

# Selecting from the Fisheries Managers' Tool-Box: Recreational Fishers' Views of Stock Enhancement and Other Management Options

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**Supplementary Table S1:** Number of responses (*n*) and the frequency of occurrence (%) of responses about the demographics of Blue Swimmer Crabs and Black Bream fishers. Data obtained from respondents that answered all questions in the closed question online survey.

Gender	Blue Swimmer Crab		Black Bream	
	<i>n</i>	%	<i>n</i>	%
Male	298	83.94	99	93.40
Female	55	15.49	7	6.60
Other	2	0.56	0	0.00
Age				
	<i>n</i>	%	<i>n</i>	%
18 - 24	30	8.47	18	16.98
25 - 34	66	18.64	26	24.53
35 - 44	96	27.12	29	27.36
45 - 54	70	19.77	15	14.15
55 - 64	53	14.97	16	15.09
65 or more	39	11.02	2	1.89
Education				
	<i>n</i>	%	<i>n</i>	%
Primary School	3	0.88	1	0.94
Secondary School	108	31.67	41	38.68
Technical or Further educational institution	119	34.90	31	29.25
University or other Tertiary institution	111	32.55	32	30.19
Other	0	0.00	1	0.94
Household annual income				
	<i>n</i>	%	<i>n</i>	%
<\$0	5	1.61	3	3.06
\$0	14	4.50	6	6.12
\$1 - \$20,799	20	6.43	9	9.18
\$20,800 - \$41,599	28	9.00	10	10.20
\$41,600 - \$62,399	48	15.43	10	10.20
\$62,400 - \$83,199	50	16.08	18	18.37
\$84,000 - \$103,999	32	10.29	16	16.33
\$104,000 - \$142,999	41	13.18	7	7.14
\$143,000 - \$181,999	32	10.29	6	6.12
\$182,000 - \$233,999	21	6.75	7	7.14
\$234,000 - \$285,999	5	1.61	1	1.02
\$286,000 - \$337,999	6	1.93	2	2.04
> \$338,000	9	2.89	3	3.06

**Supplementary Table S2:** Number of responses (*n*) and the frequency of occurrence (%) of responses about the characteristics of Blue Swimmer Crabs and Black Bream fishers. Data obtained from respondents that answered all questions in the closed question online survey.

Fishing frequency	Blue Swimmer Crab		Black Bream	
	<i>n</i>	%	<i>n</i>	%
I have never been fishing for crabs*	10	1.92	2	1.40
I have not fished for crabs in the past 12 months*	33	6.32	7	4.90
Once	46	8.81	4	2.80
Once a month	92	17.62	27	18.88
Once every 2 - 3 months	87	16.67	16	11.19
Once every 4 - 6 months	97	18.58	7	4.90
1 - 2 days a fortnight	107	20.50	41	28.67
1 - 2 days a week	35	6.70	33	23.08
3 - 4 days a week	12	2.30	6	4.20
5 days or more a week	3	0.57	0	0.00

  

Fishing experience	Blue Swimmer Crab		Black Bream	
	<i>n</i>	%	<i>n</i>	%
1 year or less	24	5.16	5	3.91
2 - 3 years	34	7.31	13	10.16
4 - 5 years	40	8.60	22	17.19
6 - 10 years	63	13.55	18	14.06
11 - 20 years	93	20.00	36	28.13
21 - 39 years	119	25.59	24	18.75
40 years or more	92	19.78	10	7.81

  

Fishing location	Blue Swimmer Crab		Black Bream	
	<i>n</i>	%	<i>n</i>	%
Shore	124	26.67	51	40.16
Both but usually shore	53	11.40		
Both equally	34	7.31		
Both but usually boat	83	17.85		
Kayak			31	24.41
Boat	171	36.77	38	29.92
Other			7	5.51

  

Fishing method	Blue Swimmer Crab		Black Bream	
	<i>n</i>	% <sup>^</sup>	<i>n</i>	%
Drop/crab nets	372	79.49		
Scoop nets	276	58.97		
Catch by hand by diving/snorkelling/wading	93	19.87		
Crab traps	3	0.64		
Wire hook	5	1.07		
Bait			30	23.08
Lures (including soft plastics)			80	61.54
Bait and lures			18	13.85
Other			2	1.54

  

Skill level	Blue Swimmer Crab		Black Bream	
	<i>n</i>	%	<i>n</i>	%
Beginner (novice)	57	12.28	13	10.16
Intermediate	235	50.65	74	57.81
Expert	172	37.07	41	32.03

\* After selecting this response these respondents were automatically transferred to the final page of the questionnaire to complete some basic demographic questions and received a thank you message.

