TWEED SAND BYPASSING

ADVISORY COMMITTEE MEETING

February 2022

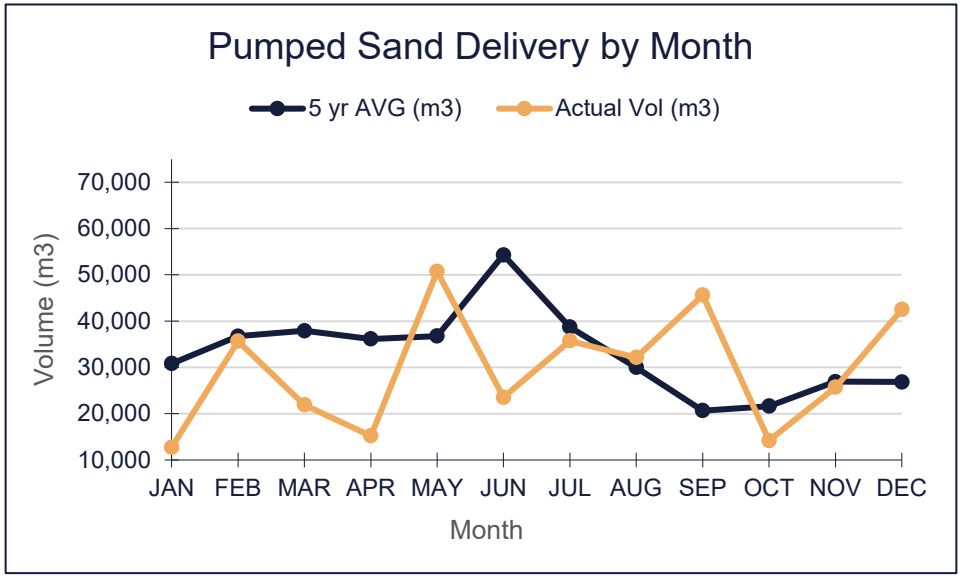
PROJECT MONITORING AND OPERATIONAL OVERVIEW

- Pumping operations 2021 and 2022
- Environmental Monitoring / beach observations
- Entrance conditions, usage and survey
- TSB projects and enhancements
- Communications

PUMPING OPERATIONS 2021

PUMPING BY JETTY MOUNTED SYSTEM 2021				
MONTH	Vol SRE (m3)	Vol D'Bah (m3)	Total Vol (m3)	AVG (2016-2020) (m3)
JAN	12,694	0	12,694	30,806
FEB	35,663	0	35,663	36,734
MAR	3,067	18,854	21,921	37,910
APR	6,934	8,257	15,191	36,147
MAY	30,832	19,905	50,737	36,781
JUN	17,475	6,070	23,545	54,292
JUL	33,248	2,497	35,745	38,703
AUG	32,153	0	32,153	29,977
SEP	45,622	0	45,622	20,653
OCT	14,201	0	14,201	21,390
NOV	25,723	0	25,723	26,948
DEC	42,499	0	42,499	24,342
TOTAL	300,111	55,583	355,694	394,684

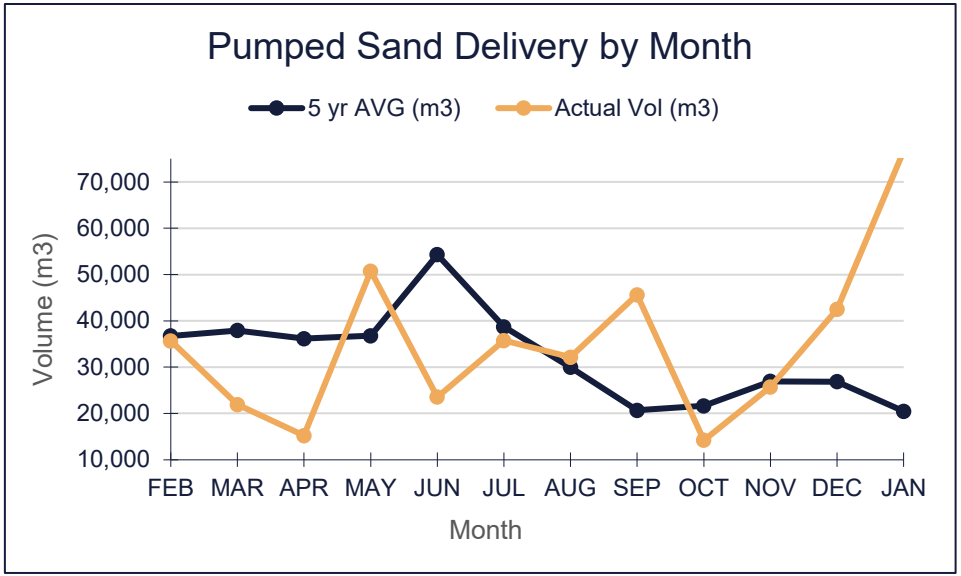
PUMPING MONTHLY TRENDS



PUMPING OPERATIONS 2022

PUMPING BY JETTY MOUNTED SYSTEM 2022				
MONTH	Vol SRE (m3)	Vol D'Bah (m3)	Total Vol (m3)	AVG (2017-2021) (m3)
JAN	76,670	0	76,670	20,473
FEB			0	31,642
MAR			0	37,290
APR			0	31,266
MAY			0	42,847
JUN			0	48,578
JUL			0	39,333
AUG			0	28,636
SEP			0	26,424
OCT			0	21,637
NOV			0	26,921
DEC			0	26,864
TOTAL	76,670	0	76,670	381,910

PUMPING MONTHLY TRENDS



5 yr Avg Vol - Feb to Jan = 387,092m3

Act Vol – Feb '21 to Jan '22 = 419,670m3

PUMPING OPERATIONS 2022

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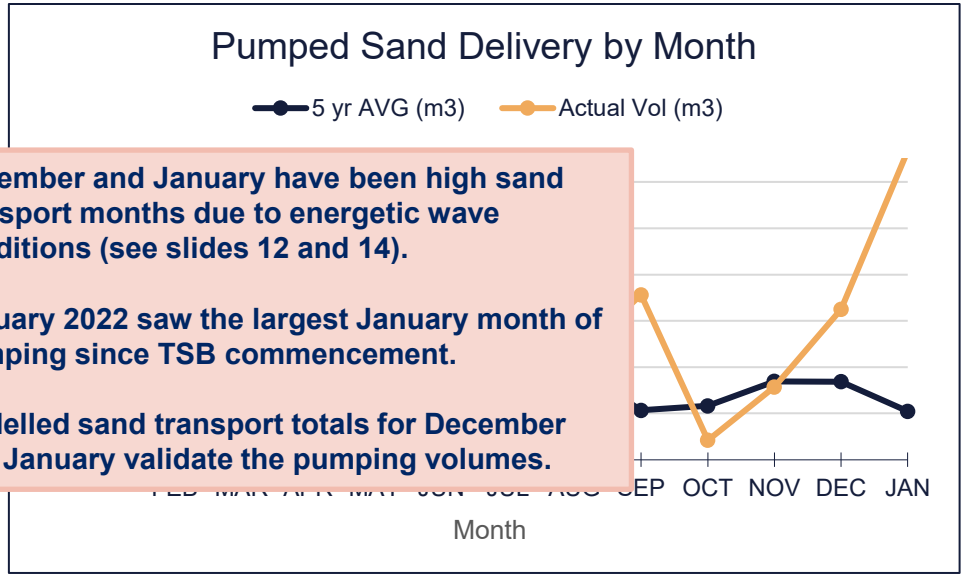
PUMPING MONTHLY TRENDS



- **December and January have been high sand transport months due to energetic wave conditions (see slides 12 and 14).**
- **January 2022 saw the largest January month of pumping since TSB commencement.**
- **Modelled sand transport totals for December and January validate the pumping volumes.**

5 yr Avg Vol - Feb to Jan = 385,514m3
Act Vol – Feb '21 to Jan '22 = 419,670m3

DURANBAH SAND PLACEMENT 4-11 FEBRUARY 2022

Location	Vol (m3)
Northern End	11,903
Central	6,604
South	12,994
TOTAL	**31,501**

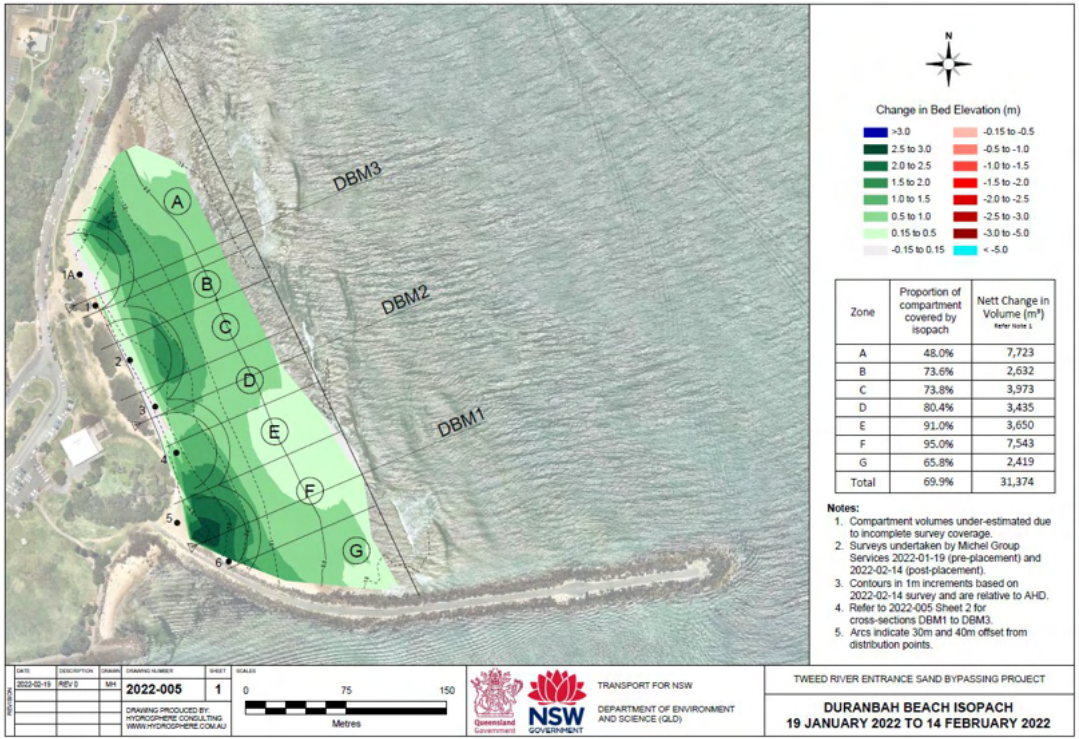
DURANBAH SAND PLACEMENT 4-11 FEBRUARY 2022

