



Beach Values

Anita Kovac
Senior Economist
Centre for Advanced Analytics and
Economics
Environment, Energy and Science Group

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Coast and Estuary Management

Management Options: Common Elements (a)

Element	How it is valued
private assets	market value
council assets	asset value
council maintenance	actuals
emergency response	actuals/estimates
State assets	asset values
State maintenance	actuals
clean up costs (tidal inundation)	actuals/estimates
defensive infrastructure construction	actual/estimates
defensive infrastructure maintenance	actual/estimates

Management Option: Common Elements (b)

Element	How it is valued
existence, option and bequest	research
tourist related business impact	range of approaches
recreational impact	range of approaches
ecosystem services	research
relational	qualitative
social	research/qualitative – disruption, adjustment mental health

not so readily valued

Beach existence, option and bequest value (non-use value)

Non-use value research (information provided orally at conference)

Two choice modelling surveys research.

Ardeshiri, A., Swait, J., Heagney, E.C., Kovac, M. (2019) Willingness-to-pay for coastline protection in New South Wales: Beach preservation management and decision making.

Second - choice modelling survey in 2019 for all NSW beaches to test results of choice modelling survey for 39 beaches.

Results of the second survey were very similar to the first with average WTP of \$82.01 p.a. (\$77.38 in first survey) but provided greater clarity about how this WTP should be apportioned amongst beaches

There was a single WTP for all beaches in the LGA/all beaches in the state. This means apportionment decisions will need to be made on the basis of the number of households in the LGA and/or distance to the coast.

Non-use value of NSW beaches

Adreshiri, Heagney et al (2019) based on surveys in 2017. Preliminary results from 2019 survey.

Willingness to pay to avoid sand width and length loss (all beach types)

Distance	Sample size	Mean	Standard deviation	95% confidence range - lower	95% confidence range - upper
0 - 15 km	978	\$94.43	258.64	\$78.22	\$110.64
16 – 30km	360	\$81.25	140.29	\$66.76	\$95.74
31 – 50km	252	\$71.83	162.64	\$51.74	\$91.91
> 50km	228	\$41.22	94.01	\$29.02	\$53.42
Total	1181	\$82.01	211.95	\$69.92	\$94.10

Application in CBA

Non-use value is the average willingness to pay (AWTP) annually to avoid 5% or more of beach width or length loss.

The current thinking is that all of the non-use value is lost if 5% or more of beach width or length is lost. See Ardeshiri, A., Swait, J., Heagney, E.C., Kovac, M. (2019) *Willingness-to-pay for coastline protection in New South Wales: Beach preservation management and decision making.*

If nourishment is feasible, the impact of non-use value loss could be reduced depending on the coastal processes in the area and the volume of sand available for nourishment.

Beach recreational value

Preliminary value transfer function results

Relative influence of variables (coefficient size).