<sup>^</sup> Respondents were able to select multiple options and so value do not sum to 100.

**Supplementary Table S3:** Percentage of recreational Blue Swimmer Crab fishers that agreed, disagreed or were unsure about the effects of potential issues on their chosen fishing location. Percentages given for all fishers overall and for those fishers utilising a particular location. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different. Issues ranked by the percentage of respondents who agreed. Peel = Peel-Harvey Estuary; Swan = Swan-Canning Estuary; Lesch. = Leschenault Estuary; Shark = Shark Bay.

Blue Swimmer Crabs		Fishing location				
	Overall		Peel	Swan	Lesch.	Shark
<b>Taking of undersized crabs</b>						
Agree	75		80	67	83	83
Unsure	16		12	19	14	17
Disagree	9		7	14	3	0
CLUSTER-SIMPROF group			b	a	c	c
<b>Overfishing of stocks</b>						
Agree	68		72	69	62	100
Unsure	20		17	19	34	0
Disagree	12		11	12	3	0
CLUSTER-SIMPROF group			a	a	b	c
<b>Exceeding the bag limit</b>						
Agree	68		71	65	72	33
Unsure	22		19	21	24	67
Disagree	10		9	15	3	0
CLUSTER-SIMPROF group			a	a	a	b
<b>Recreational fishing</b>						
Agree	62		64	62	55	67
Unsure	27		25	25	34	33
Disagree	11		11	13	10	0
CLUSTER-SIMPROF group			a	a	a	b
<b>Commercial fishing</b>						
Agree	59		62	59	55	67
Unsure	32		30	30	41	17
Disagree	9		8	11	3	17
CLUSTER-SIMPROF group			a	a	b	c
<b>Lack of education</b>						
Agree	47		49	52	38	67
Unsure	18		15	15	31	17
Disagree	35		36	33	31	17
CLUSTER-SIMPROF group			a	a	b	c
<b>The closed season is too short</b>						
Agree	42		47	36	38	67
Unsure	25		24	27	34	17
Disagree	33		30	38	28	17
CLUSTER-SIMPROF group			a	a	a	b
<b>Recreational fishing pressure is irrelevant compared to commercial pressure</b>						
Agree	25		24	27	21	33
Unsure	38		39	32	48	33
Disagree	37		37	41	31	33
CLUSTER-SIMPROF group			a	a	a	a
<b>Pollution</b>						
Agree	23		20	27	36	0
Unsure	44		41	42	43	50
Disagree	33		38	31	21	50
CLUSTER-SIMPROF group			a	a	b	c
<b>Climate change</b>						
Agree	23		21	26	24	67
Unsure	53		55	49	52	0
Disagree	24		24	25	24	33
CLUSTER-SIMPROF group			a	a	a	b
<b>There are no issues affecting the fishery</b>						
Agree	2		2	2	3	0
Unsure	10		9	10	17	0
Disagree	88		89	88	79	100
CLUSTER-SIMPROF group			a	a	a	a

**Supplementary Table S4:** Percentage of recreational Black Bream fishers that agreed, disagreed or were unsure about the effects of potential issues on their chosen fishing location. Percentages given for all fishers overall and for those fishers utilising a particular location. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different. Issues ranked by the percentage of respondents who agreed. Black = Blackwood River Estuary; Peel = Peel-Harvey Estuary; Swan = Swan-Canning Estuary; Wilson = Wilson Inlet. Other = other estuaries, i.e. not one of the system named, e.g. Beaufort Inlet or Stokes Inlet.