Location	Vol (m3)
Northern End	11,903
Central	6,604
South	12,994
TOTAL	**31,501**

- **The energetic conditions between the 4th and 11th of February were utilised to replenish Duranbah.**
- **Over 31,000m3 was delivered in less than a week (the most efficient campaign since TSB commencement).**

DURANBAH SAND PLACEMENT 4-11 FEBRUARY 2022

- This isopach compares pre and post nourishment surveys of Duranbah Beach. The green areas depict an increase in level.
- The pre / post survey volume total (31,374m3) compares well with the delivered volume total (31,501m3).



Zone	Proportion of compartment covered by isopach	Nett Change in Volume (m³) Refer Note 1
A	48.0%	7,723
B	73.6%	2,632
C	73.8%	3,973
D	80.4%	3,435
E	91.0%	3,650
F	95.0%	7,543
G	65.8%	2,419
Total	69.9%	31,374

Notes:

1. Compartment volumes under-estimated due to incomplete survey coverage.
2. Surveys undertaken by Michel Group Services 2022-01-19 (pre-placement) and 2022-02-14 (post-placement).
3. Contours in 1m increments based on 2022-02-14 survey and are relative to AHD.
4. Refer to 2022-005 Sheet 2 for cross-sections DBM1 to DBM3.
5. Arcs indicate 30m and 40m offset from distribution points.

DATE	DESCRIPTION	DRAWN	DRAWING NUMBER	SHEET	SCALES
2022-02-19	REV 0	MH	2022-005	1	0 75 150 Metres

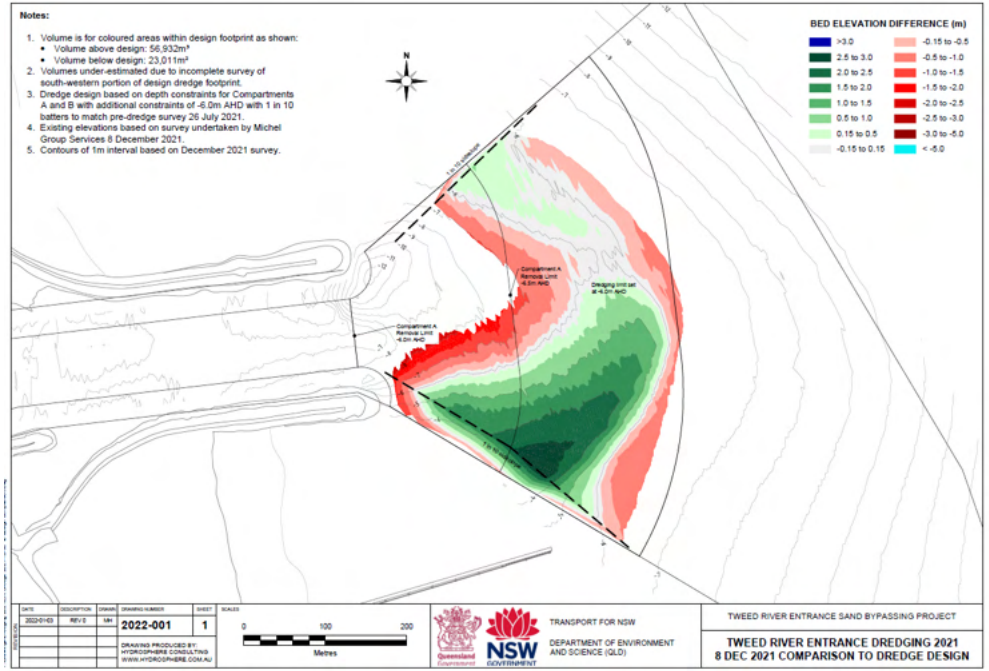
DRAWING PRODUCED BY: HYDROSPHERE CONSULTING WWW.HYDROSPHERE.COM.AU

TRANSPORT FOR NSW
DEPARTMENT OF ENVIRONMENT AND SCIENCE (QLD)

TWEED RIVER ENTRANCE SAND BYPASSING PROJECT

DURANBAH BEACH ISOPACH
19 JANUARY 2022 TO 14 FEBRUARY 2022

2022 DREDGE PLANNING



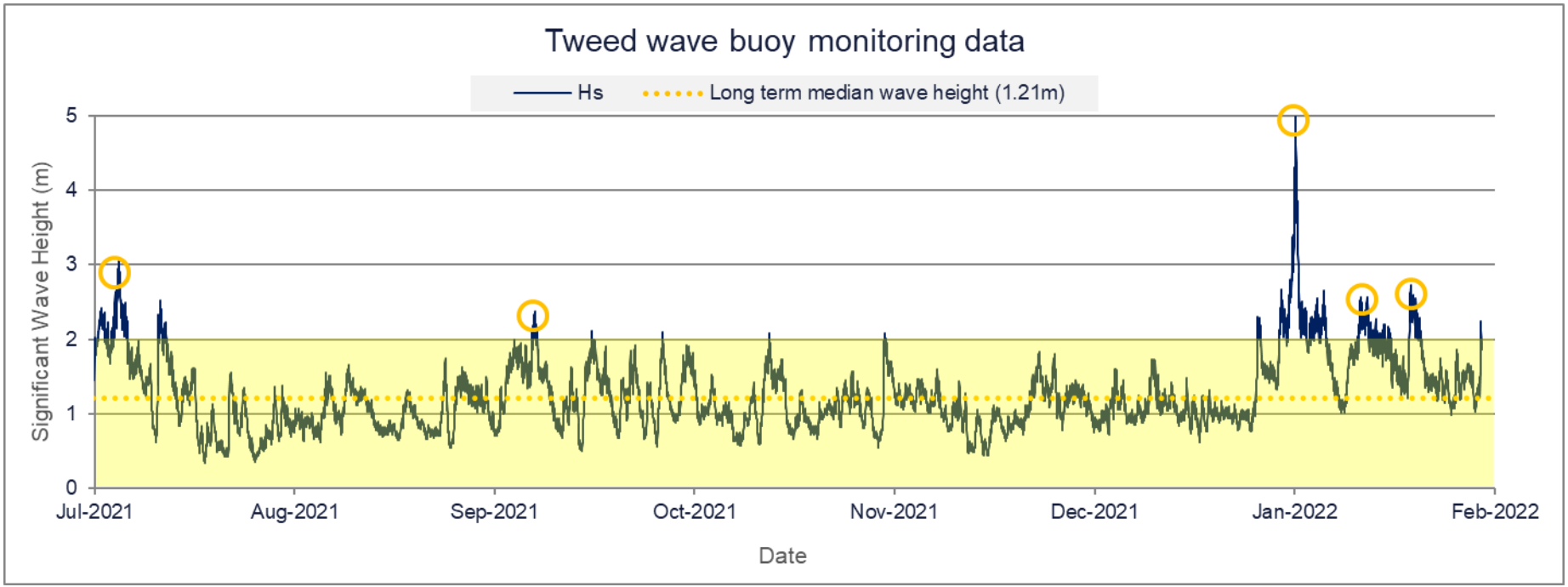
- Dredging of Tweed River Entrance planned for mid 2022.
- Hydrographic survey due in late February will inform dredge volumes and placement designs

2022 DREDGE PLANNING

- Dredging of Tweed River Entrance planned for mid 2022.
- Hydrographic survey due in late February will inform dredge volumes and placement designs