beach type 2

width 0.3

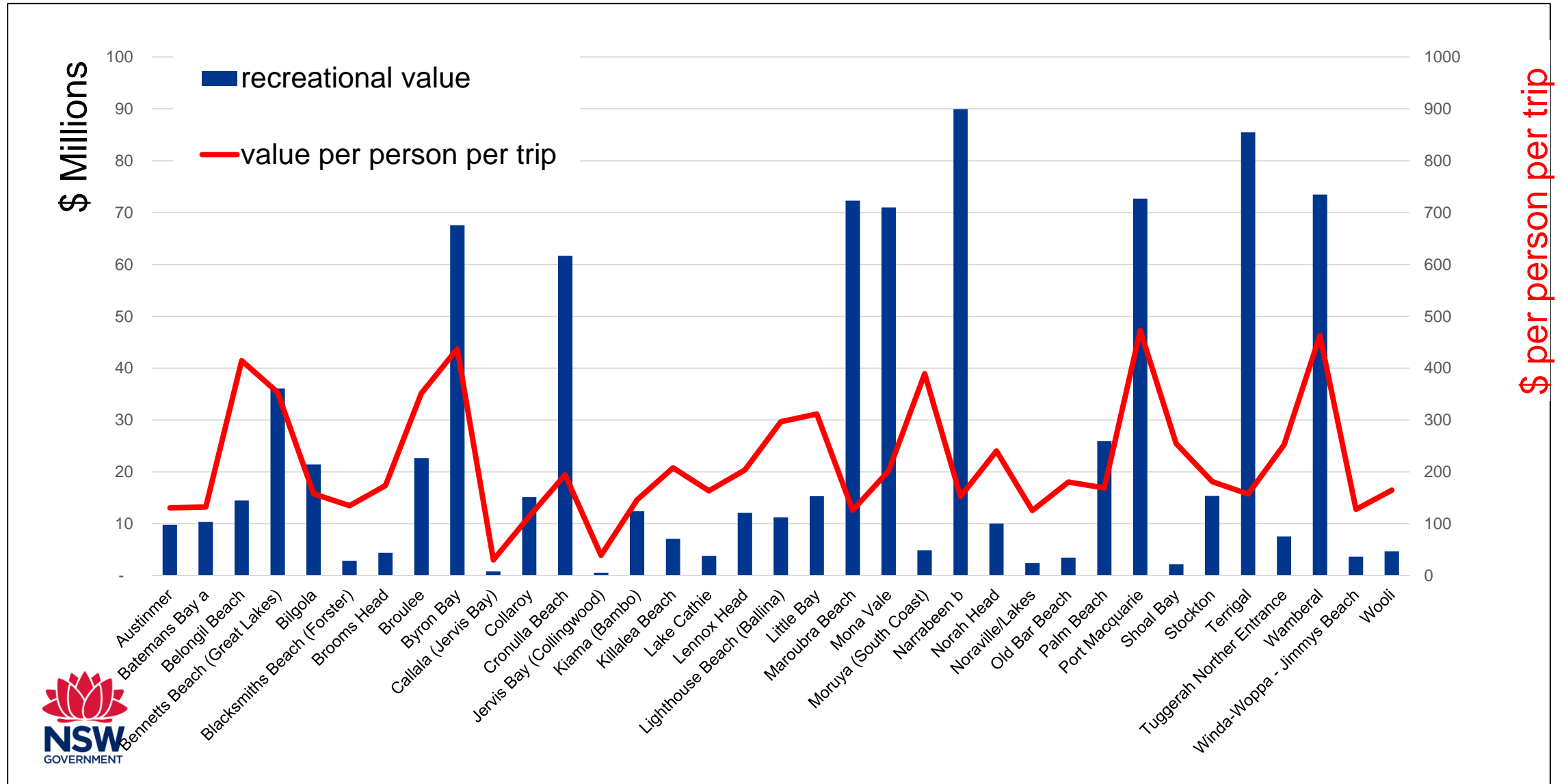
income 0.2

patrol service 0.7

distance from Sydney 0.3

length 0.2

Beach Recreational Value Estimates*



Notes: 2019 prices, visitation estimates for 2017. *Estimates based on choice modelling survey for 39 beaches only.