Black Bream			Fishing location				
	Overall		Black.	Peel	Swan	Wilson	Other
Taking of undersized fish							
Agree	70		31	79	86	100	46
Unsure	23		46	14	12	0	43
Disagree	7		23	7	2	0	11
CLUSTER-SIMPROF group			b	a	a		b
Lack of education							
Agree	67		54	79	71	0	61
Unsure	20		31	21	15	100	21
Disagree	13		15	0	14	0	18
CLUSTER-SIMPROF group			a	a	a		a
Fishing pressure and overfishing							
Agree	66		69	77	73	0	46
Unsure	19		23	15	17	100	21
Disagree	15		8	8	10	0	32
CLUSTER-SIMPROF group			a	a	a		b
Exceeding the bag limit							
Agree	57		46	64	66	100	39
Unsure	33		38	36	29	0	39
Disagree	10		15	0	5	0	21
CLUSTER-SIMPROF group			a	a	b		c
Pollution							
Agree	49		31	71	51	0	43
Unsure	29		31	14	36	100	18
Disagree	23		38	14	14	0	39
CLUSTER-SIMPROF group			b	a	a		b
Commercial fishing							
Agree	46		69	71	44	0	29
Unsure	39		23	14	46	0	46
Disagree	15		8	14	10	100	25
CLUSTER-SIMPROF group			a	a	b		b
Poor management							
Agree	43		62	64	44	0	25
Unsure	13		8	7	15	0	14
Disagree	43		31	29	41	100	61
CLUSTER-SIMPROF group			a	a	a		
Recreational fishing							
Agree	43		23	43	47	0	43
Unsure	28		23	50	25	0	25
Disagree	30		54	7	27	100	32
CLUSTER-SIMPROF group			a	a	a		a
Climate change							
Agree	19		31	14	19	0	18
Unsure	56		46	57	58	100	54
Disagree	25		23	29	24	0	29
CLUSTER-SIMPROF group			a	b	b		b
There are no issues affecting the fishery							
Agree	3		0	0	0	0	11
Unsure	12		23	7	10	0	14
Disagree	85		77	93	90	100	75
CLUSTER-SIMPROF group			a	a	a		a

**Supplementary Table S5:** Percentage of recreational Blue Swimmer Crab fishers that considered that measures of their catches and fishing trips had changed. Percentages given for all fishers overall and for those fishers utilising a particular fishing location. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Blue Swimmer Crabs		Fishing location				
	Overall		Peel	Swan	Lesch.	Shark
<b>Crab size</b>						
Increased	5		5	5	10	0
Not changed	39		38	42	20	0
Decreased	56		57	53	70	100
CLUSTER-SIMPROF group			a	a	b	c
<b>Crab abundance</b>						
Increased	6		7	4	10	0
Not changed	25		23	27	10	17
Decreased	69		70	69	80	83
CLUSTER-SIMPROF group			a	a	a	a
<b>Abundance of other species caught</b>						
Increased	10		7	11	10	0
Not changed	56		60	52	50	67
Decreased	34		34	37	40	33
CLUSTER-SIMPROF group			a	b	b	a
<b>Number of people fishing</b>						
Increased	81		84	82	90	83
Not changed	17		15	16	5	17
Decreased	2		1	2	5	0
CLUSTER-SIMPROF group			a	a	b	a
<b>Number of sites I fish regularly</b>						
Increased	18		19	23	15	0
Not changed	56		54	51	60	67
Decreased	26		27	25	25	33
CLUSTER-SIMPROF group			a	a	a	b
<b>Fishing depth</b>						
Increased	23		22	26	15	33
Not changed	75		75	72	80	67
Decreased	3		3	2	5	0
CLUSTER-SIMPROF group			a	a	b	c
<b>Time spent fishing</b>						
Increased	59		62	60	75	100
Not changed	30		28	27	25	0
Decreased	11		10	13	0	0
CLUSTER-SIMPROF group			a	a	b	c
<b>Distance travelled</b>						
Increased	40		44	38	50	33
Not changed	58		56	59	50	67
Decreased	2		0	3	0	0
CLUSTER-SIMPROF group			a	a	a	a