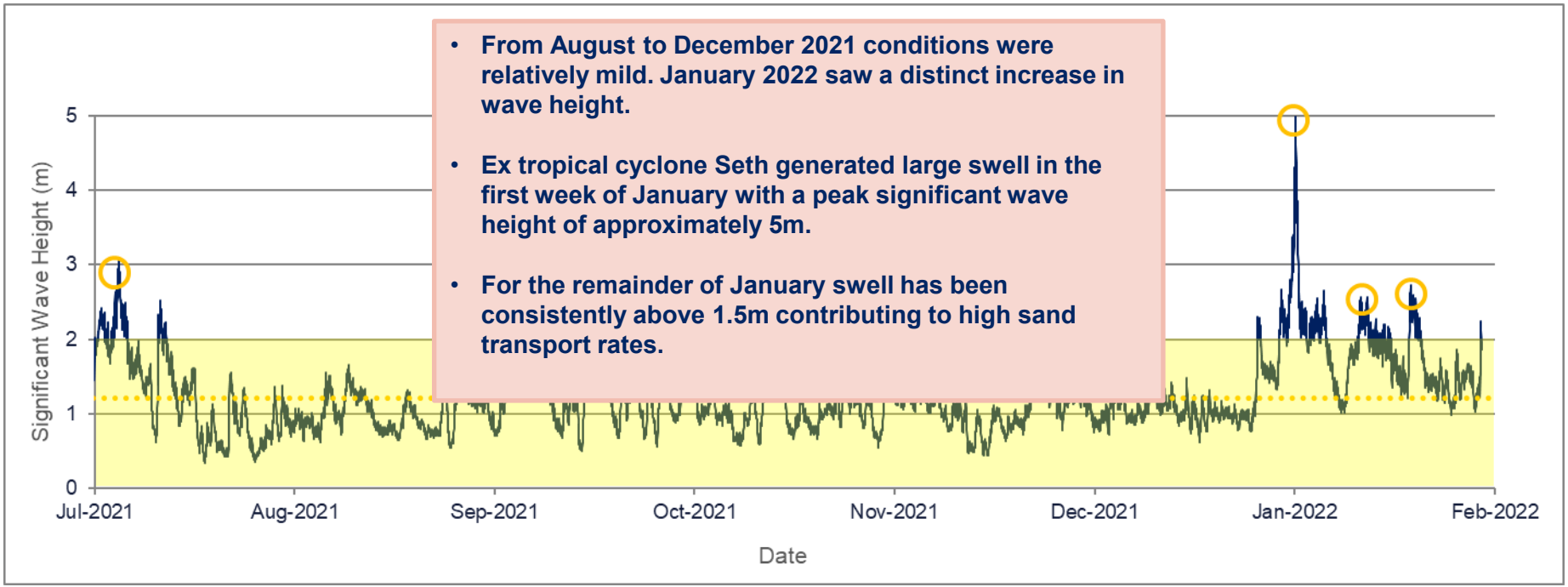
- **A compliant entrance was available in early December 2021.**
- **The isopach figure on the left shows the area above a nominal design surface of -6m AHD (green shading) where the red shading indicates areas below the nominal design surface of -6m AHD when comparing against the early December 2021 survey.**
- **The southern side of the entrance remains an area under close surveillance – the dredge vessel was constrained by metocean conditions at the time in targeting this area (wind, wave, tidal).**

ENVIRONMENTAL MONITORING / BEACH OBSERVATIONS

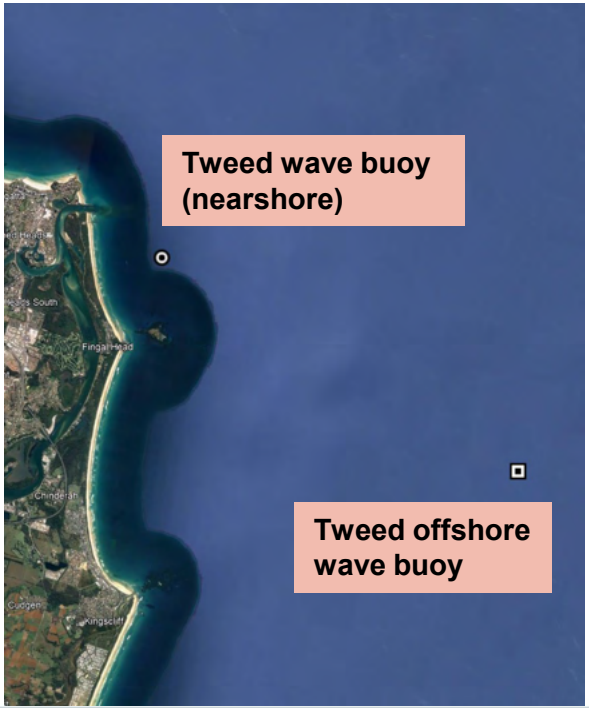


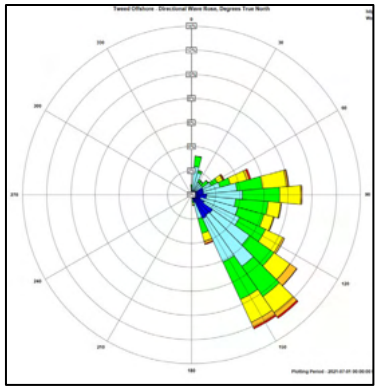
ENVIRONMENTAL MONITORING / BEACH OBSERVATIONS

- From August to December 2021 conditions were relatively mild. January 2022 saw a distinct increase in wave height.
- Ex tropical cyclone Seth generated large swell in the first week of January with a peak significant wave height of approximately 5m.
- For the remainder of January swell has been consistently above 1.5m contributing to high sand transport rates.

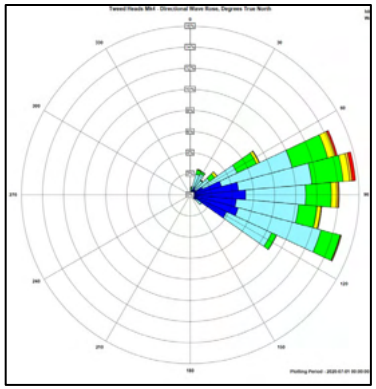


ENVIRONMENTAL MONITORING / BEACH OBSERVATIONS

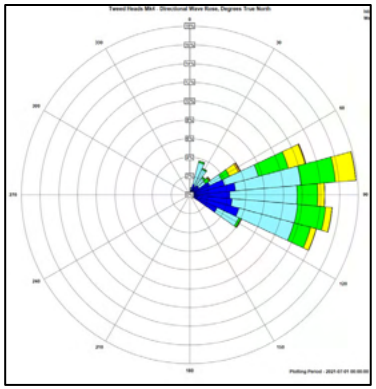




2021 July – 2022 Jan
Offshore

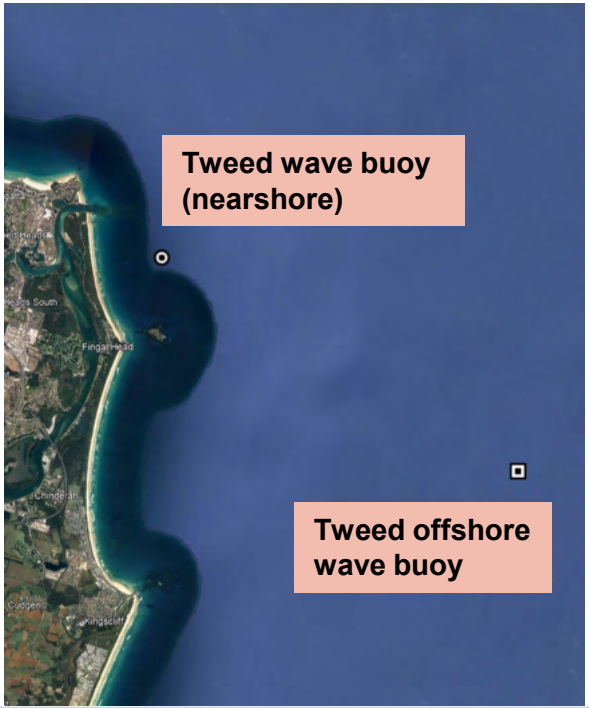


2020 July – 2022 Jan

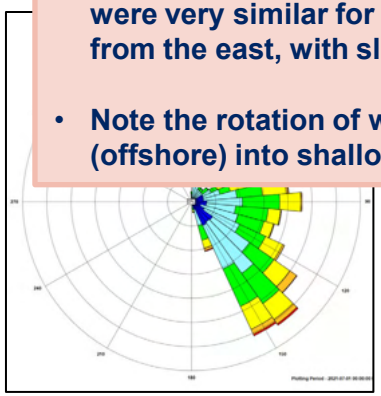


2021 July – 2022 Jan

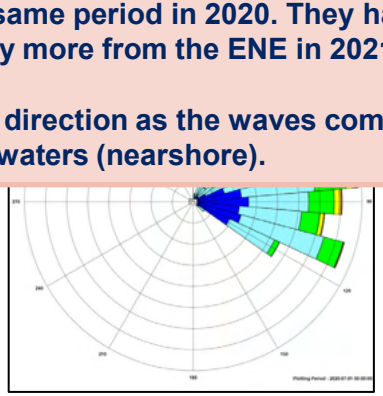
ENVIRONMENTAL



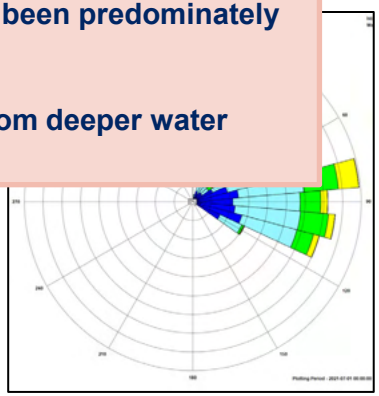
- The offshore wave direction over the last 6 months has been predominantly from the south east.
- Wave directions experienced approaching the coast over the last 6 months were very similar for the same period in 2020. They have been predominately from the east, with slightly more from the ENE in 2021.
- Note the rotation of wave direction as the waves come from deeper water (offshore) into shallower waters (nearshore).