Other beach value estimates*

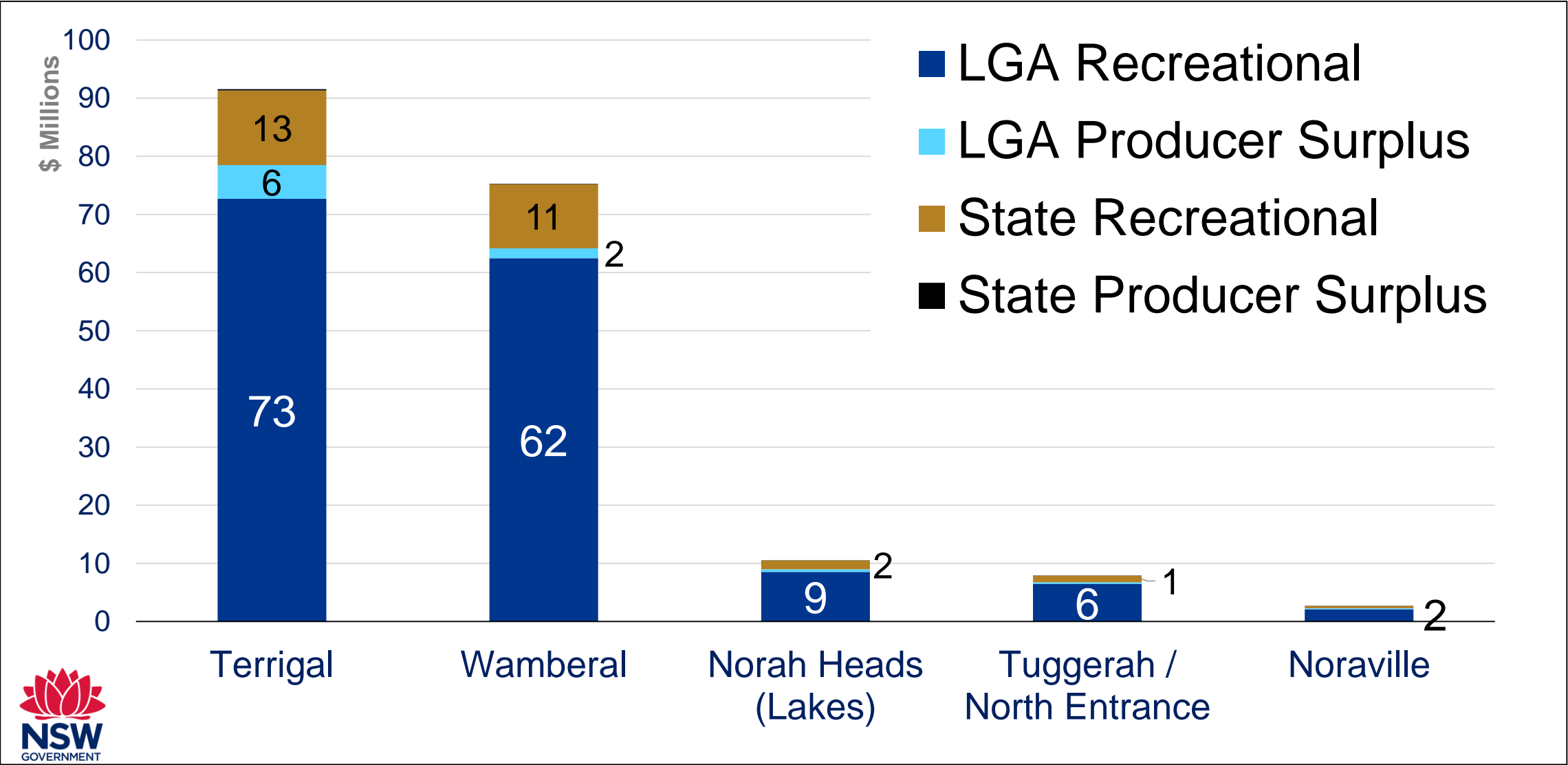
Four beaches not included in previous chart – due to ‘scaling’ effect on other data.

Bondi	\$855 million	\$290 per person per trip
Manly	\$382 million	\$203 per person per trip
Dee Why	\$220 million	\$224 per person per trip
Coogee	\$170 million	\$228 per person per trip



**Estimates based on choice modelling survey for 39 beaches only.*

Beach Use Value Estimates*



Notes: 2019 prices, visitation estimates for 2017. *Estimates based on choice modelling survey for 39 beaches only.

Application in CBA

Plug methodologically robust and standardised annual use values into CBA spreadsheet (base case).

The current thinking is that the recreational values generally relate to the patrolled area of the beach or what would normally be considered the 'location' of the beach.

- Choice model survey respondents were provided with pictures of different beach types. The pictures showed relatively discrete locations for a beach so this interpretation of the results seems consistent with what respondents are likely to have had in mind when answering survey questions. That is, they were not picturing a vast extent of beach or coastline.

Provides an estimate of the impact on recreational values of different management options.