**Supplementary Table S6:** Percentage of recreational Black Bream fishers that considered that measures of their catches and fishing trips had changed. Percentages given for all fishers overall and for those fishers utilising a particular fishing location. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Black Bream		Fishing location					
	Overall		Black.	Peel	Swan	Wilson	Other
<b>Black Bream size</b>							
Increased	5		13	3	0	0	5
Not changed	35		6	60	14	100	33
Decreased	60		81	37	86	0	61
CLUSTER-SIMPROF group			a	b	a		b
<b>Black Bream abundance</b>							
Increased	13		6	14	16	100	7
Not changed	31		13	7	30	0	53
Decreased	56		81	79	56	0	37
CLUSTER-SIMPROF group			a	a	a		b
<b>Abundance of other species caught</b>							
Increased	21		25	21	14	100	21
Not changed	52		69	52	43	0	50
Decreased	27		6	28	43	0	29
CLUSTER-SIMPROF group			a	b	b		c
<b>Number of people fishing</b>							
Increased	63		25	55	64	100	78
Not changed	32		56	41	36	0	19
Decreased	5		19	3	0	0	3
CLUSTER-SIMPROF group			a	b	b		c
<b>Number of sites I fish regularly</b>							
Increased	38		31	34	29	0	45
Not changed	48		38	55	64	100	41
Decreased	14		31	10	7	0	14
CLUSTER-SIMPROF group			a	a	a		b
<b>Distance travelled</b>							
Increased	46		60	21	50	0	55
Not changed	53		40	75	50	100	45
Decreased	1		0	4	0	0	0
CLUSTER-SIMPROF group			a	b	a		b

**Supplementary Table S7:** Percentage of recreational Blue Swimmer Crab fishers that agreed, disagreed or were unsure about aspects of crab fishery management. Percentages given for all fishers overall and for those fishers utilising a particular fishing location. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Blue Swimmer Crabs		Fishing location				
	Overall		Peel	Swan	Lesch.	Shark
<b>The fishery is well managed</b>						
Agree	27		25	36	0	17
Unsure	34		30	30	50	33
Disagree	39		45	34	50	50
CLUSTER-SIMPROF group			<i>a</i>	<i>b</i>	<i>c</i>	<i>a</i>
<b>Stocks need to be better managed</b>						
Agree	69		70	66	85	83
Unsure	22		21	24	15	17
Disagree	9		8	10	0	0
CLUSTER-SIMPROF group			<i>a</i>	<i>a</i>	<i>b</i>	<i>b</i>
<b>I am happy with the number of crabs</b>						
Agree	34		33	38	33	33
Unsure	19		19	18	11	0
Disagree	47		49	44	56	67
CLUSTER-SIMPROF group			<i>a</i>	<i>a</i>	<i>a</i>	<i>b</i>
<b>I am happy with the size of crabs</b>						
Agree	39		33	47	48	0
Unsure	14		12	11	4	17
Disagree	48		56	41	48	83
CLUSTER-SIMPROF group			<i>a</i>	<i>a</i>	<i>a</i>	<i>b</i>

**Supplementary Table S8:** Percentage of recreational Black Bream that fishers agreed, disagreed or were unsure about aspects of fishery management. Percentages given for all fishers overall and for those fishers utilising a particular fishing location. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Black Bream		Fishing location					
	Overall		Black.	Peel	Swan	Wilson	Other
<b>The fishery is well managed</b>							
Agree	14		8	7	16	100	14
Unsure	40		31	14	47	0	39
Disagree	46		62	79	38	0	46
CLUSTER-SIMPROF group			a	a	b		b
<b>Stocks need to be better managed</b>							
Agree	74		85	86	74	0	64
Unsure	24		15	14	24	100	7
Disagree	3		0	0	2	0	29
CLUSTER-SIMPROF group			a	a	a		b
<b>I am happy with the number of Black Bream</b>							
Agree	26		15	14	19	100	50
Unsure	12		23	0	16	0	43
Disagree	61		62	86	66	0	7
CLUSTER-SIMPROF group			a	a	a		b
<b>I am happy with the size of Black Bream</b>							
Agree	22		8	14	12	100	48
Unsure	15		23	21	16	0	45
Disagree	63		69	64	72	0	7
CLUSTER-SIMPROF group			a	a	a		b



**Supplementary Table S9:** Percentage of recreational Blue Swimmer Crab fishers that chose a management acceptability rating for each of the nine options that currently are or could potentially be used to manage Blue Swimmer Crab fisheries in Western Australia. Mean rating values (very unacceptable = 1 to very acceptable = 5) are also provided. Percentages and means are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations and fisher groups with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different. Management options ordered by mean rating (i.e. acceptability).