2021 July – 2022 Jan
Offshore



2020 July – 2022 Jan



2021 July – 2022 Jan

FINGAL

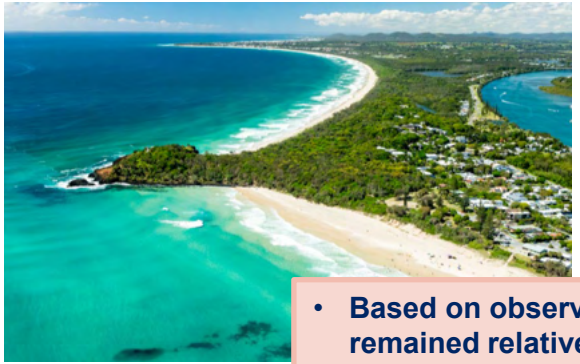
14 January 2021

20 April 2021

27 October 2021

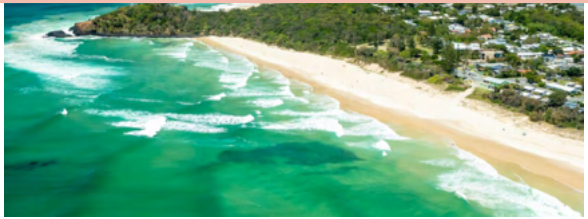
1 February 2022

FINGAL



14 January

- **Based on observations from oblique aerial imagery, conditions at Fingal have remained relatively stable.**
- **It is expected some sand may have moved from the upper beach to offshore during recent high energy conditions (Jan 2022). Beach profile data will be available at the end of February 2022 following planned hydrographic survey.**
- **April 2021 had the largest observed beach width during this period.**

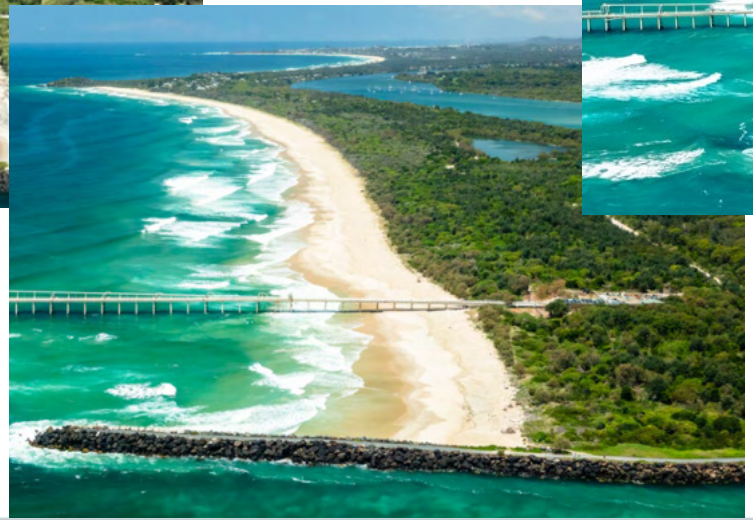


27 October 2021

1 February 2022

20 April 2021

27 October 2021



1 February 2022

LETITIA

20 April 2021

27 October 2021

1 February 2022

- **Letitia has remained stable with recent high volume pumping (Jan 2022) contributing to some landward movement of the shoreline position north of the jetty only.**

LETITIA

20 April 2021

27 October 2021

1 February 2022

DURANBAH BEACH

TWEED SAND BYPASSING

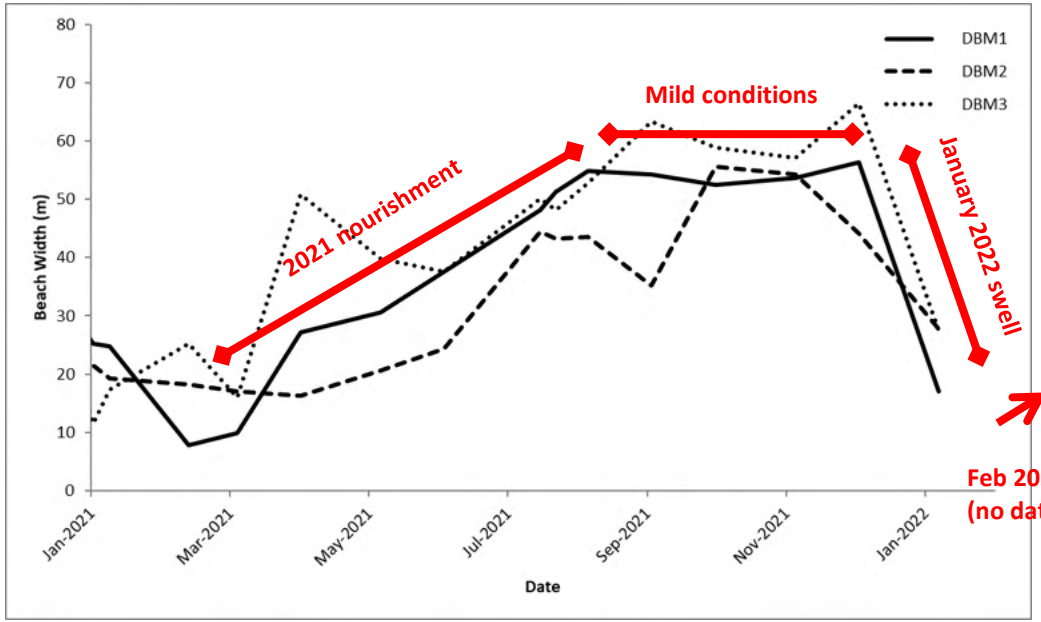
20 April 2021

27 October 2021

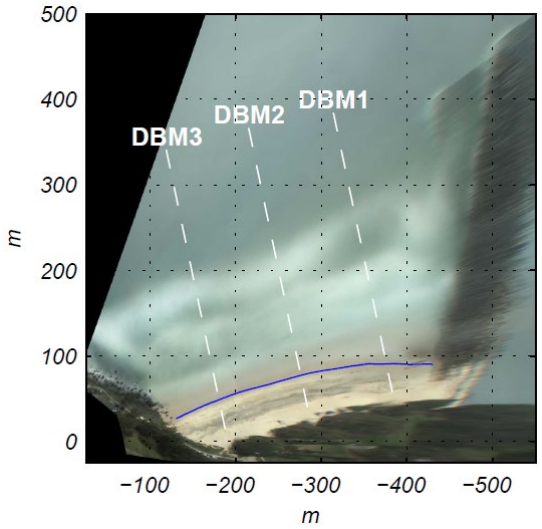
1 February 2022

DURANBAH BEACH

- **Duranbah upper beach was nourished from March 2021 to July 2021 resulting in increased beach width.**
- **Duranbah remained stable under mild conditions from August to December 2021. The significant swell conditions throughout January 2022 saw beach widths reduce prompting the nourishment campaign which commenced in February 2022.**



Feb 2022 nourishment
(no data yet)



DURANBAH - BEACH WIDTH DATA

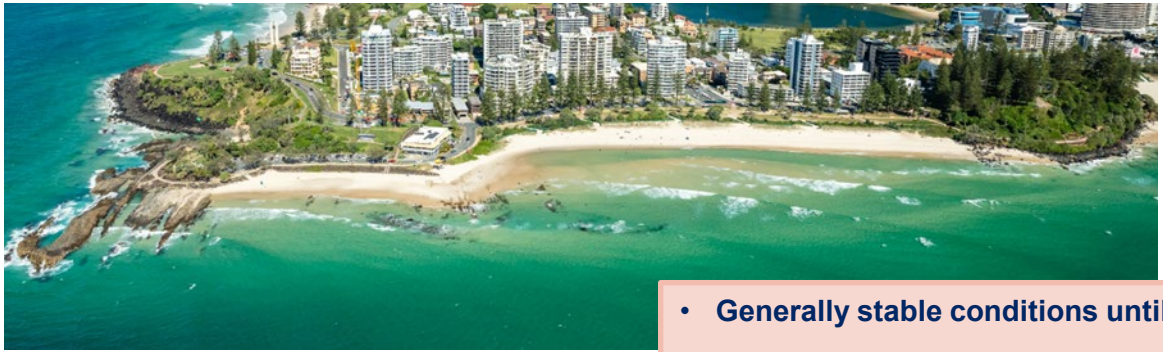
SNAPPER ROCKS RAINBOW BAY

20 April 2021

27 October 2021

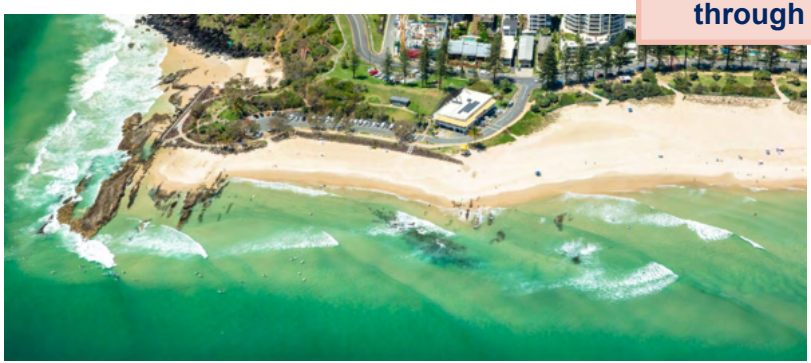
1 February 2022

SNAPPER ROCKS RAINBOW BAY



20 April 2021

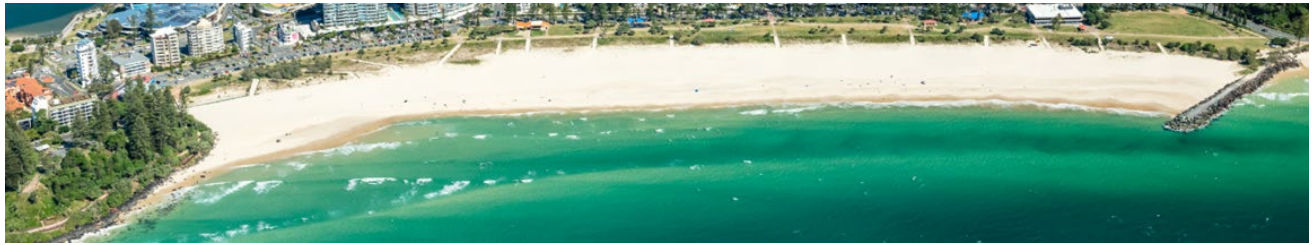
- **Generally stable conditions until January 2022.**
- **Note the accretion and erosion of sand at Froggies beach through this period**



