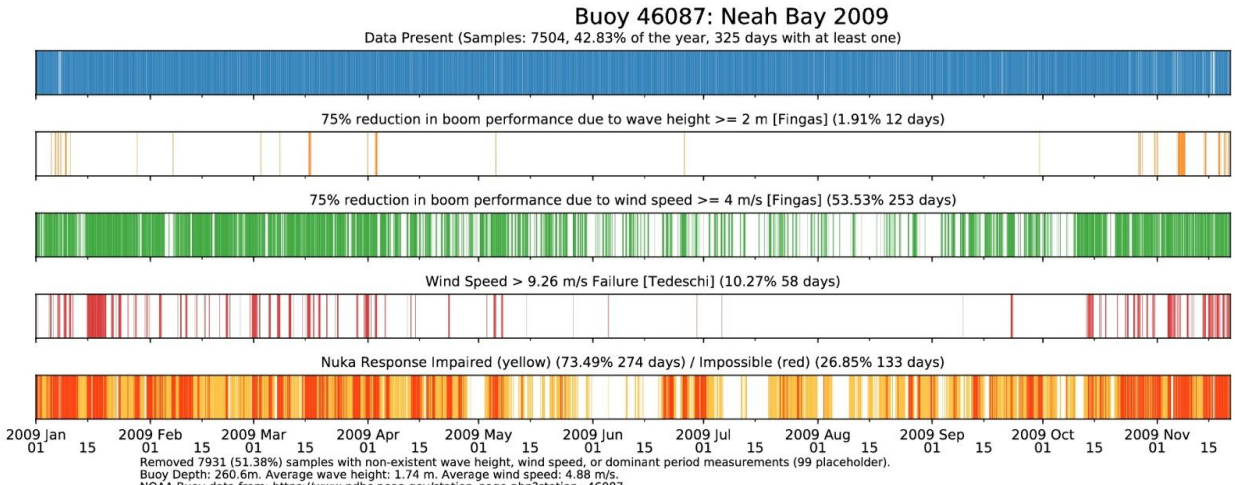
APPENDIX C

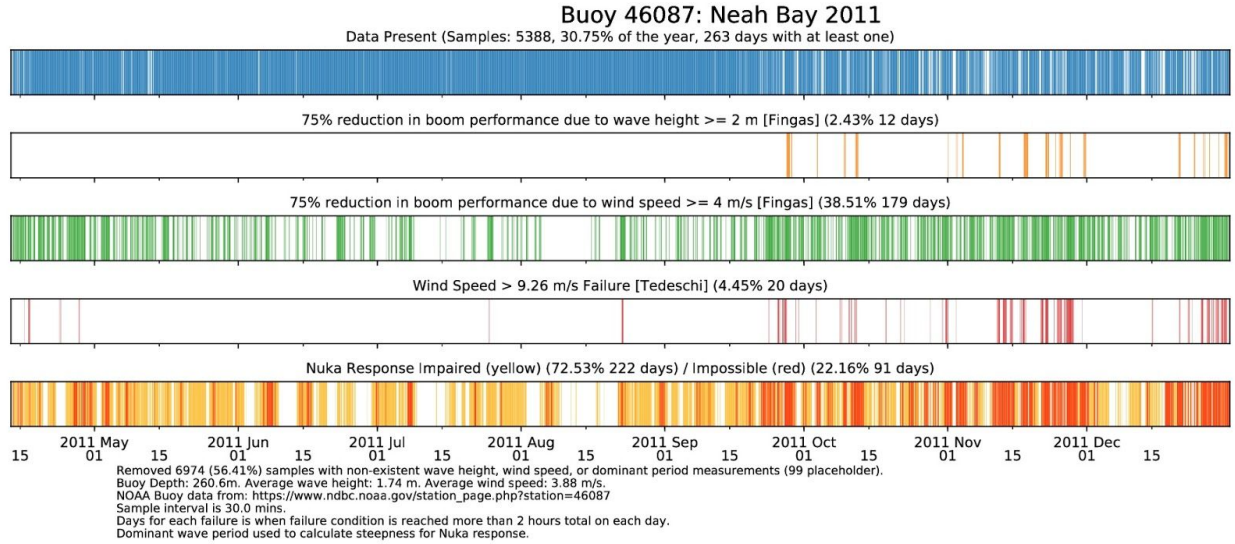
Buoys - all charts generated

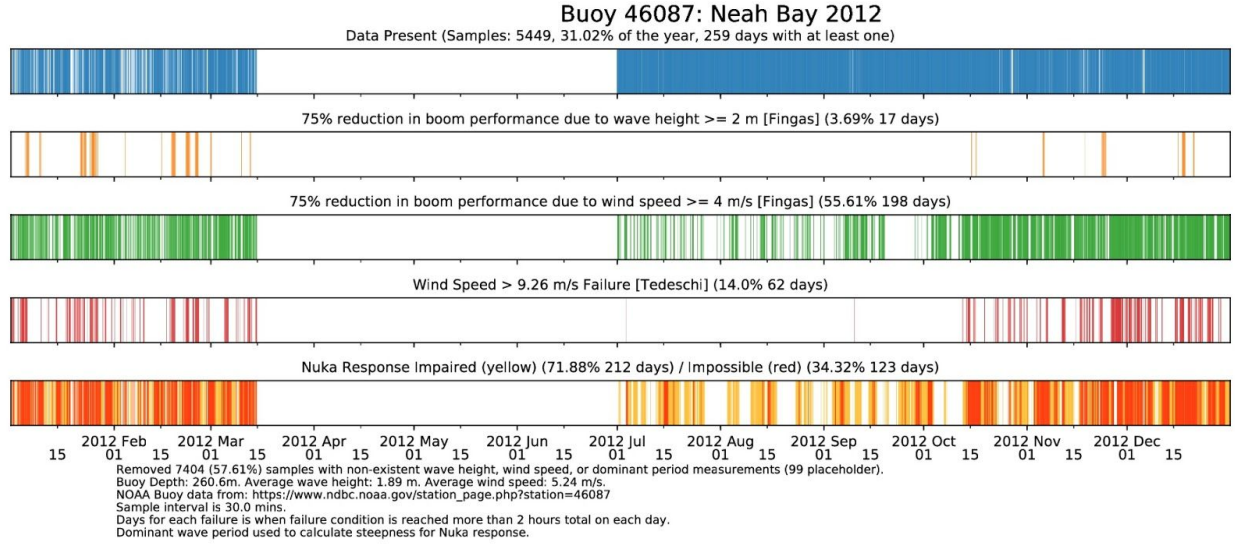
Neah Bay

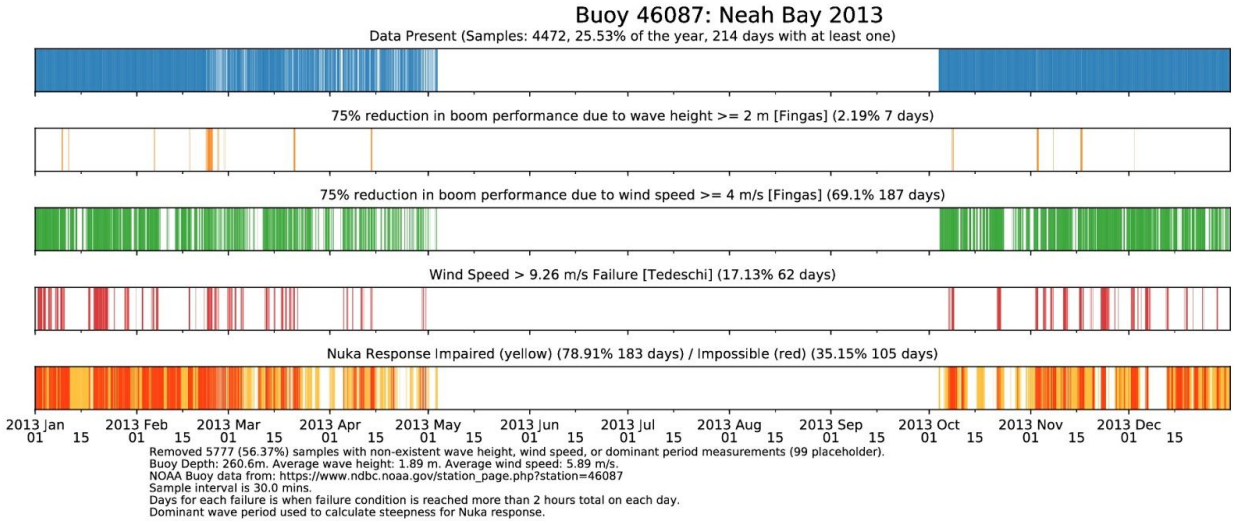


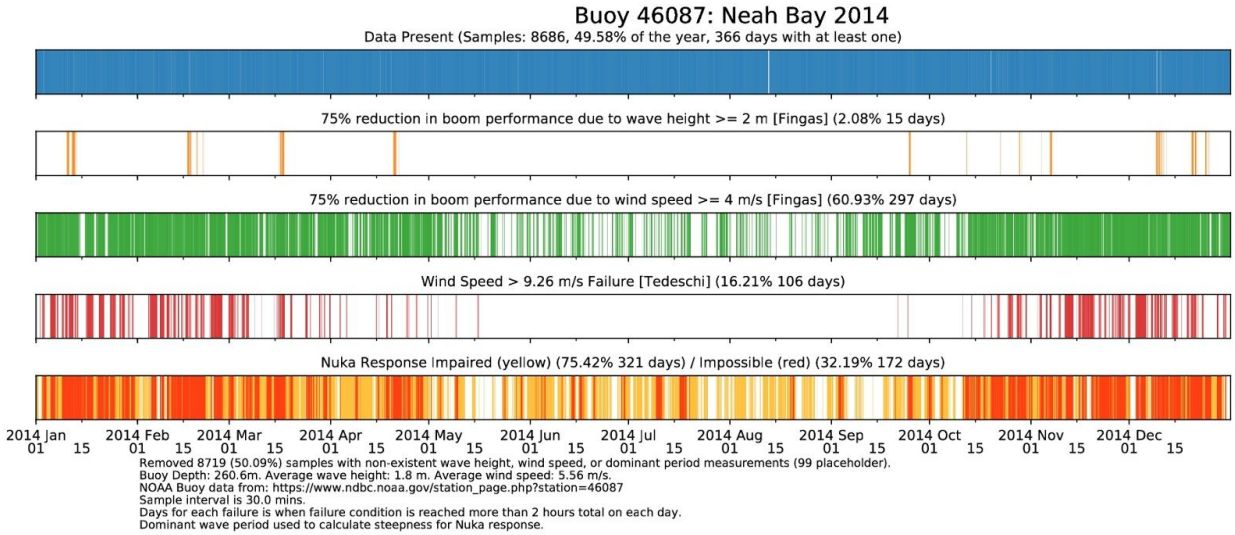


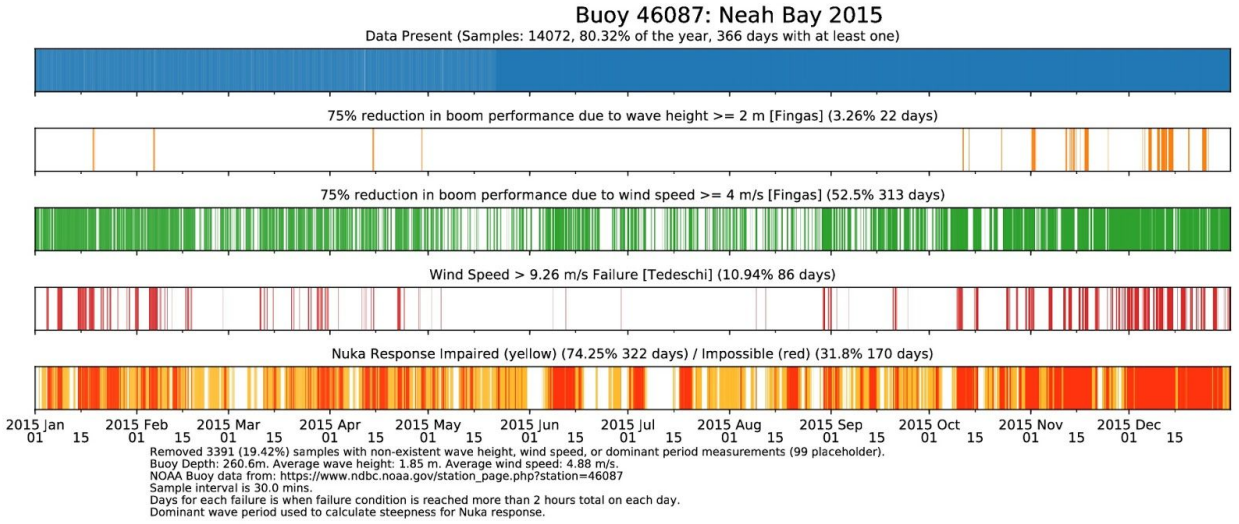

Buoy 46087: Neah Bay 2009
Data Present (Samples: 7504, 42.83% of the year, 325 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (1.91% 12 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (53.53% 253 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (10.27% 58 days)
Nuka Response Impaired (yellow) (73.49% 274 days) / Impossible (red) (26.85% 133 days)
2009 Jan 01 15 2009 Feb 01 15 2009 Mar 01 15 2009 Apr 01 15 2009 May 01 15 2009 Jun 01 15 2009 Jul 01 15 2009 Aug 01 15 2009 Sep 01 15 2009 Oct 01 15 2009 Nov 01 15
Removed 7931 (51.38%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.74 m. Average wind speed: 4.88 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.


Buoy 46087: Neah Bay 2011
Data Present (Samples: 5388, 30.75% of the year, 263 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (2.43% 12 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (38.51% 179 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (4.45% 20 days)
Nuka Response Impaired (yellow) (72.53% 222 days) / Impossible (red) (22.16% 91 days)
15 2011 May 01 15 2011 Jun 01 15 2011 Jul 01 15 2011 Aug 01 15 2011 Sep 01 15 2011 Oct 01 15 2011 Nov 01 15 2011 Dec 01 15
Removed 6974 (56.41%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.74 m. Average wind speed: 3.88 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

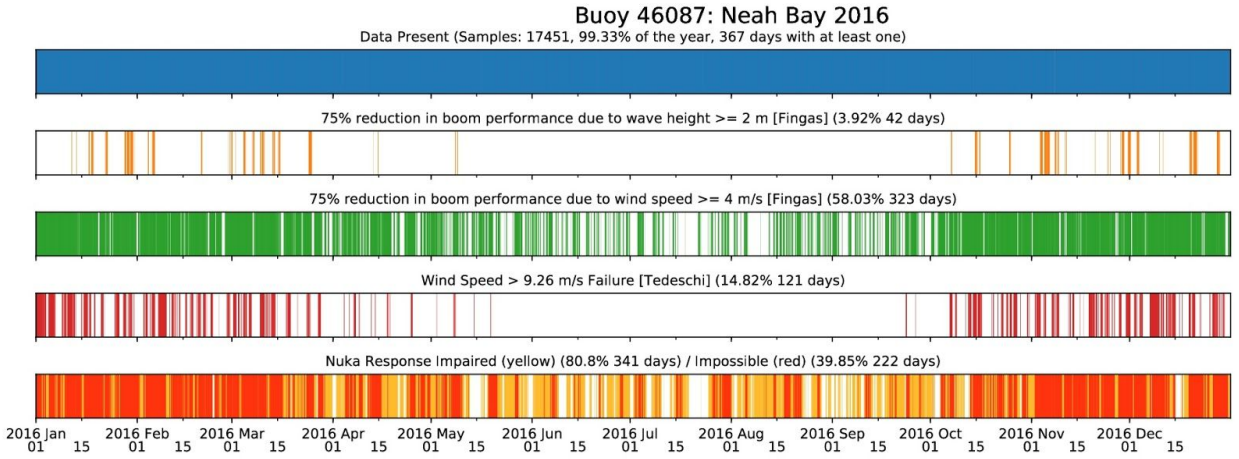

Buoy 46087: Neah Bay 2012
Data Present (Samples: 5449, 31.02% of the year, 259 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (3.69% 17 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (55.61% 198 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (14.0% 62 days)