Blue Swimmer Crabs		Fishing location				Fisher group						
	Overall	Peel	Swan	Lesch.	Shark	a	b	c	d	e	f	g
<b>Minimum size limit</b>												
Very acceptable	84	84	84	81	50	100	84	82	84	80	88	100
Acceptable	10	9	8	19	33	0	4	11	14	20	11	0
Neutral	3	3	5	0	0	0	4	3	2	0	1	0
Unacceptable	1	1	1	0	0	0	2	1	0	0	0	0
Very unacceptable	2	3	2	0	17	0	7	4	0	0	0	0
Average	4.72	4.71	4.72	4.81	4.00	5.00	4.55	4.65	4.82	4.80	4.87	5.00
CLUSTER-SIMPROF group		a	a	b	c	a	b	b	b	b	b	a
<b>Temporal closure</b>												
Very acceptable	63	69	60	48	33	90	67	57	61	60	80	50
Acceptable	28	23	29	48	33	10	25	33	24	30	15	33
Neutral	5	3	5	0	0	0	4	5	6	10	3	17
Unacceptable	2	2	2	4	17	0	0	2	6	0	0	0
Very unacceptable	3	3	3	0	17	0	5	3	2	0	3	0
Average	4.46	4.52	4.41	4.41	3.50	4.90	4.47	4.39	4.37	4.50	4.69	4.33
CLUSTER-SIMPROF group		a	a	b	c	a	b	b	b	b	a	c
<b>Fisher surveillance</b>												
Very acceptable	66	71	66	48	33	80	67	65	79	30	69	67
Acceptable	21	19	19	26	33	0	26	19	13	70	20	17
Neutral	7	3	9	15	17	10	2	8	6	0	7	17
Unacceptable	3	3	4	4	0	10	4	3	2	0	1	0
Very unacceptable	3	4	3	7	17	0	2	5	0	0	3	0
Average	4.44	4.50	4.41	4.04	3.67	4.50	4.53	4.37	4.69	4.30	4.52	4.50
CLUSTER-SIMPROF group		a	a	b	b	a	a	a	a	a	a	a
<b>Fisher education</b>												
Very acceptable	58	58	58	48	17	70	63	49	67	60	63	83
Acceptable	28	29	29	33	50	10	23	36	18	30	24	0
Neutral	10	7	8	19	17	20	9	10	10	10	12	17
Unacceptable	2	3	2	0	17	0	4	2	2	0	1	0
Very unacceptable	2	2	2	0	0	0	2	3	2	0	0	0
Average	4.38	4.39	4.39	4.30	3.67	4.50	4.42	4.26	4.47	4.50	4.48	4.67
CLUSTER-SIMPROF group		a	a	b	c	a	b	b	b	b	b	a
<b>Stock enhancement</b>												
Very acceptable	60	59	64	59	50	60	58	64	57	50	56	67
Acceptable	21	22	21	11	17	10	26	21	12	20	28	0
Neutral	14	13	10	22	17	20	12	10	18	30	11	33
Unacceptable	3	2	2	0	17	10	2	4	2	0	3	0
Very unacceptable	3	3	2	7	0	0	2	2	10	0	3	0
Average	4.33	4.32	4.42	4.15	4.00	4.20	4.37	4.40	4.04	4.20	4.32	4.33
CLUSTER-SIMPROF group		a	a	a	a	a	a	a	a	a	a	a
<b>Bag limit</b>												
Very acceptable	59	61	61	56	33	90	54	60	53	40	68	67
Acceptable	26	22	25	37	33	10	28	23	20	30	25	33
Neutral	8	8	7	0	0	0	7	7	16	10	3	0
Unacceptable	5	5	5	0	33	0	9	5	2	20	3	0
Very unacceptable	3	4	2	7	0	0	2	4	8	0	1	0
Average	4.32	4.32	4.39	4.33	3.67	4.90	4.25	4.30	4.08	3.90	4.56	4.67
CLUSTER-SIMPROF group		a	a	b	c	a	b	b	c	d	b	b
<b>Gear restriction</b>												
Very acceptable	38	38	43	33	17	60	33	31	29	30	44	67
Acceptable	28	27	27	33	67	10	30	35	29	30	28	17
Neutral	17	19	12	11	0	0	12	18	22	10	17	17
Unacceptable	11	12	10	15	17	10	16	10	12	30	8	0
Very unacceptable	6	5	7	7	0	20	9	6	8	0	3	0
Average	3.81	3.80	3.88	3.70	3.83	3.80	3.63	3.77	3.57	3.60	4.03	4.50
CLUSTER-SIMPROF group		a	a	a	b	a	b	b	b	b	b	a

**Supplementary Table S9 continued:** Percentage of recreational Blue Swimmer Crab fishers that chose a management acceptability rating for each of the nine options that currently are or could potentially be used to manage Blue Swimmer Crab fisheries in Western Australia. Mean rating values (very unacceptable = 1 to very acceptable = 5) are also provided. Percentages and means are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations and fisher groups with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different. Management options ordered by mean rating (i.e. acceptability).