Beach Use Values Estimates*

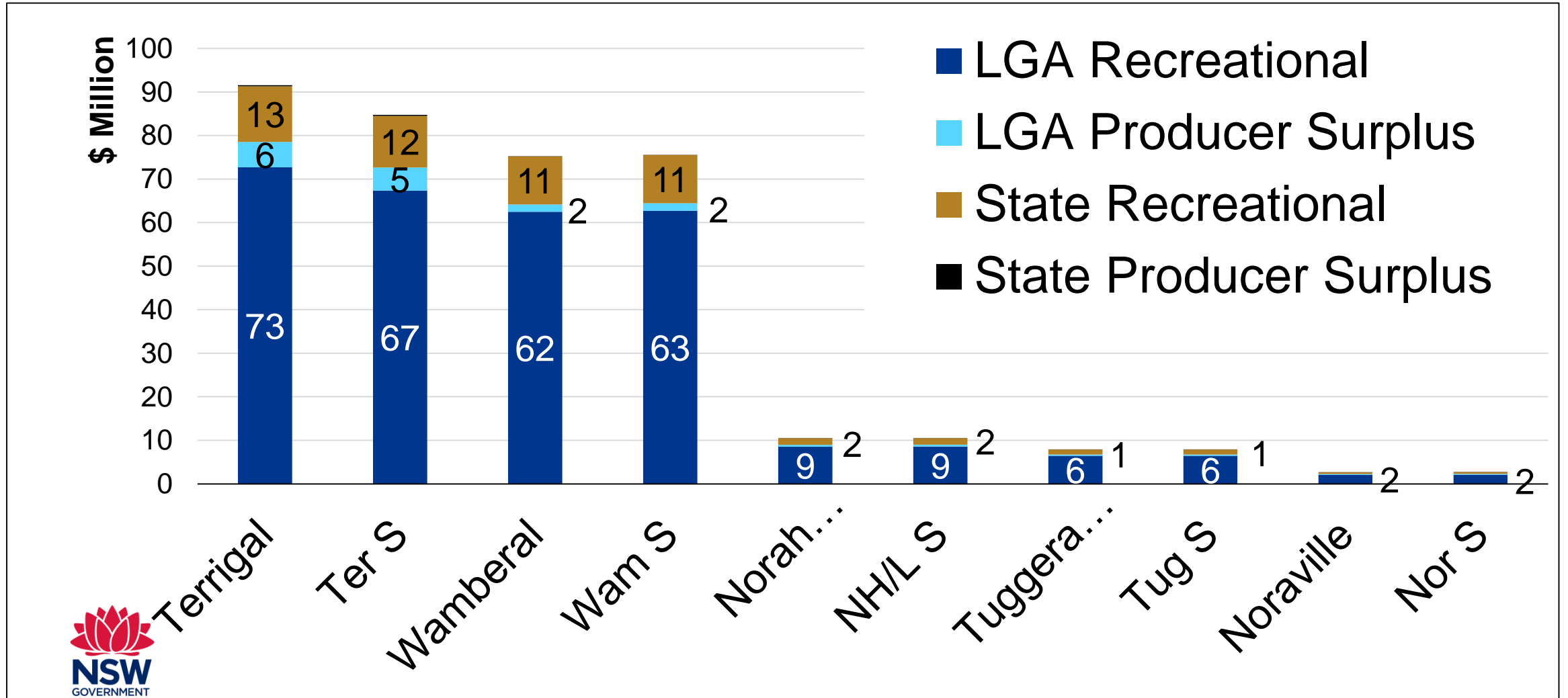
Scenario – Terrigal Beach narrows by 20 meters

	LGA		State	
	recreational value	producer surplus	recreational value	producer Surplus
Terrigal	- \$5,334,998	- \$630,682	- \$941,470	- \$25,653
Wamberal	\$236,939	\$33,700	\$41,813	\$1,371
Norah Heads/Lakes	\$30,845	\$4,206	\$5,443	171
Tuggerah/North Entrance	\$7,383	\$1,287	\$1,303	\$52
Noraville	\$37,303	\$4,540	\$6,583	\$185
Total	- \$5,022,528	- \$586,949	- \$886,328	- \$23,874
	LGA Total	- \$ 5,609,476	State Total	- \$910,203
Total impact	- \$6,519,679			

*Estimates based on choice modelling survey for 39 beaches only.

Beach Use Values Change Estimates*

Scenario – Terrigal Beach narrows by 20 meters



*Estimates based on choice modelling survey for 39 beaches only.

Where to from here

The tool is still in the development stage.

- Dr Ali Adrishiri is creating a gravity model and is due to complete his work at the end of the year.
- testing the tool for all NSW beaches with stakeholders in early 2020.
- working on the first draft of a paper on recreational values for publication.
- Seeking volunteers to provide feedback on content and user friendliness.

Anita.Kovac@environment.nsw.gov.au