Nuka Response Impaired (yellow) (71.88% 212 days) / Impossible (red) (34.32% 123 days)
15 2012 Feb 01 15 2012 Mar 01 15 2012 Apr 01 15 2012 May 01 15 2012 Jun 01 15 2012 Jul 01 15 2012 Aug 01 15 2012 Sep 01 15 2012 Oct 01 15 2012 Nov 01 15 2012 Dec 01 15
Removed 7404 (57.61%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.89 m. Average wind speed: 5.24 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.


Buoy 46087: Neah Bay 2013
Data Present (Samples: 4472, 25.53% of the year, 214 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (2.19% 7 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (69.1% 187 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (17.13% 62 days)
Nuka Response Impaired (yellow) (78.91% 183 days) / Impossible (red) (35.15% 105 days)
2013 Jan 01 15 2013 Feb 01 15 2013 Mar 01 15 2013 Apr 01 15 2013 May 01 15 2013 Jun 01 15 2013 Jul 01 15 2013 Aug 01 15 2013 Sep 01 15 2013 Oct 01 15 2013 Nov 01 15 2013 Dec 01 15
Removed 5777 (56.37%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.89 m. Average wind speed: 5.89 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

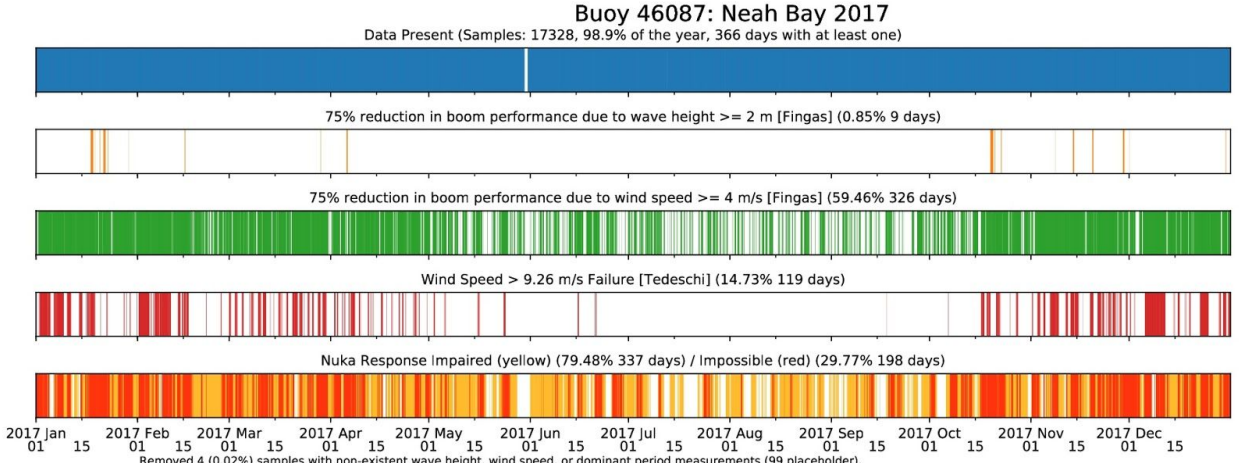

Buoy 46087: Neah Bay 2014
Data Present (Samples: 8686, 49.58% of the year, 366 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (2.08% 15 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (60.93% 297 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (16.21% 106 days)
Nuka Response Impaired (yellow) (75.42% 321 days) / Impossible (red) (32.19% 172 days)
2014 Jan 01 15 2014 Feb 01 15 2014 Mar 01 15 2014 Apr 01 15 2014 May 01 15 2014 Jun 01 15 2014 Jul 01 15 2014 Aug 01 15 2014 Sep 01 15 2014 Oct 01 15 2014 Nov 01 15 2014 Dec 01 15
Removed 8719 (50.09%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.8 m. Average wind speed: 5.56 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