Blue Swimmer Crabs		Fishing location					Fisher group						
	Overall	Peel	Swan	Lesch.	Shark		a	b	c	d	e	f	g
<b>Spatial closure</b>													
Very acceptable	33	30	35	33	33		30	32	28	29	30	51	33
Acceptable	27	26	29	22	17		20	21	33	24	50	24	50
Neutral	19	20	18	15	17		20	20	17	24	20	16	17
Unacceptable	12	14	10	19	33		20	14	13	6	0	9	0
Very unacceptable	8	11	8	11	0		10	13	10	16	0	0	0
Average	3.66	3.51	3.72	3.48	3.50		3.40	3.46	3.55	3.43	4.10	4.16	4.17
CLUSTER-SIMPROF group		a	a	a	b		b	b	b	b	b	b	a
<b>Maximum size limit</b>													
Very acceptable	15	13	19	19	0		10	18	16	10	20	17	17
Acceptable	9	7	10	4	0		10	5	5	10	30	16	0
Neutral	32	32	27	33	67		20	27	30	35	20	36	67
Unacceptable	25	27	23	19	33		30	25	28	18	20	25	0
Very unacceptable	20	22	21	26	0		30	24	21	27	10	5	17
Average	2.75	2.63	2.84	2.70	2.67		2.40	2.69	2.66	2.59	3.30	3.15	3.00
CLUSTER-SIMPROF group		a	a	a	b		a	a	a	a	a	a	b

**Supplementary Table S10:** Percentage of recreational Black Bream fishers that chose a management acceptability rating for each of the ten options that currently are or could potentially be used to manage Black Bream fisheries in Western Australia. Mean rating values (very unacceptable = 1 to very acceptable = 5) are also provided. Percentages and means are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below for fishing locations only. Those with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different. No tested was done on fisher groups due to the low number of responses from fishers in some groups. Management options ordered by mean rating (i.e. acceptability).