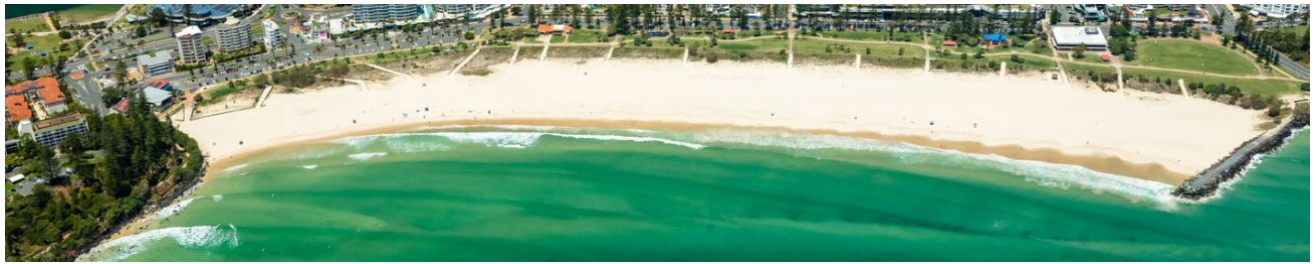
27 October 2021

1 February 2022

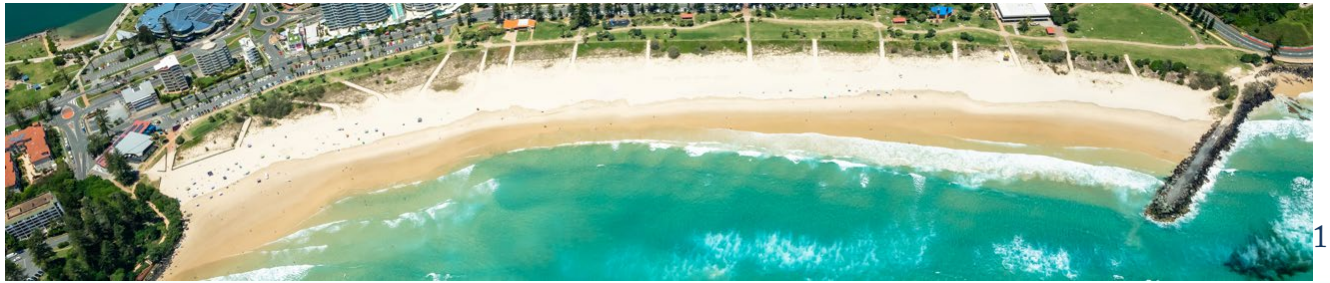
COOLANGATTA



20 April 2021

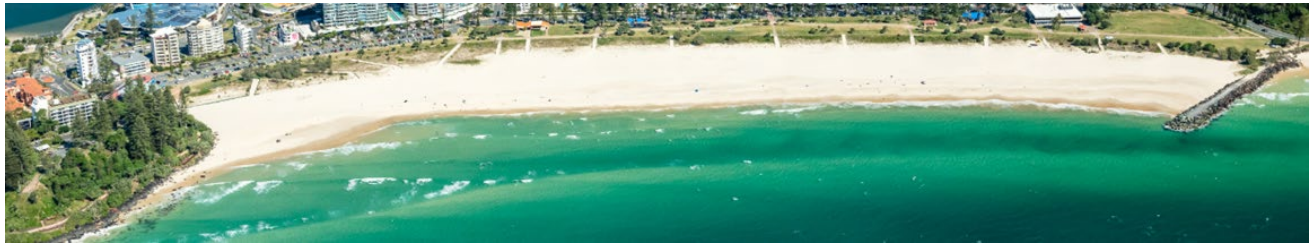


27 October 2021

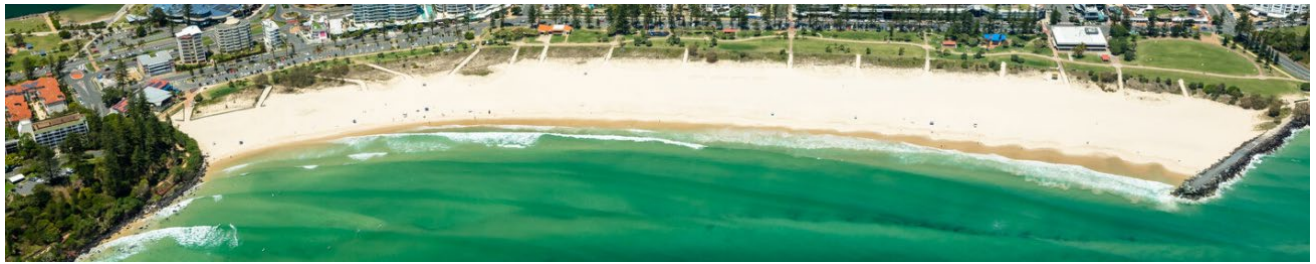


1 February 2022

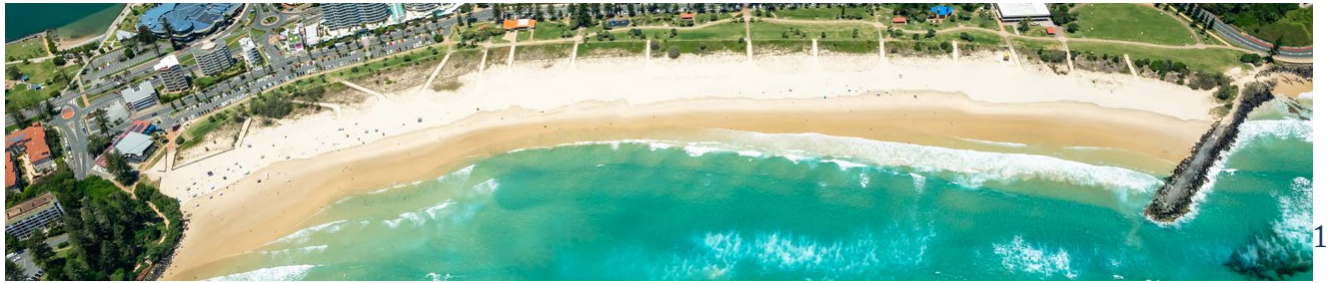
COOLANGATTA



20 April 2021



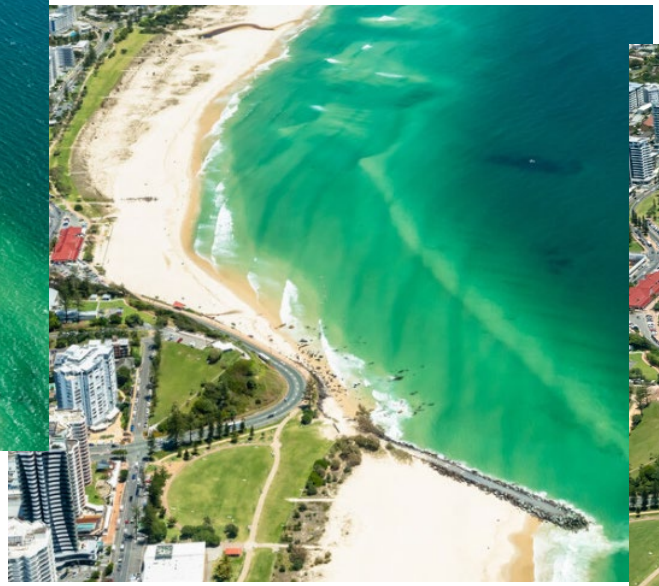
27 October 2021



1 February 2022

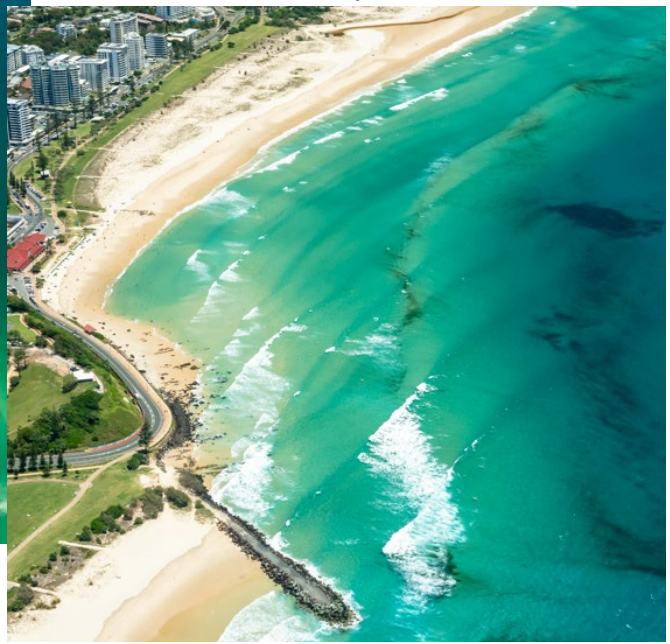
- **Easterly swell direction has contributed to the seasonal anti clockwise rotation of Coolangatta Beach evident in the February oblique image.**