Removed 3391 (19.42%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.85 m. Average wind speed: 4.88 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

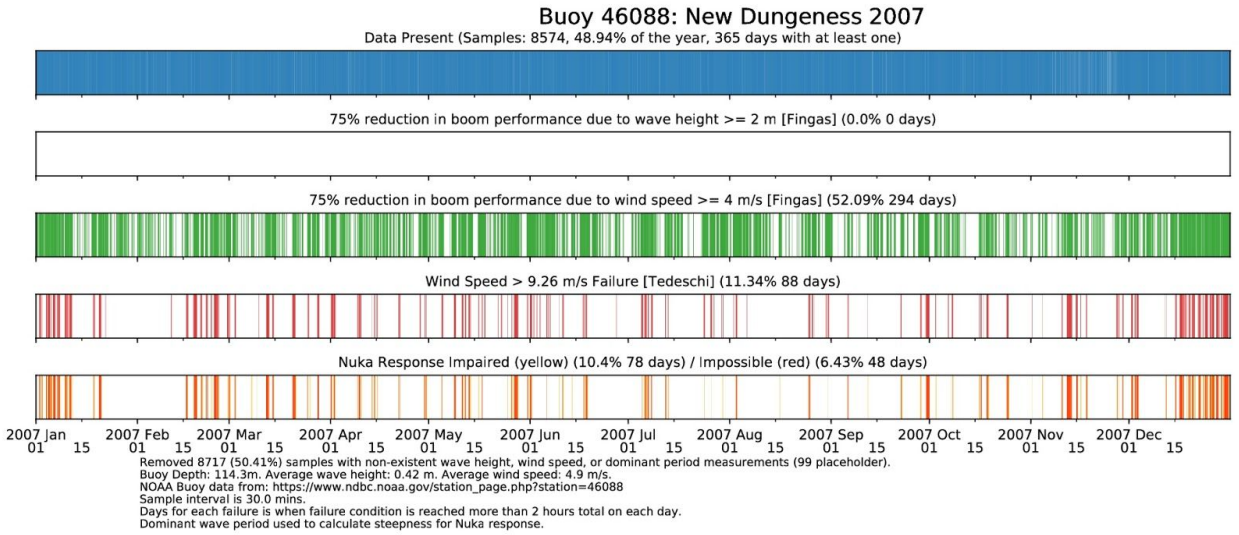


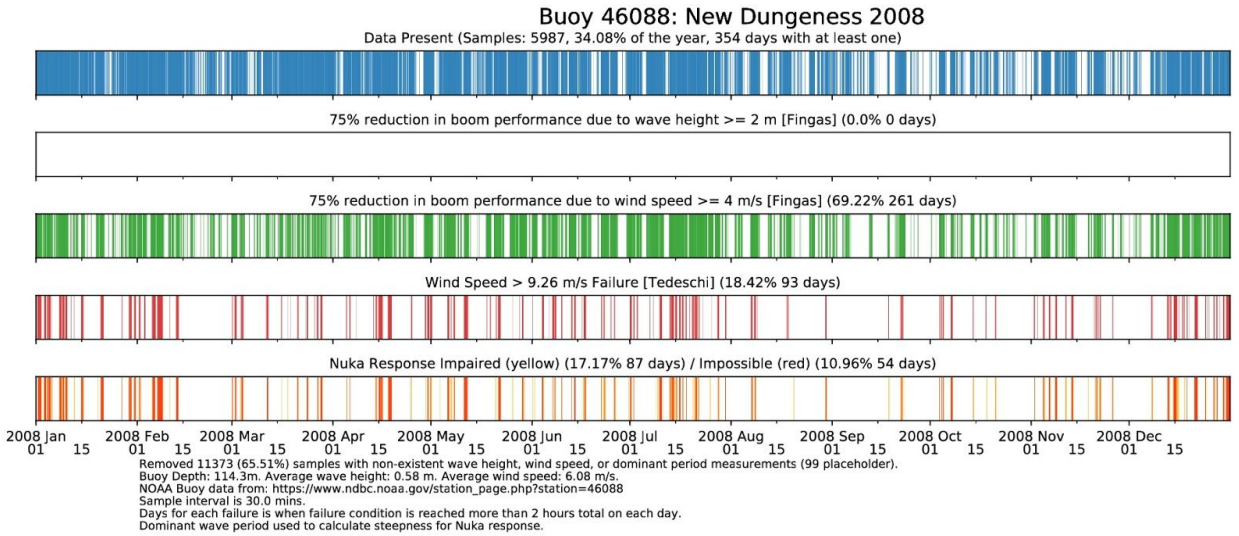
Buoy Depth: 260.6m. Average wave height: 2.02 m. Average wind speed: 5.36 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

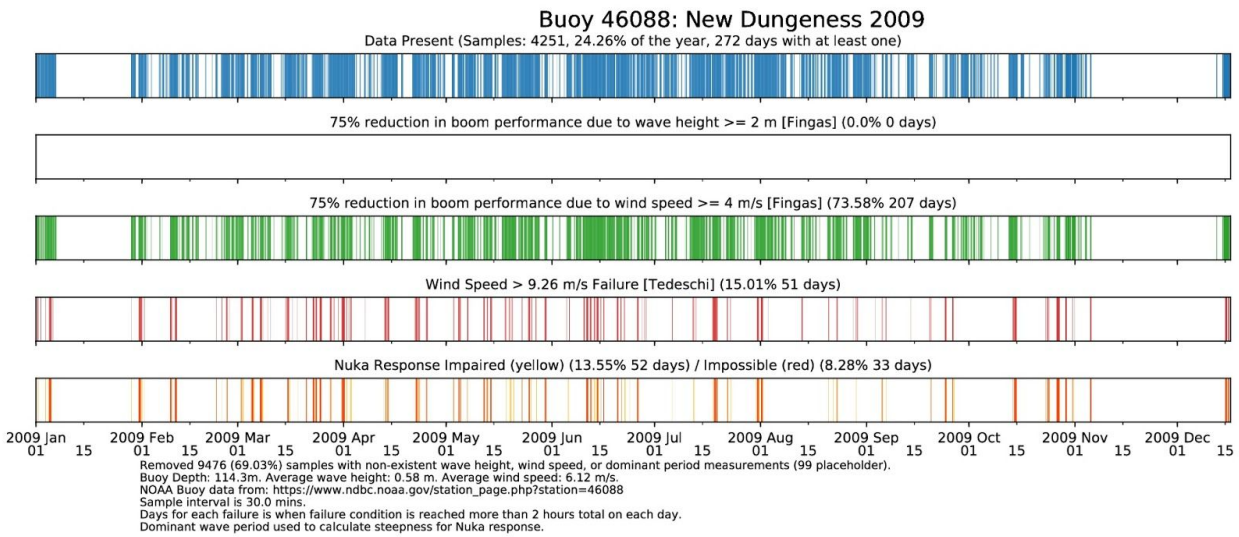


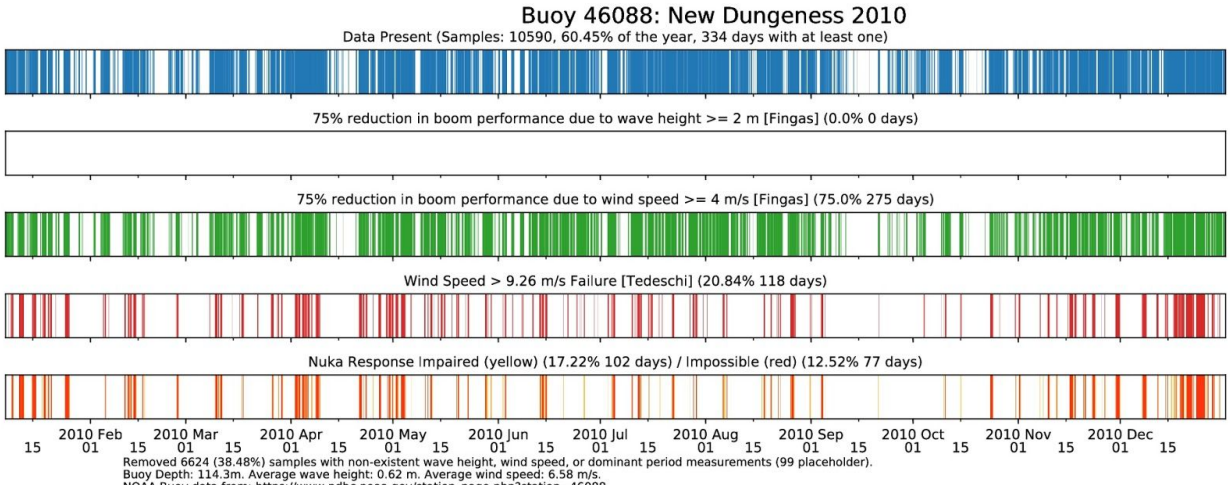
Removed 4 (0.02%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 260.6m. Average wave height: 1.76 m. Average wind speed: 5.43 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46087
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