Black Bream			Fishing location					Fisher group					
	Overall		Black	Peel	Swan	Wilson	Other		a	b	c	d	e
Minimum size limit													
Very acceptable	78		92	71	79	100	72		0	100	67	81	77
Acceptable	13		8	14	12	0	17		100	0	33	10	11
Neutral	2		0	0	4	0	0		0	0	0	0	6
Unacceptable	3		0	7	2	0	3		0	0	0	5	0
Very unacceptable	4		0	7	4	0	7		0	0	0	3	6
Average	4.58		4.92	4.36	4.61	5.00	4.45		4.00	5.00	4.67	4.61	4.54
CLUSTER-SIMPROF group			a	c	b		c						
Stock enhancement													
Very acceptable	73		75	86	70	0	72		100	100	50	66	86
Acceptable	18		8	7	23	100	14		0	0	0	22	11
Neutral	7		17	7	4	0	10		0	0	50	8	0
Unacceptable	0		0	0	0	0	0		0	0	0	0	0
Very unacceptable	3		0	0	4	0	3		0	0	0	3	3
Average	4.58		4.58	4.79	4.56	4.00	4.52		5.00	5.00	4.00	4.47	4.77
CLUSTER-SIMPROF group			a	a	a		a						
Fisher education													
Very acceptable	63		67	79	52	100	72		0	100	50	58	68
Acceptable	27		8	21	36	0	21		100	0	50	29	21
Neutral	8		25	0	9	0	3		0	0	0	10	9
Unacceptable	0		0	0	0	0	0		0	0	0	0	0
Very unacceptable	3		0	0	4	0	3		0	0	0	3	3
Average	4.46		4.42	4.79	4.32	5.00	4.59		4.00	5.00	4.50	4.37	4.50
CLUSTER-SIMPROF group			a	a	a		a						
Maximum size limit													
Very acceptable	67		67	79	67	100	62		0	100	50	63	77
Acceptable	17		8	7	18	0	24		100	0	17	20	11
Neutral	9		25	7	11	0	0		0	0	17	8	9
Unacceptable	3		0	7	0	0	7		0	0	17	3	0
Very unacceptable	4		0	0	5	0	7		0	0	0	5	3
Average	4.40		4.42	4.57	4.40	5.00	4.28		4.00	5.00	4.00	4.32	4.60
CLUSTER-SIMPROF group			a	a	a		a						
Restricting commercial fishing													
Very acceptable	56		67	86	49	0	52		0	100	33	49	69
Acceptable	26		25	7	28	100	28		100	0	17	27	20
Neutral	16		8	7	19	0	17		0	0	50	20	9
Unacceptable	1		0	0	0	0	3		0	0	0	0	3
Very unacceptable	2		0	0	4	0	0		0	0	0	3	0
Average	4.33		4.58	4.79	4.19	4.00	4.28		4.00	5.00	3.83	4.19	4.54
CLUSTER-SIMPROF group			a	b	a		a						
Fisher surveillance													
Very acceptable	58		58	93	54	100	45		0	100	67	47	71
Acceptable	27		17	7	32	0	34		0	0	17	32	20
Neutral	7		17	0	9	0	3		0	0	0	10	6
Unacceptable	3		0	0	0	0	10		100	0	17	2	0
Very unacceptable	5		8	0	5	0	7		0	0	0	8	3
Average	4.29		4.17	4.93	4.30	5.00	4.00		2.00	5.00	4.33	4.08	4.57
CLUSTER-SIMPROF group			a	b	a		a						
Bag limit													
Very acceptable	58		50	36	65	0	59		0	100	50	61	60
Acceptable	17		17	21	14	0	21		100	0	50	17	9
Neutral	11		33	0	9	100	7		0	0	0	8	11
Unacceptable	6		0	0	9	0	7		0	0	0	5	11
Very unacceptable	9		0	43	4	0	7		0	0	0	8	9
Average	4.08		4.17	3.07	4.28	3.00	4.17		4.00	5.00	4.50	4.17	4.00
CLUSTER-SIMPROF group			b	a	c		c						

**Supplementary Table S10 continued:** Percentage of recreational Black Bream fishers that chose a management acceptability rating for each of the ten options that currently are or could potentially be used to manage Black Bream fisheries in Western Australia. Mean rating values (very unacceptable = 1 to very acceptable = 5) are also provided. Percentages and means are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below for fishing locations only. Those with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different. No tested was done on fisher groups due to the low number of responses from fishers in some groups. Management options ordered by mean rating (i.e. acceptability).

Black Bream		Fishing location						Fisher group					
	Overall		Black	Peel	Swan	Wilson	Other		a	b	c	d	e
<b>Spatial closure</b>													
Very acceptable	8		17	21	7	0	0		0	0	0	8	11
Acceptable	28		17	36	26	0	34		0	0	33	31	26
Neutral	27		25	14	33	100	17		100	33	0	25	29
Unacceptable	16		25	7	16	0	17		0	33	17	20	9
Very unacceptable	21		17	21	18	0	31		0	33	50	15	26
Average	2.86		2.92	3.29	2.89	3.00	2.55		3.00	2.00	2.17	2.97	2.89
CLUSTER-SIMPROF group			a	a	a		a						
<b>Temporal closure</b>													
Very acceptable	13		42	36	7	0	3		0	0	17	15	14
Acceptable	17		0	0	21	0	24		100	0	0	19	14
Neutral	21		25	21	18	0	28		0	67	50	19	23
Unacceptable	24		17	29	28	0	17		0	0	33	22	20
Very unacceptable	25		17	14	26	100	28		0	33	0	25	29
Average	2.70		3.33	3.14	2.54	1.00	2.59		4.00	2.33	3.00	2.76	2.66
CLUSTER-SIMPROF group			a	a	b		b						
<b>Restricting recreational fishing</b>													
Very acceptable	4		17	0	4	0	3		0	0	17	5	3
Acceptable	16		17	14	16	100	14		100	0	0	17	20
Neutral	12		8	21	14	0	7		0	0	0	19	3
Unacceptable	27		17	21	33	0	21		0	67	33	24	29
Very unacceptable	41		42	43	33	0	55		0	33	50	36	46
Average	2.17		2.50	2.07	2.23	4.00	1.90		4.00	1.67	2.00	2.32	2.06
CLUSTER-SIMPROF group			a	a	a		a						