20 April 2021



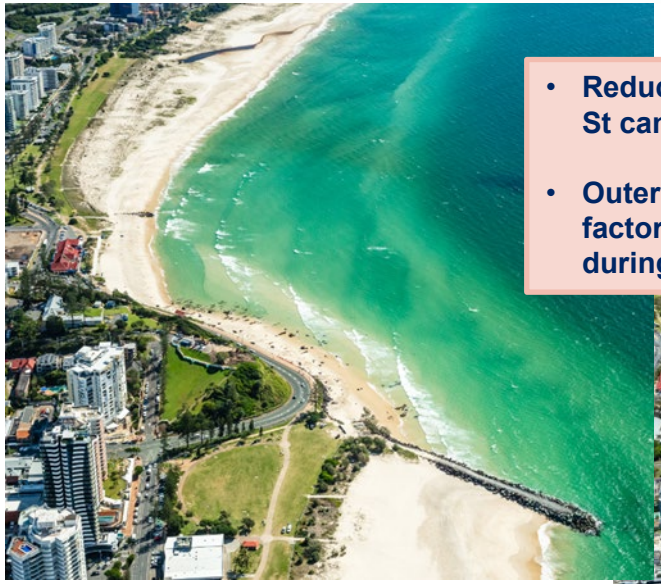
27 October 2021

1 February 2022

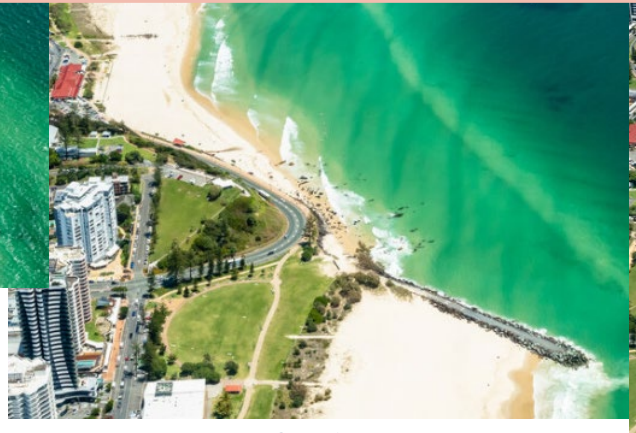


KIRRA

- **Reduction in beach width from Kirra groyne to Miles St can be observed following the January 2022 swell.**
- **Outer bank has become less defined. Possible factors include prolonged east / north east swell during January 2022.**