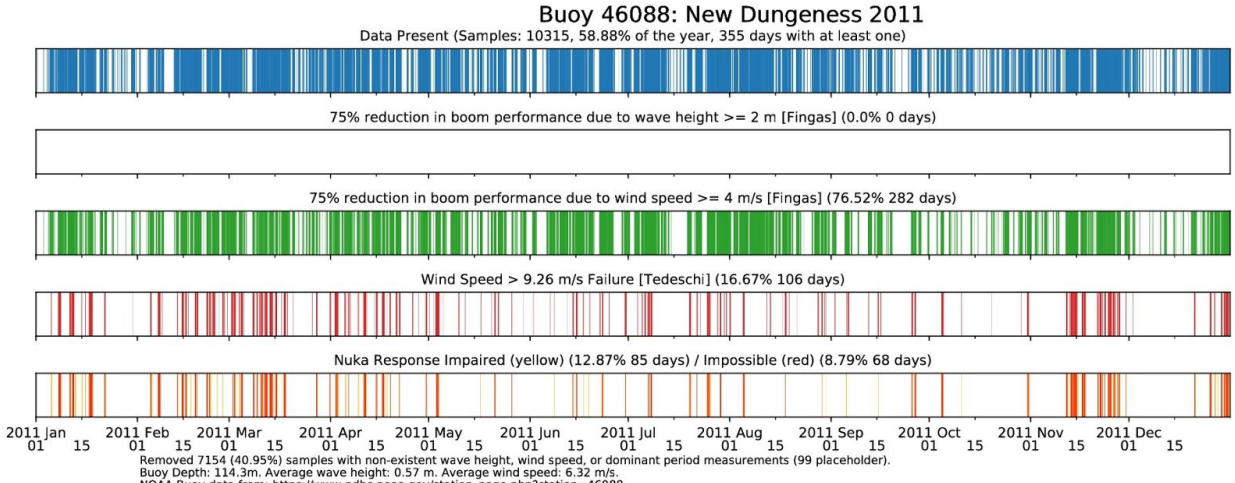
New Dungeness

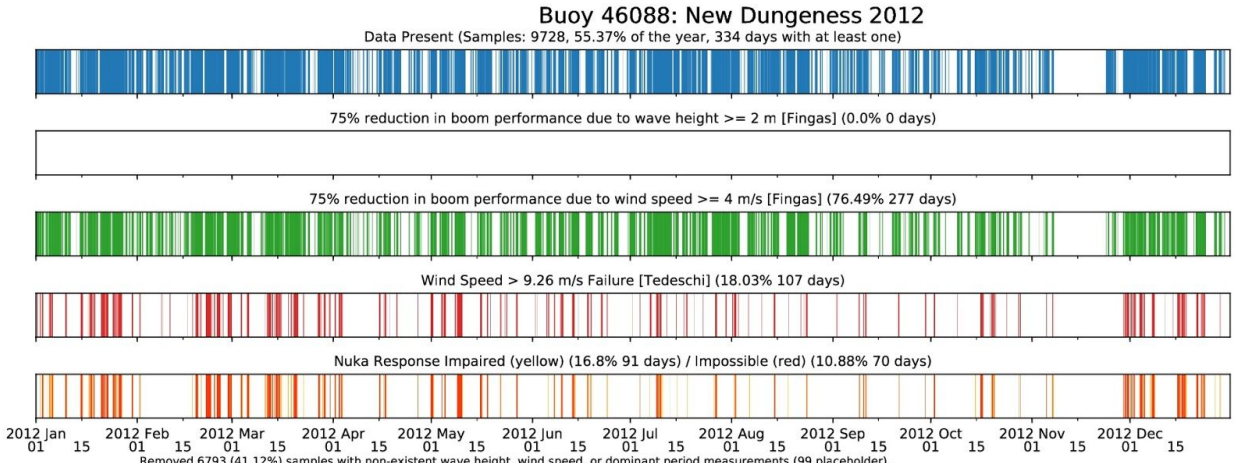




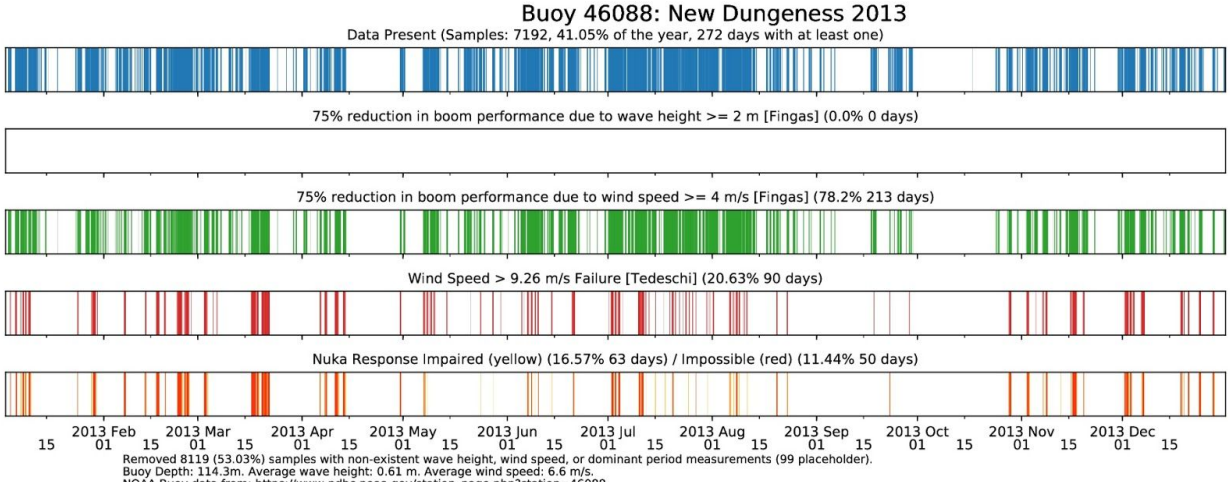



Buoy 46088: New Dungeness 2010
Data Present (Samples: 10590, 60.45% of the year, 334 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (0.0% 0 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (75.0% 275 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (20.84% 118 days)
Nuka Response Impaired (yellow) (17.22% 102 days) / Impossible (red) (12.52% 77 days)
2010 Feb 2010 Mar 2010 Apr 2010 May 2010 Jun 2010 Jul 2010 Aug 2010 Sep 2010 Oct 2010 Nov 2010 Dec
Removed 6624 (38.48%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.62 m. Average wind speed: 6.58 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.


Buoy 46088: New Dungeness 2011
Data Present (Samples: 10315, 58.88% of the year, 355 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (0.0% 0 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (76.52% 282 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (16.67% 106 days)
Nuka Response Impaired (yellow) (12.87% 85 days) / Impossible (red) (8.79% 68 days)
2011 Jan 2011 Feb 2011 Mar 2011 Apr 2011 May 2011 Jun 2011 Jul 2011 Aug 2011 Sep 2011 Oct 2011 Nov 2011 Dec
Removed 7154 (40.95%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.57 m. Average wind speed: 6.32 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

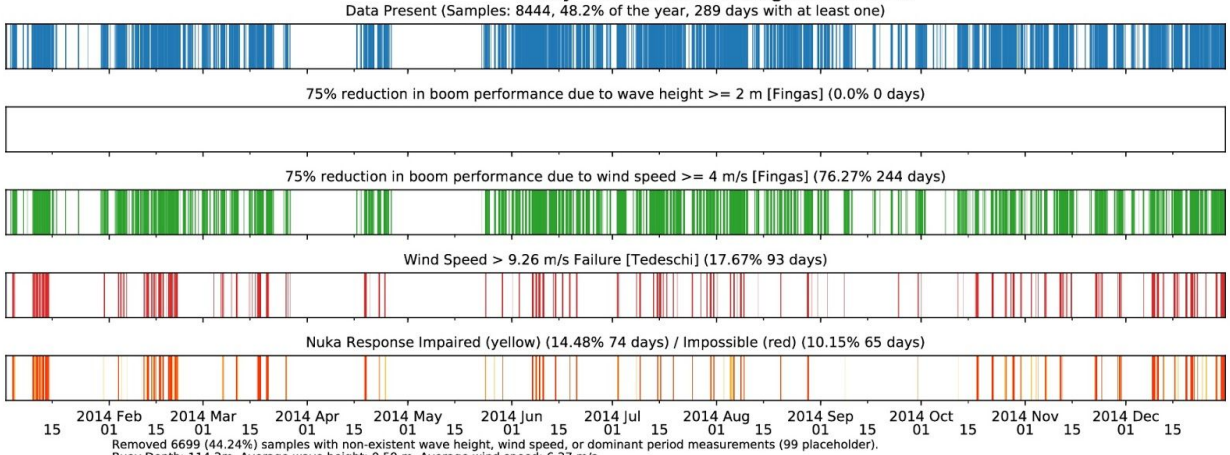

Buoy 46088: New Dungeness 2012
Data Present (Samples: 9728, 55.37% of the year, 334 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (0.0% 0 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (76.49% 277 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (18.03% 107 days)
Nuka Response Impaired (yellow) (16.8% 91 days) / Impossible (red) (10.88% 70 days)
2012 Jan 2012 Feb 2012 Mar 2012 Apr 2012 May 2012 Jun 2012 Jul 2012 Aug 2012 Sep 2012 Oct 2012 Nov 2012 Dec
Removed 6793 (41.12%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.61 m. Average wind speed: 6.5 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

Buoy 46088: New Dungeness 2013



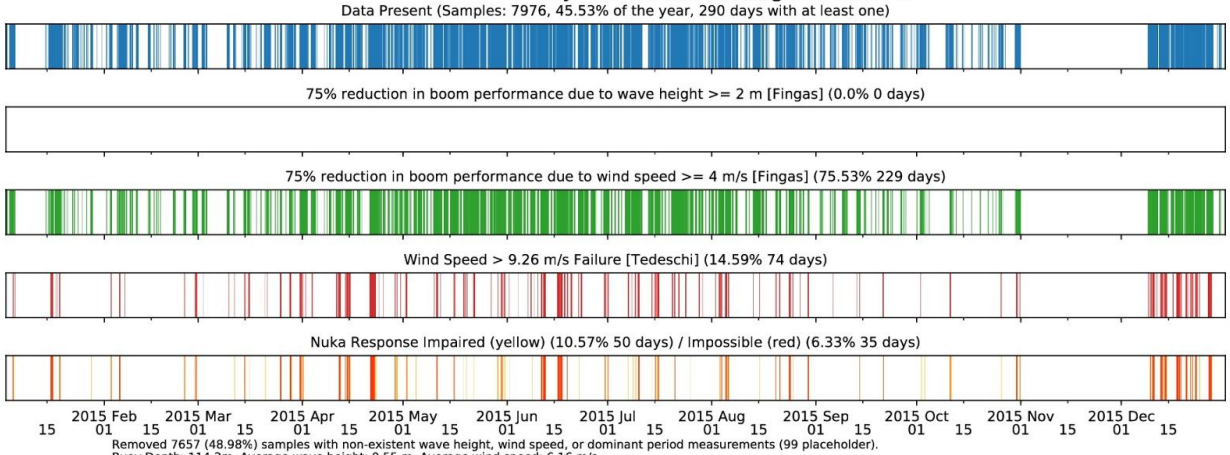
Removed 8119 (53.03%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.61 m. Average wind speed: 6.6 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

Buoy 46088: New Dungeness 2014

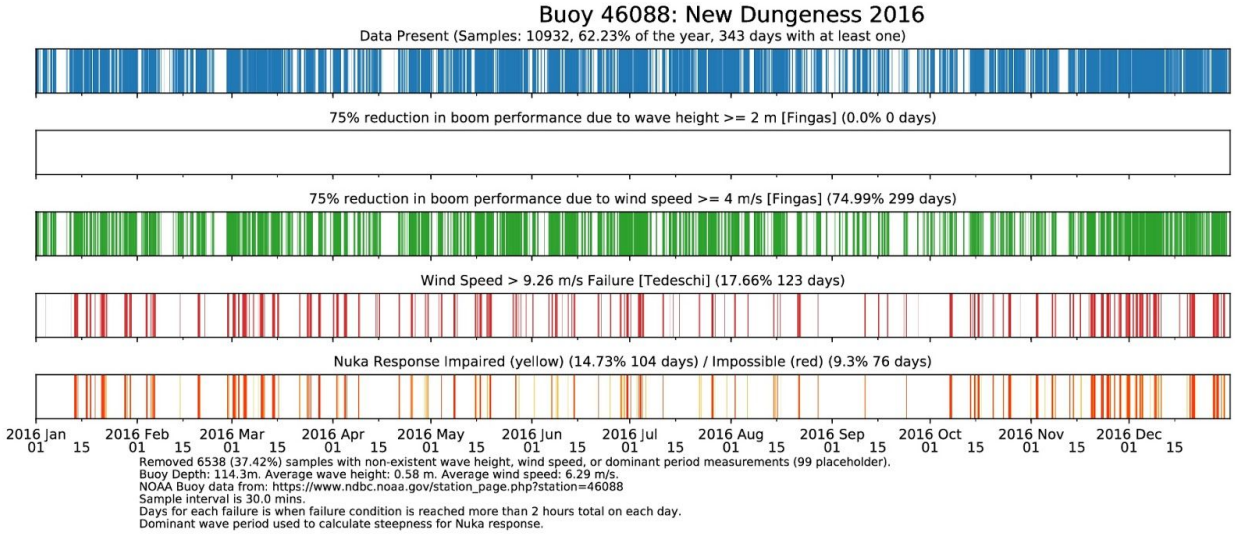


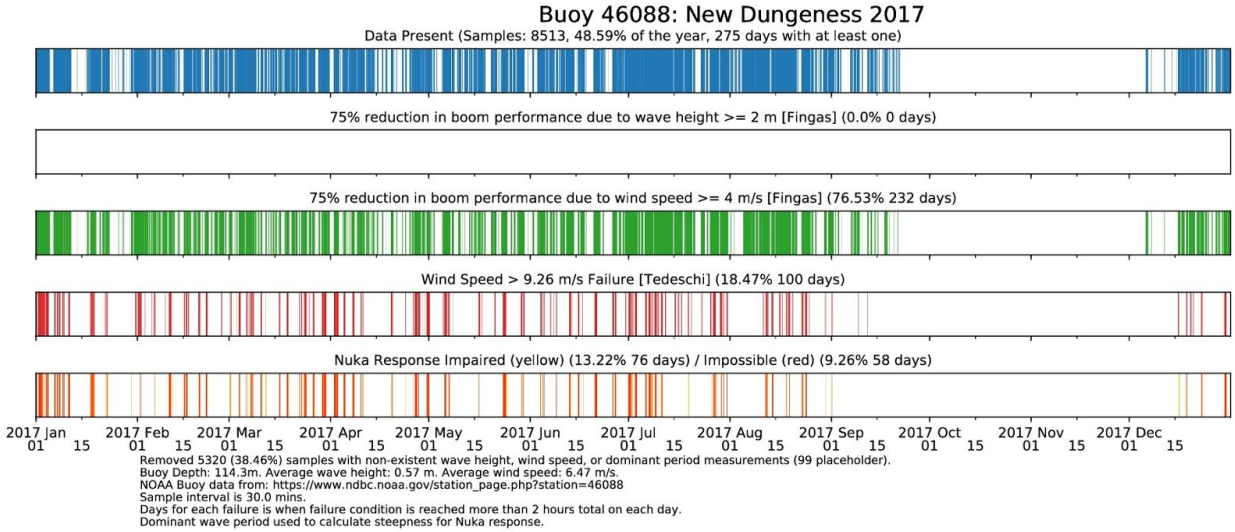
Removed 6699 (44.24%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.59 m. Average wind speed: 6.37 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

Buoy 46088: New Dungeness 2015

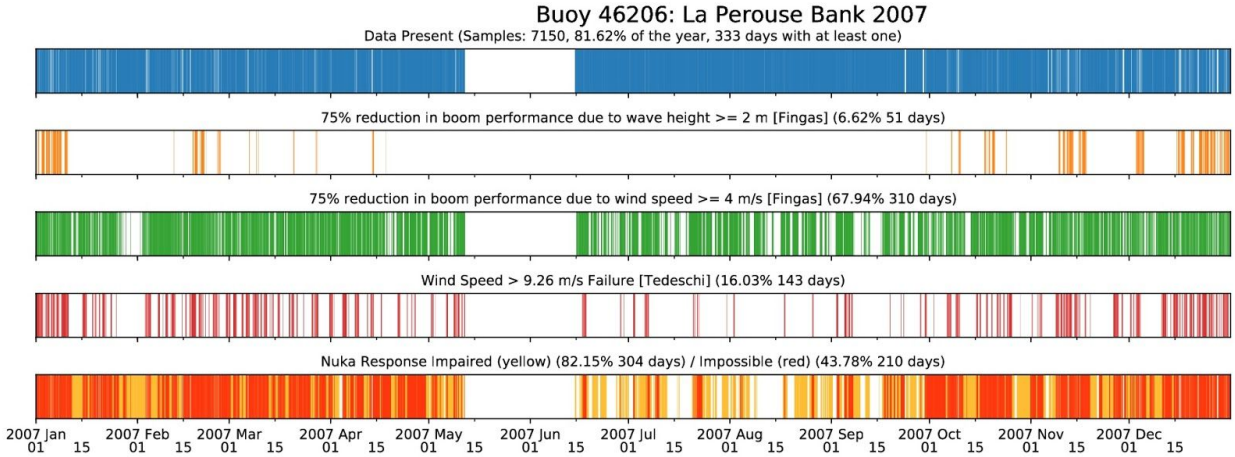


Removed 7657 (48.98%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.55 m. Average wind speed: 6.16 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

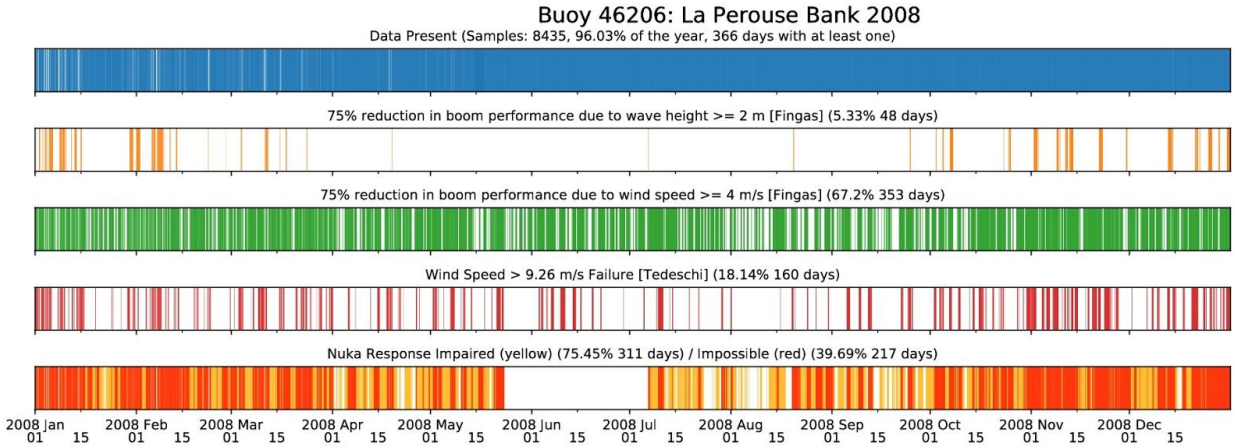

Buoy 46088: New Dungeness 2016
Data Present (Samples: 10932, 62.23% of the year, 343 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (0.0% 0 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (74.99% 299 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (17.66% 123 days)
Nuka Response Impaired (yellow) (14.73% 104 days) / Impossible (red) (9.3% 76 days)
2016 Jan 01 15
2016 Feb 01 15
2016 Mar 01 15
2016 Apr 01 15
2016 May 01 15
2016 Jun 01 15
2016 Jul 01 15
2016 Aug 01 15
2016 Sep 01 15
2016 Oct 01 15
2016 Nov 01 15
2016 Dec 01 15
Removed 6538 (37.42%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.58 m. Average wind speed: 6.29 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.