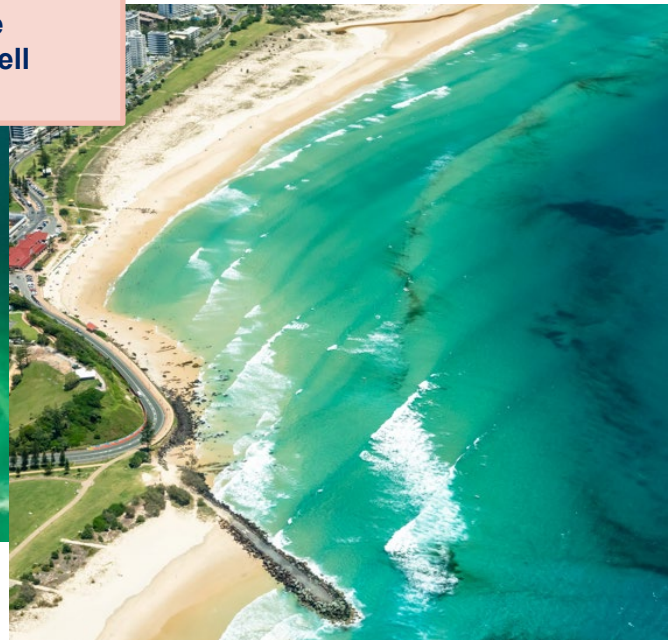


20 April 2021

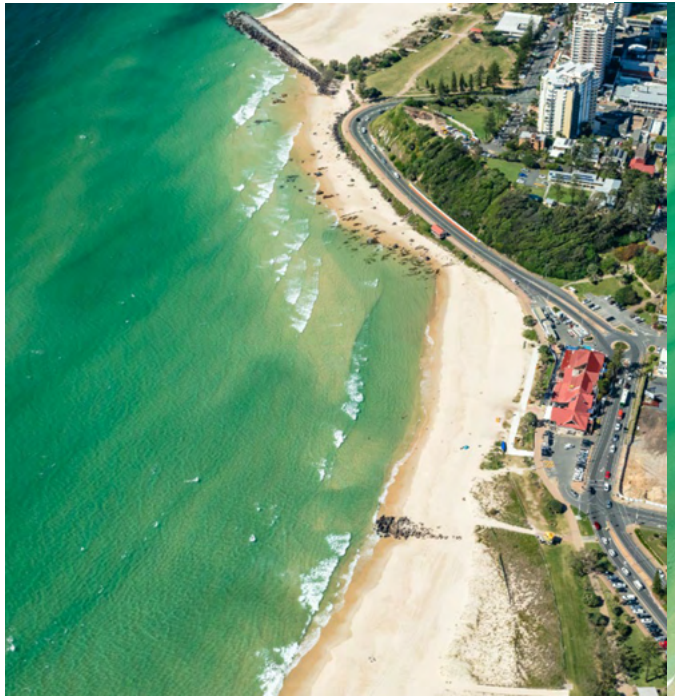


27 October 2021

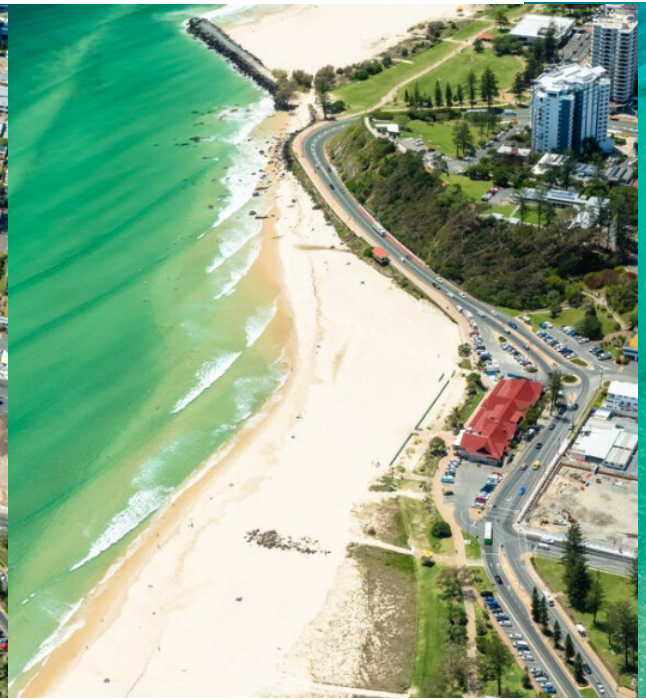
1 February 2022



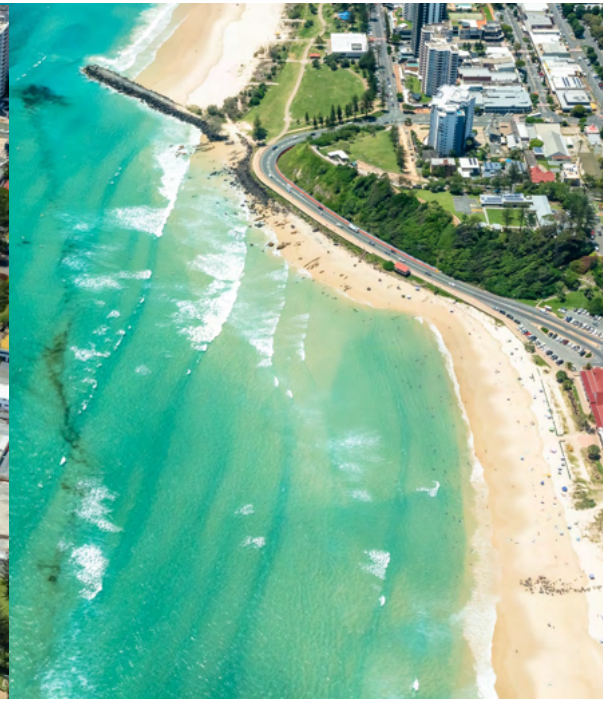
KIRRA



20 April 2021

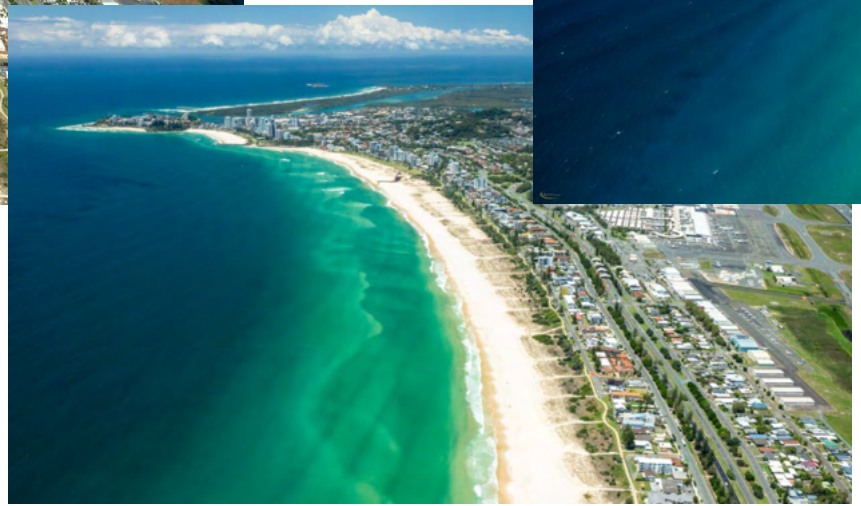


27 October 2021



1 February 2022

20 April 2021

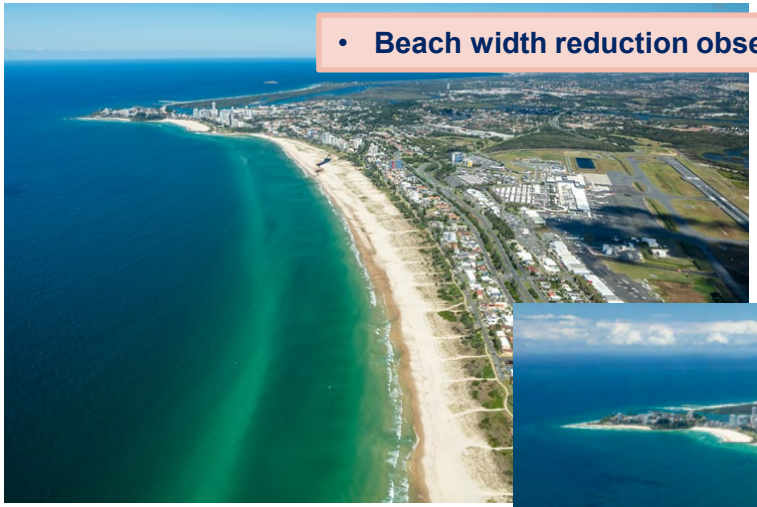


27 October 2021

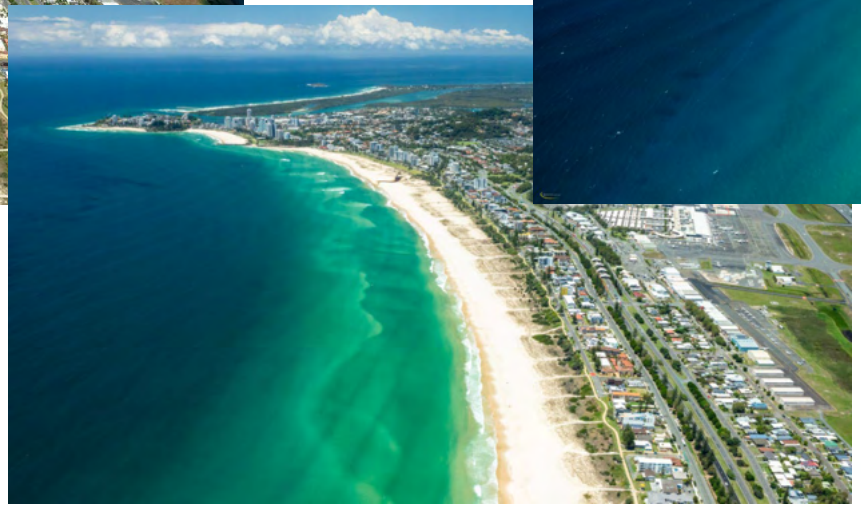
1 February 2022

BILINGA

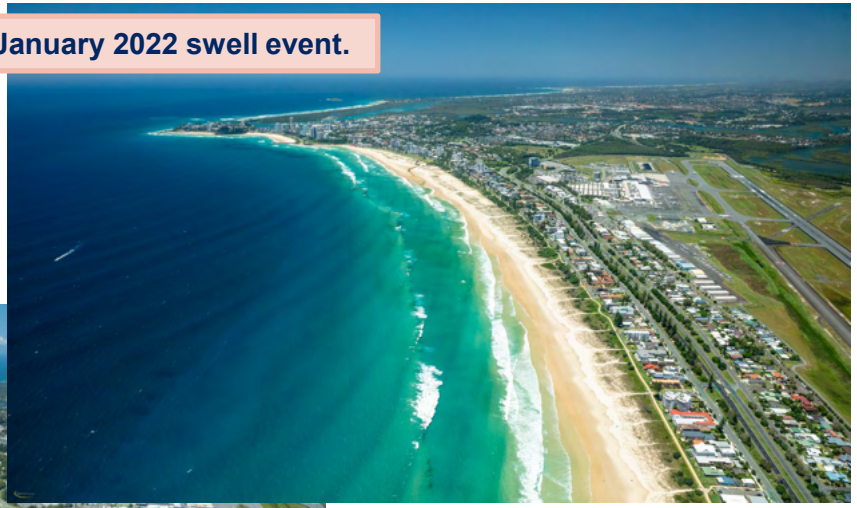
- **Beach width reduction observed following the January 2022 swell event.**



20 April 2021



27 October 2021



1 February 2022

BILINGA

1 February 2021

SURF CONDITIONS

DURANBAH

November / December 2021

SNAPPER ROCKS RAINBOW BAY

Jan / Feb 2022

- There have been many good to very high quality surfing days along the southern Gold Coast point breaks in late 2021 and early 2022

- **Kirra experienced some very high quality surf periods particularly in early January with swell generated from Cyclone Seth.**

KIRRA

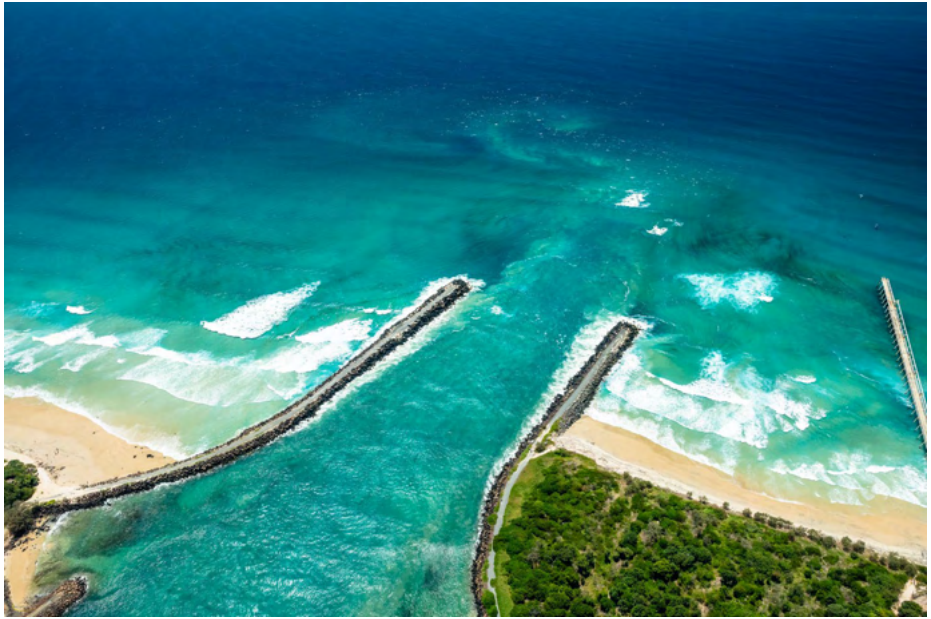
January 2022

- Not so secret novelty wave!