Buoy 46088: New Dungeness 2017
Data Present (Samples: 8513, 48.59% of the year, 275 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (0.0% 0 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (76.53% 232 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (18.47% 100 days)
Nuka Response Impaired (yellow) (13.22% 76 days) / Impossible (red) (9.26% 58 days)
2017 Jan 01 15
2017 Feb 01 15
2017 Mar 01 15
2017 Apr 01 15
2017 May 01 15
2017 Jun 01 15
2017 Jul 01 15
2017 Aug 01 15
2017 Sep 01 15
2017 Oct 01 15
2017 Nov 01 15
2017 Dec 01 15
Removed 5320 (38.46%) samples with non-existent wave height, wind speed, or dominant period measurements (99 placeholder).
Buoy Depth: 114.3m. Average wave height: 0.57 m. Average wind speed: 6.47 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46088
Sample interval is 30.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

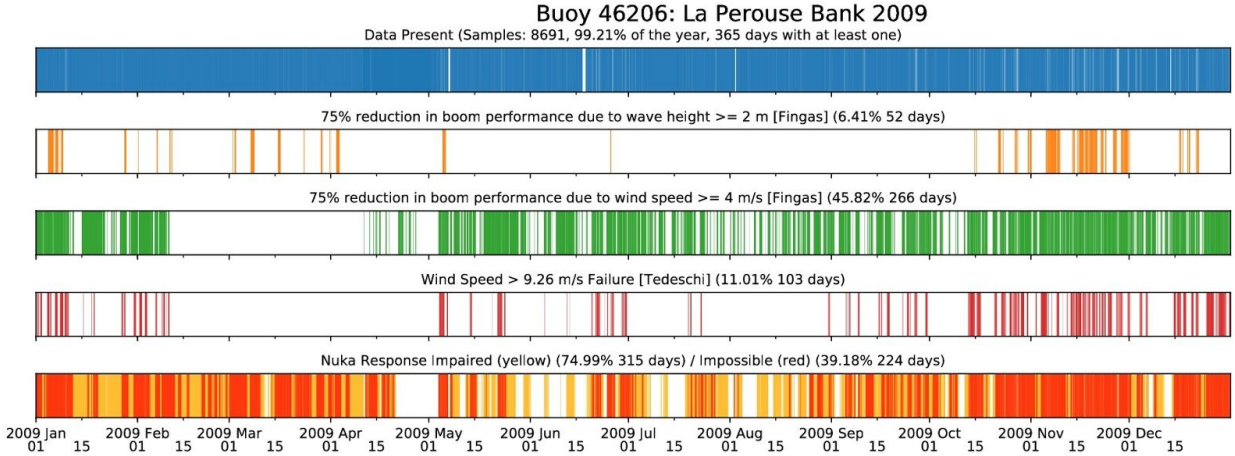
La Perouse Bank



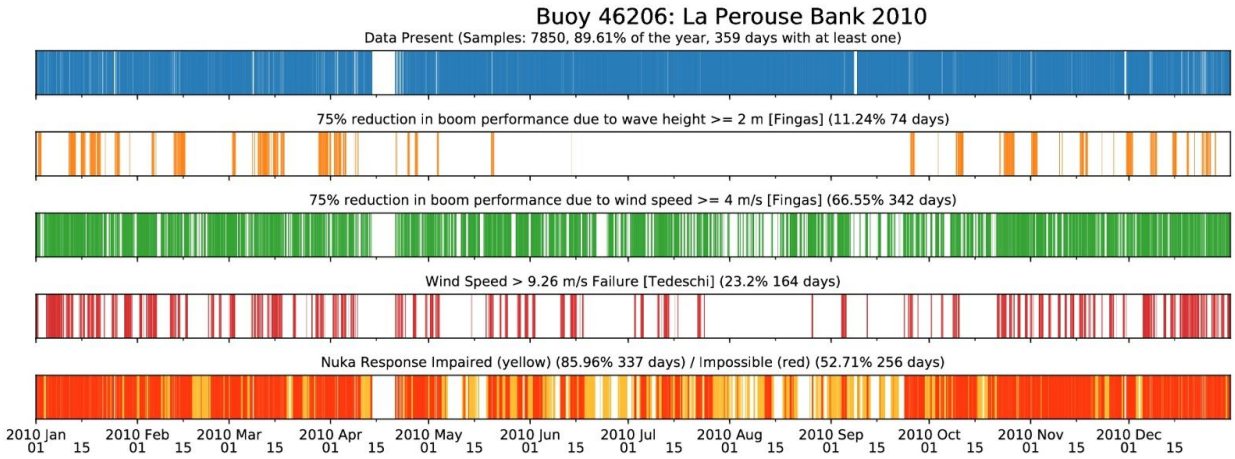
Buoy Depth: 72m. Average wave height: 2.17 m. Average wind speed: 5.93 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



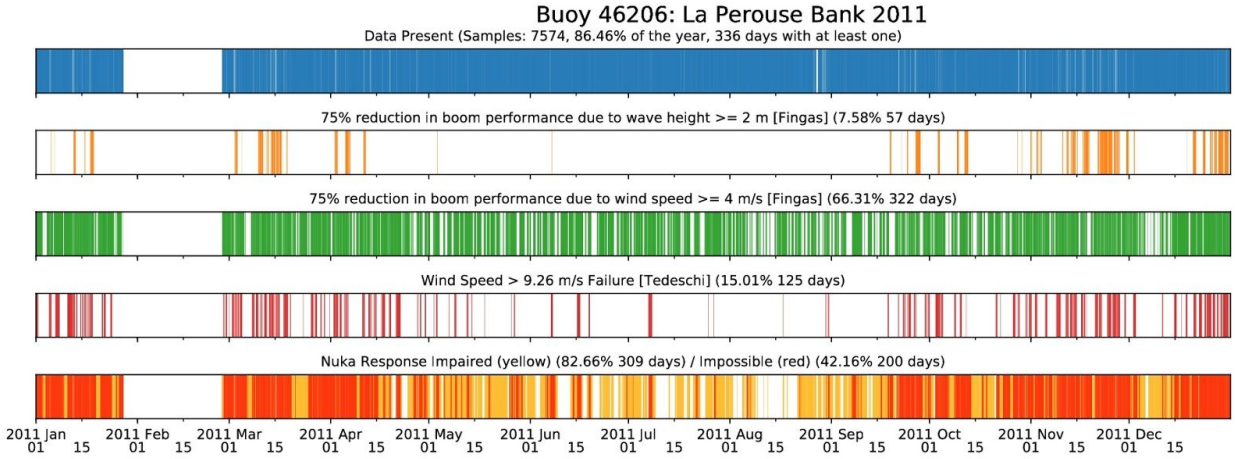
Buoy Depth: 72m. Average wave height: 1.95 m. Average wind speed: 5.96 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



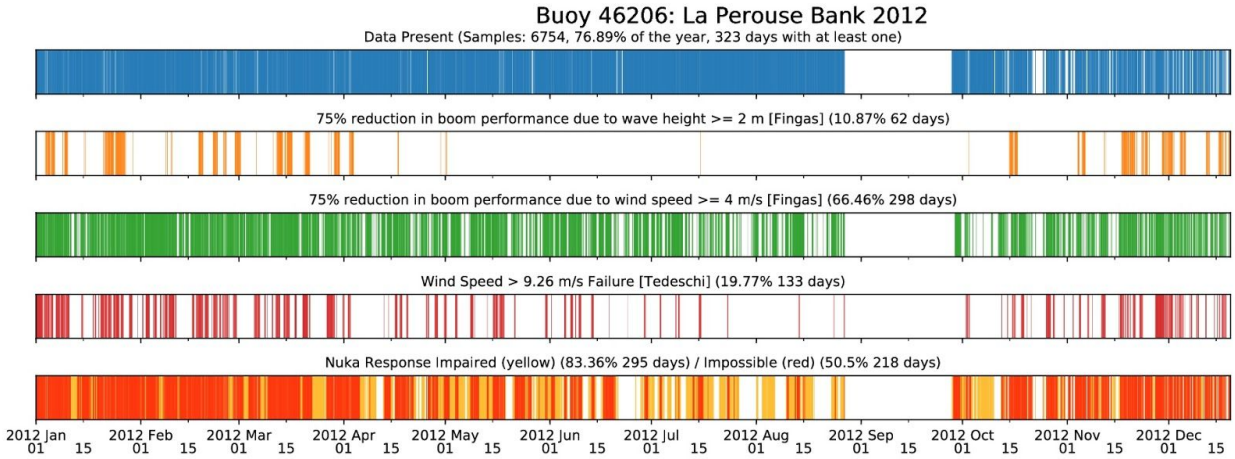
Buoy Depth: 72m. Average wave height: 1.98 m. Average wind speed: 4.16 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



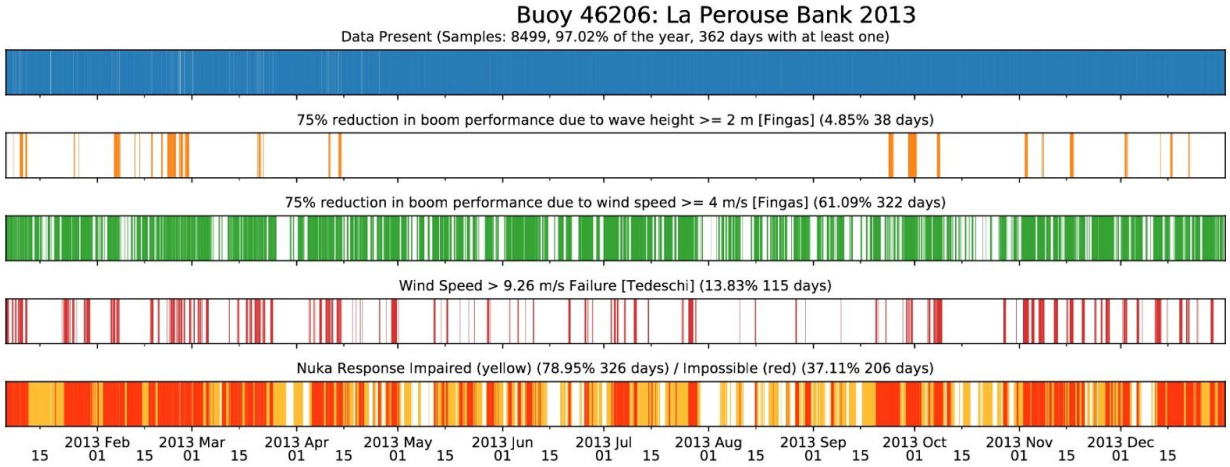
Buoy Depth: 72m. Average wave height: 2.43 m. Average wind speed: 6.28 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



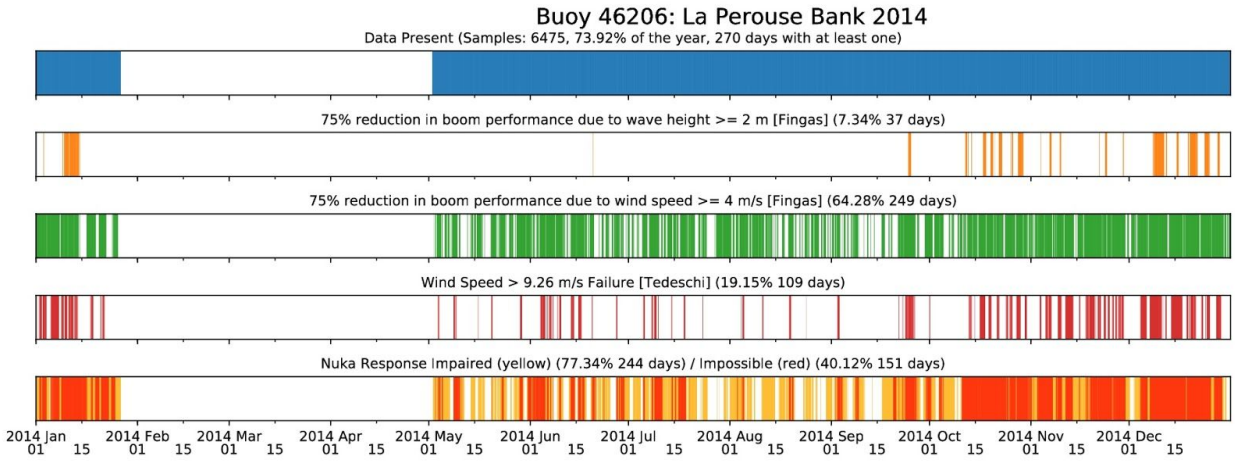
Buoy Depth: 72m. Average wave height: 2.22 m. Average wind speed: 5.72 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



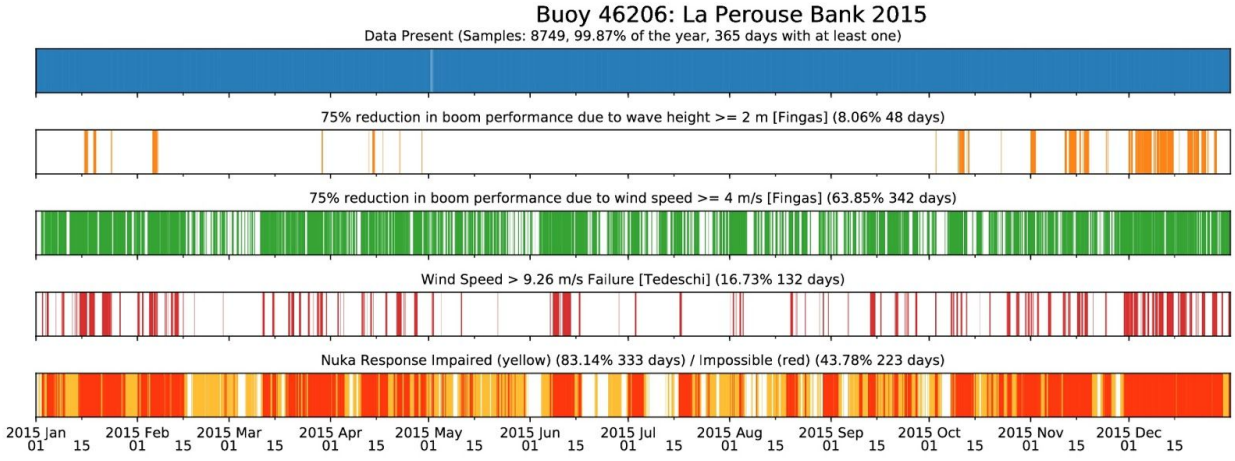
Buoy Depth: 72m. Average wave height: 2.37 m. Average wind speed: 6.04 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.



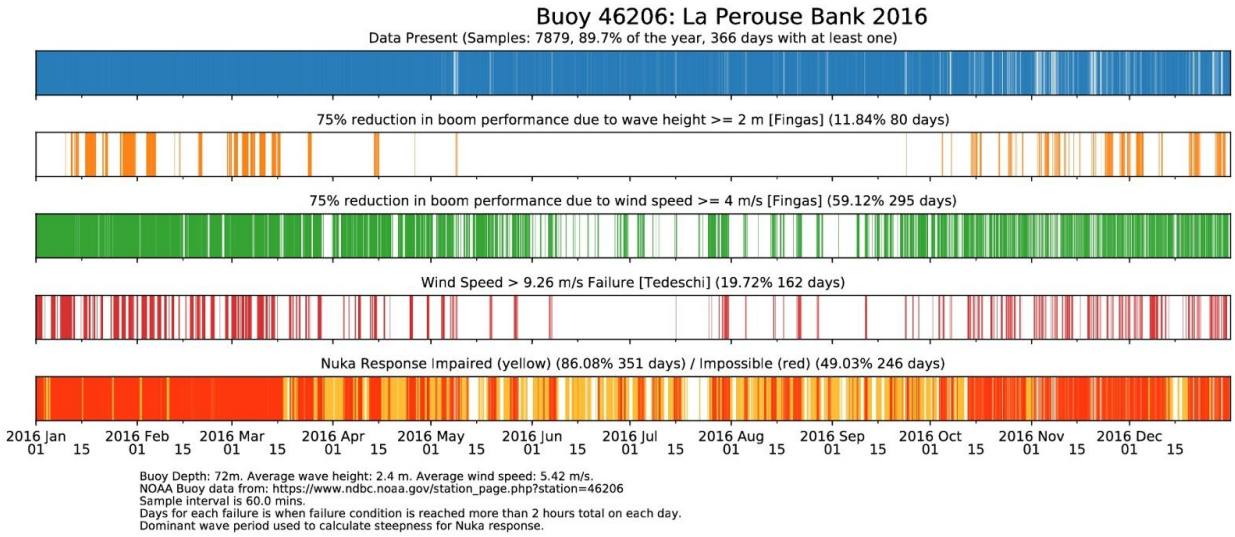
Buoy Depth: 72m. Average wave height: 2.01 m. Average wind speed: 5.42 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

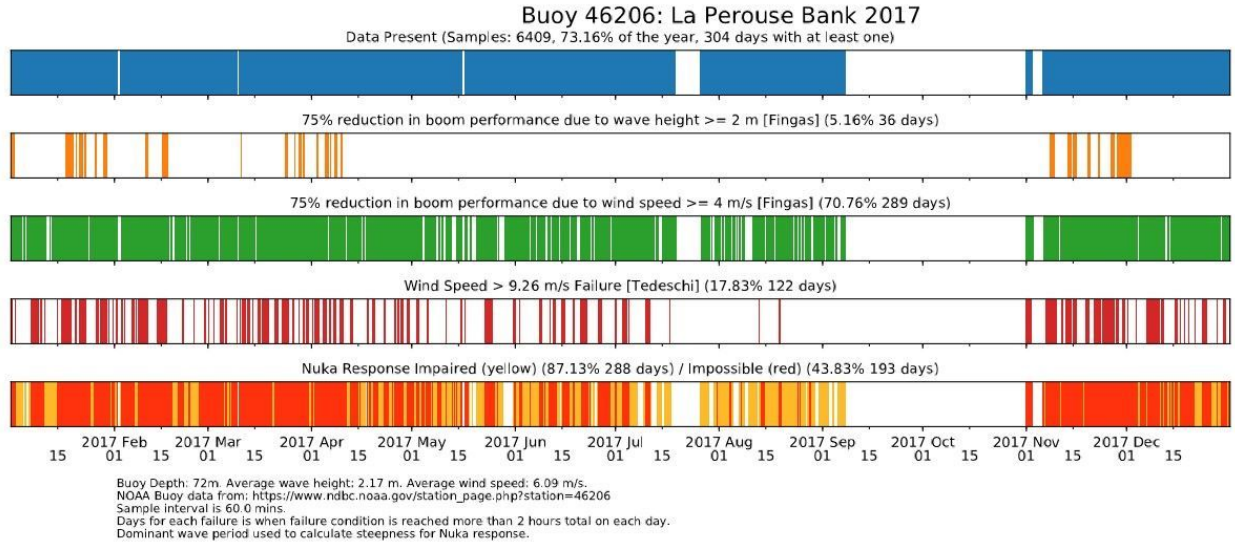


Buoy Depth: 72m. Average wave height: 2.08 m. Average wind speed: 5.94 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

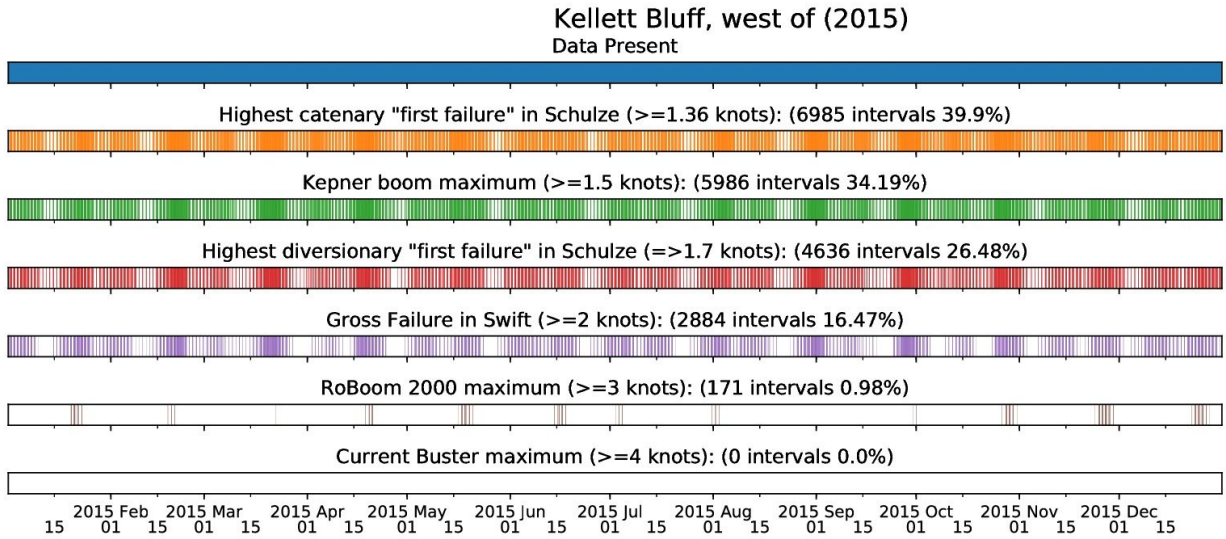


Buoy Depth: 72m. Average wave height: 2.22 m. Average wind speed: 5.76 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