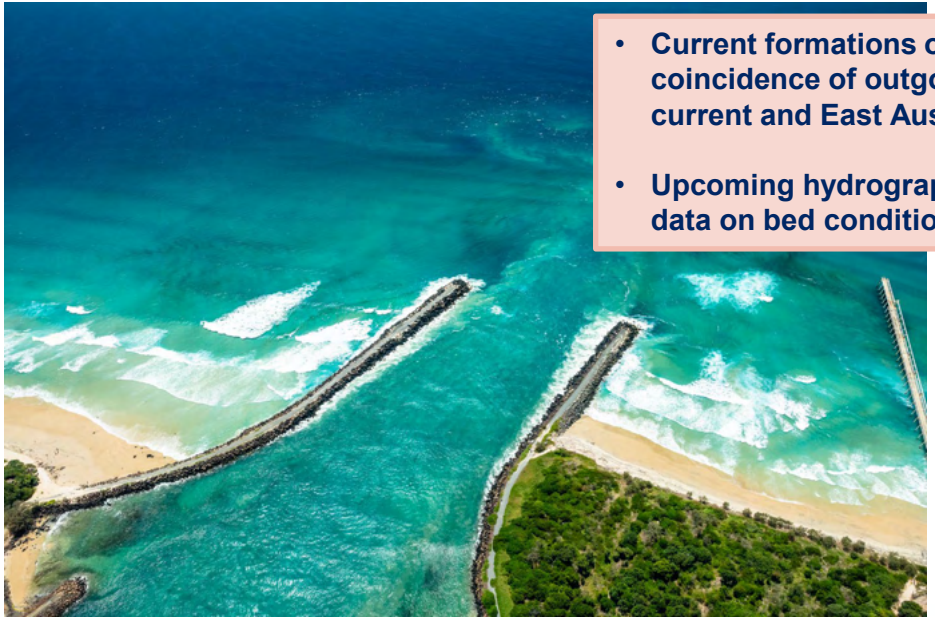
TWEED RIVER

January 2022

ENTRANCE CONDITIONS, USAGE AND SURVEY

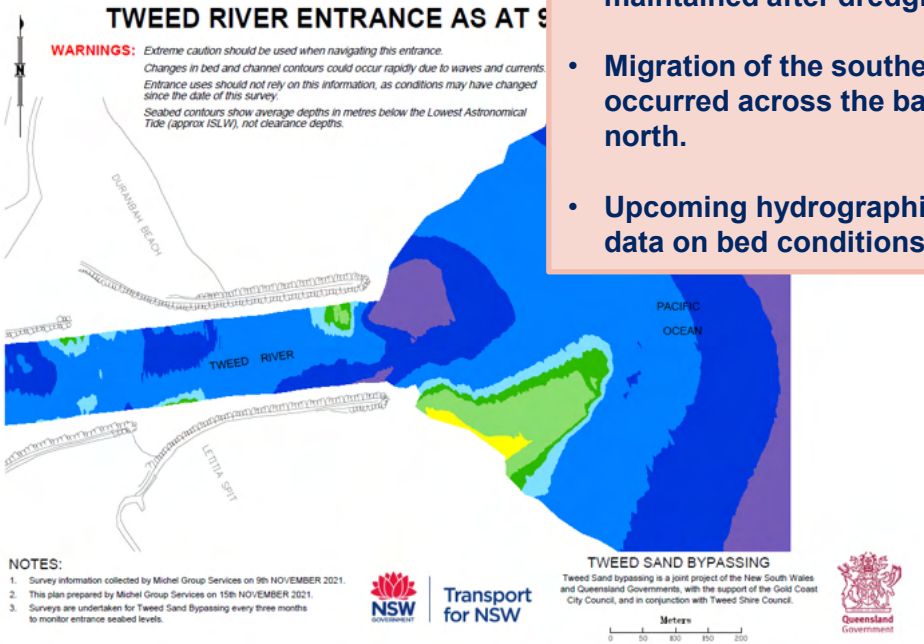


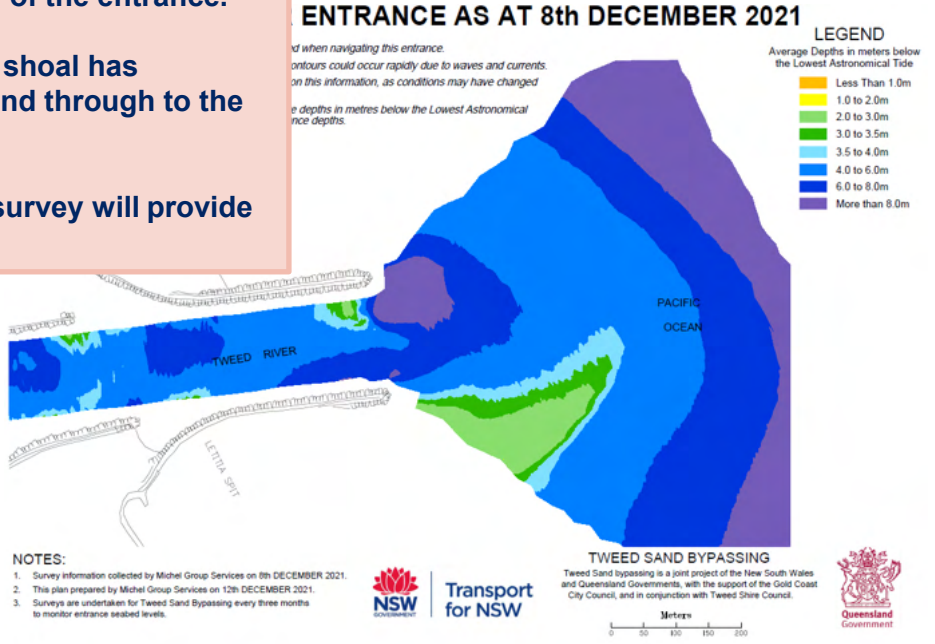
ENTRANCE CONDITIONS, USAGE AND SURVEY



- Current formations observed with coincidence of outgoing tide, wave driven current and East Australian Current (EAC)
- Upcoming hydrographic survey will provide data on bed conditions.

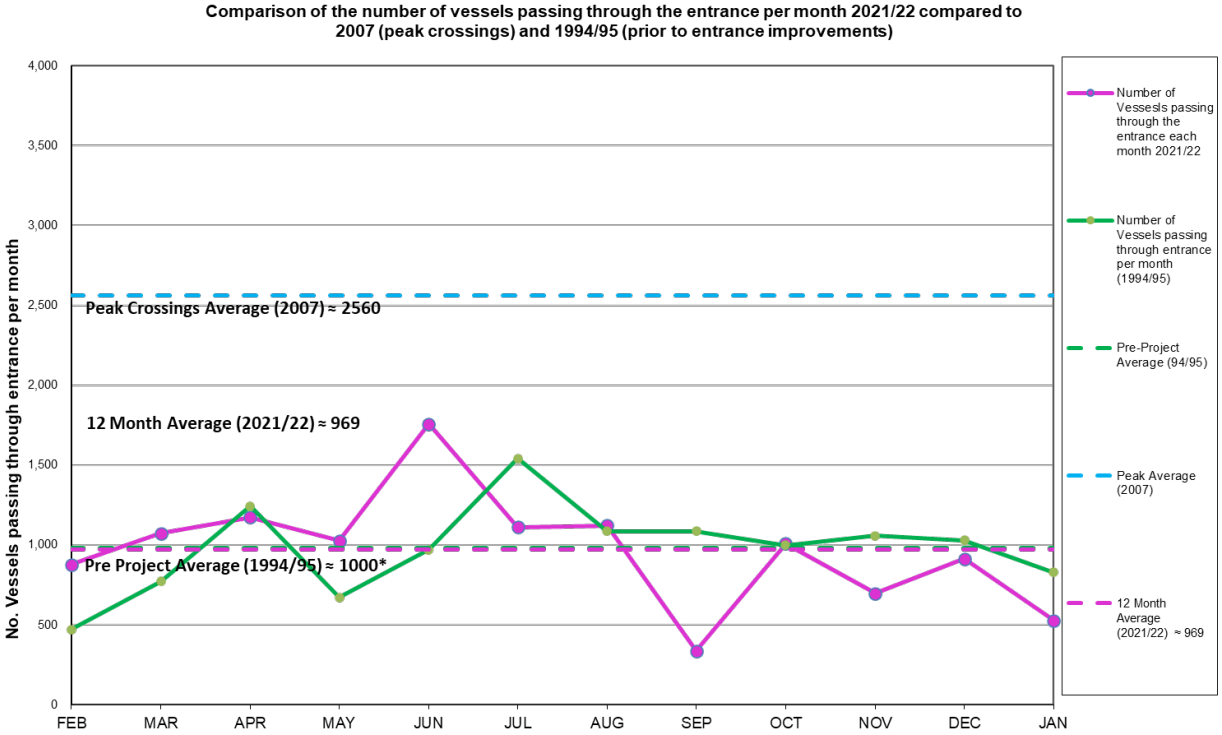
- **A clear navigation channel has been maintained after dredging of the entrance.**
- **Migration of the southern shoal has occurred across the bar and through to the north.**
- **Upcoming hydrographic survey will provide data on bed conditions.**





ENTRANCE USAGE

- Generally vessel passing numbers have been variable and highly dependant on conditions.
- On average over the past 12 months numbers have been approximately equal to the pre-project average.



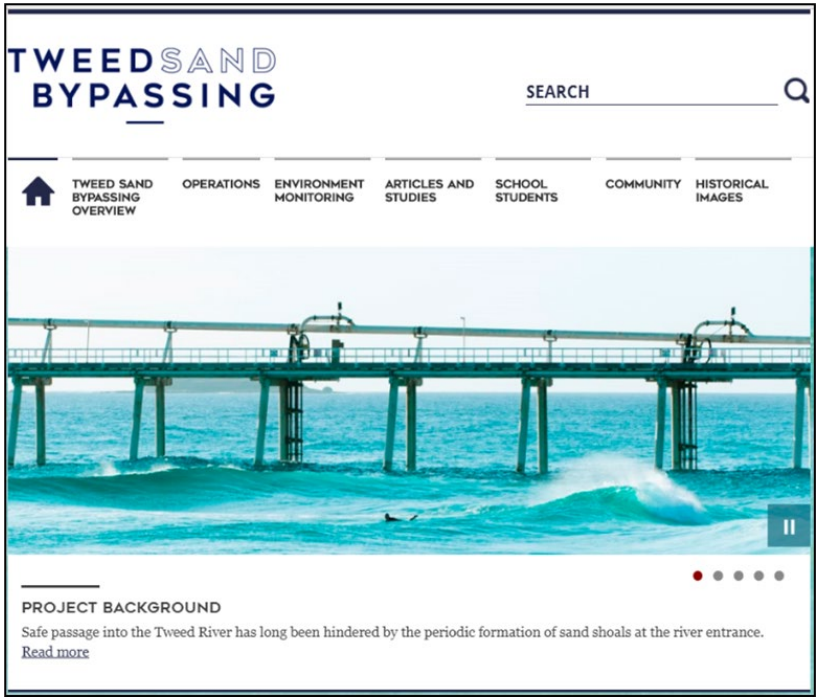
*Note 1 - Assuming the number of incoming boats = outgoing boats in 94/95

PROJECTS AND ENHANCEMENTS

• TSB Transition	Creation of Strategies, Plans and Procedures. Information sharing and handover
• Letitia Coastal Processes Study	Draft report received. Letitia is showing trends of equilibrium.
• Kirra pipeline detailed design	Detailed design ongoing.
• Valve Pit 2 safety upgrade	Works have commenced on installation of Glass Reinforced Plastic floor to improve safety when working in pit (Duranbah park).
• Asset Management Software Migration	Existing system being migrated to new software with better reporting capabilities and user interface.
• Asset condition assessment	Comprehensive condition assessment being undertaken to better understand asset condition and future maintenance cost. Tender award due in February 2022.
• Climate change study	Will inform future strategy and ensure preparedness for impacts associated with climate change. Project has commenced.

COMMUNICATIONS AND ENGAGEMENT

- New AC members representing the local NSW community:
  - Mr. John Ede
  - Mr. Gary Fisher
- TSB Instagram used for updates regarding sand pumping and dredging. Generally favourable feedback.
- TSB app continues to be updated with sand delivery volumes and entrance survey maps.
- TSB Project video has been updated. This has involved input from AC members. Final edit will published following approval from Working Group.



TWEED SAND BYPASSING

THANK YOU

- TSB is a joint coastal management initiative of the New South Wales and Queensland State Governments
- Please provide any feedback to the TSB Project Office email tresbp.projectoffice.group@transport.nsw.gov.au