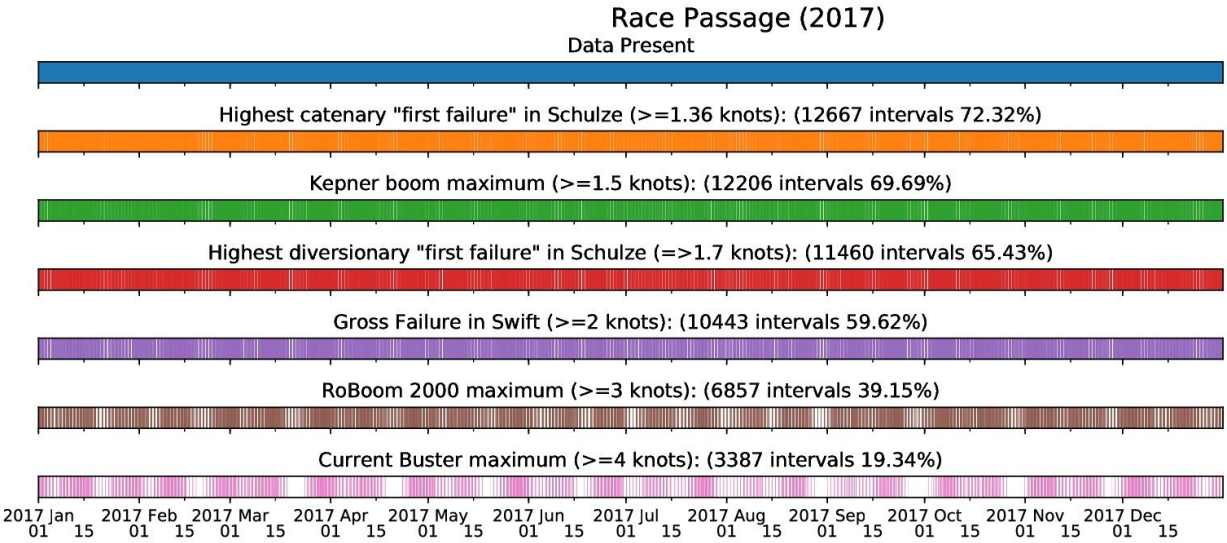

Buoy 46206: La Perouse Bank 2016
Data Present (Samples: 7879, 89.7% of the year, 366 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (11.84% 80 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (59.12% 295 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (19.72% 162 days)
Nuka Response Impaired (yellow) (86.08% 351 days) / Impossible (red) (49.03% 246 days)
2016 Jan 01 15 2016 Feb 01 15 2016 Mar 01 15 2016 Apr 01 15 2016 May 01 15 2016 Jun 01 15 2016 Jul 01 15 2016 Aug 01 15 2016 Sep 01 15 2016 Oct 01 15 2016 Nov 01 15 2016 Dec 01 15
Buoy Depth: 72m. Average wave height: 2.4 m. Average wind speed: 5.42 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.


Buoy 46206: La Perouse Bank 2017
Data Present (Samples: 6409, 73.16% of the year, 304 days with at least one)
75% reduction in boom performance due to wave height >= 2 m [Fingas] (5.16% 36 days)
75% reduction in boom performance due to wind speed >= 4 m/s [Fingas] (70.76% 289 days)
Wind Speed > 9.26 m/s Failure [Tedeschi] (17.83% 122 days)
Nuka Response Impaired (yellow) (87.13% 288 days) / Impossible (red) (43.83% 193 days)
15 2017 Feb 01 15 2017 Mar 01 15 2017 Apr 01 15 2017 May 01 15 2017 Jun 01 15 2017 Jul 01 15 2017 Aug 01 15 2017 Sep 01 15 2017 Oct 01 15 2017 Nov 01 15 2017 Dec 01 15
Buoy Depth: 72m. Average wave height: 2.17 m. Average wind speed: 6.09 m/s.
NOAA Buoy data from: https://www.ndbc.noaa.gov/station_page.php?station=46206
Sample interval is 60.0 mins.
Days for each failure is when failure condition is reached more than 2 hours total on each day.
Dominant wave period used to calculate steepness for Nuka response.

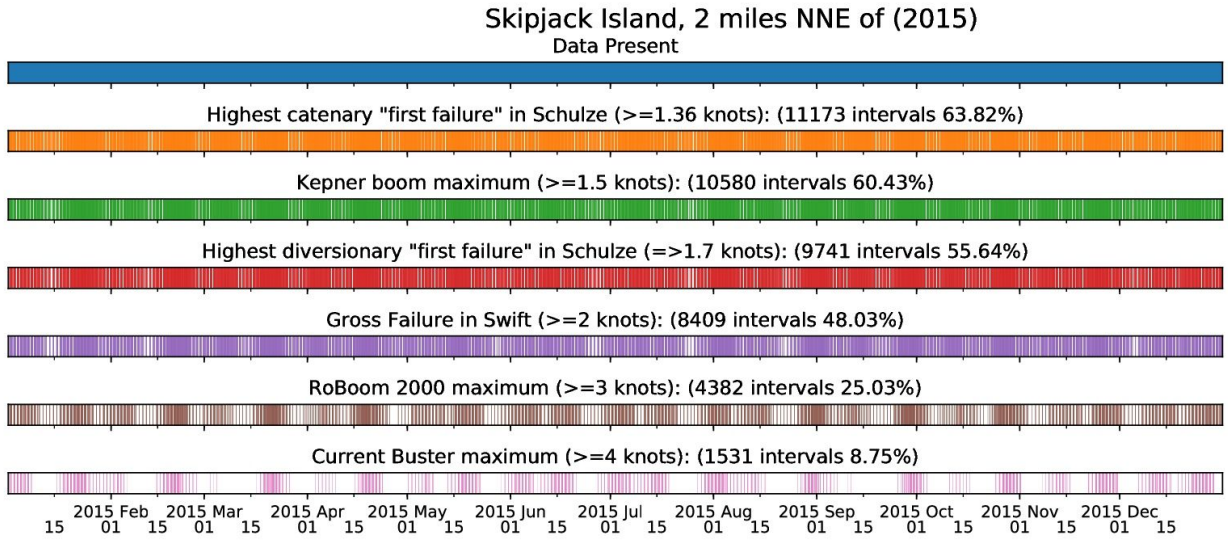
Current Charts



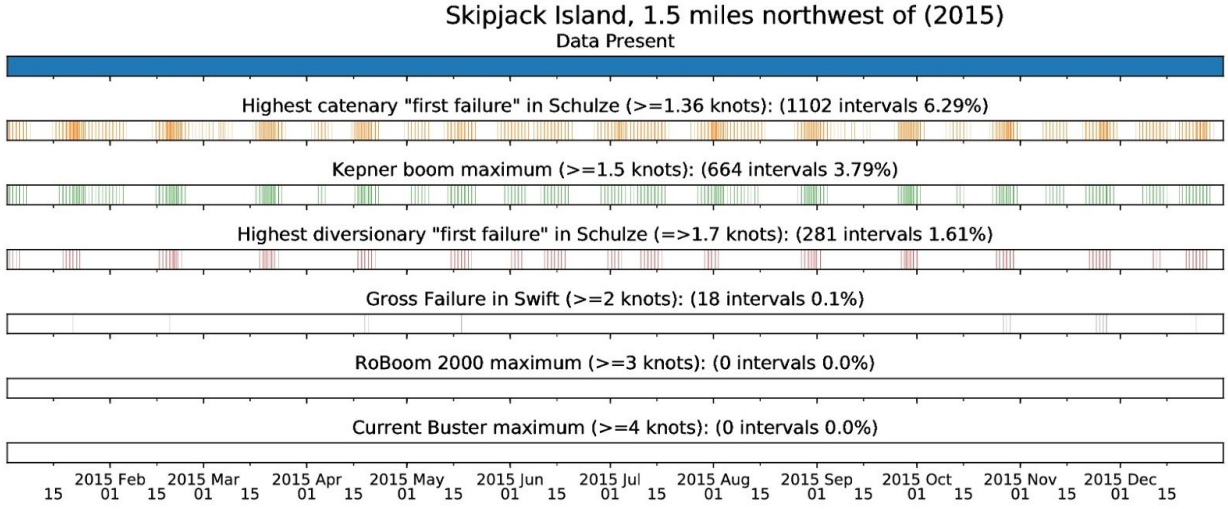
Using current speed predictions, cubic splines are used to interpolate speed between maximum flood/slack/ebb.
Sample interval is 30 mins. Knots compared is maximum during interval.
Average absolute current speed: 1.19 knots



Using current speed predictions, cubic splines are used to interpolate speed between maximum flood/slack/ebb.
Sample interval is 30 mins. Knots compared is maximum during interval.
Average absolute current speed: 2.52 knots



Using current speed predictions, cubic splines are used to interpolate speed between maximum flood/slack/ebb.
Sample interval is 30 mins. Knots compared is maximum during interval.
Average absolute current speed: 2.05 knots



Using current speed predictions, cubic splines are used to interpolate speed between maximum flood/slack/ebb.
Sample interval is 30 mins. Knots compared is maximum during interval.
Average absolute current speed: 0.66 knots