**Supplementary Table S11:** Percentage of recreational Blue Swimmer Crab fishers that chose an option about whether management option should change or remain the same. Percentages are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations and fisher groups with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Blue Swimmer Crabs			Fishing location					Fisher group						
	Overall		Peel	Swan	Lesch.	Shark		a	b	c	d	e	f	g
Minimum size limit														
Increase	34		33	37	30	17		11	38	32	23	50	39	67
Remain the same	65		65	61	65	83		67	63	67	77	50	60	33
Decrease	1		1	1	4	0		11	0	1	0	0	0	0
Unsure	1		1	1	0	0		11	0	0	0	0	1	0
CLUSTER-SIMPROF group			a	a	a	b		a	b	b	c	d	b	d
Temporal closure														
Increase	52		60	47	46	67		0	4	9	6	40	3	17
Remain the same	40		35	45	42	33		80	81	67	82	40	67	67
Decrease	3		2	3	0	0		20	14	24	12	20	28	17
Unsure	5		3	5	13	0		0	2	1	0	0	3	0
CLUSTER-SIMPROF group			a	b	b	a		a	a	b	a	c	b	d
Fisher surveillance														
Increase	83		87	82	75	100		70	86	87	80	70	87	67
Remain the same	13		9	14	21	0		20	13	10	18	30	8	33
Decrease	1		1	1	0	0		0	0	1	2	0	0	0
Unsure	3		3	2	4	0		10	2	2	0	0	5	0
CLUSTER-SIMPROF group			a	a	a	b		a	b	b	b	a	b	a
Fisher education														
Increase	82		82	85	75	83		100	88	79	79	70	81	100
Remain the same	14		14	13	21	0		0	11	17	15	30	15	0
Decrease	1		1	2	4	17		0	0	2	0	0	0	0
Unsure	3		3	1	0	0		0	2	1	6	0	4	0
CLUSTER-SIMPROF group			a	a	a	a		a	b	b	b	b	b	a
Bag limit														
Increase	7		9	3	0	0		0	4	9	6	40	3	17
Remain the same	71		72	73	67	67		80	81	67	82	40	67	67
Decrease	21		18	24	33	33		20	14	24	12	20	28	17
Unsure	1		1	1	0	0		0	2	1	0	0	3	0
CLUSTER-SIMPROF group			a	a	b	b		a	a	c	a	d	c	b
Boat limit														
Increase	12		13	10	4	0		20	12	13	10	40	5	33
Remain the same	67		68	70	67	83		60	77	69	73	50	55	50
Decrease	19		18	20	29	17		20	11	18	15	10	31	17
Unsure	2		2	0	0	0		0	0	0	2	0	9	0
CLUSTER-SIMPROF group			a	a	a	a		a	a	a	a	c	b	c



**Supplementary Table S12:** Percentage of recreational Black Breem fishers that chose an option about whether management option should change or remain the same. Percentages are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations and fisher groups with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Black Bream			Fishing location						Fisher group				
	Overall		Black	Peel	Swan	Wilson	Other		a	b	c	d	e
Minimum size limit													
Increase	45		33	31	47	0	55		0	67	33	43	49
Remain the same	54		67	69	51	100	45		100	33	67	55	51
Decrease	1		0	0	2	0	0		0	0	0	2	0
Unsure	0		0	0	0	0	0		0	0	0	0	0
CLUSTER-SIMPROF group			a	a	a		a						
Fisher education													
Increase	88		75	92	91	100	86		100	100	50	92	89
Remain the same	9		17	8	7	0	10		0	0	50	5	9
Decrease	0		0	0	0	0	0		0	0	0	0	0
Unsure	3		8	0	2	0	3		0	0	0	7	3
CLUSTER-SIMPROF group			a	b	b		b						
Fisher surveillance													
Increase	83		75	85	86	100	79		100	100	67	78	97
Remain the same	11		17	15	7	0	14		0	0	33	14	0
Decrease	1		8	0	0	0	0		0	0	0	2	0
Unsure	5		0	0	7	0	7		0	0	0	7	3
CLUSTER-SIMPROF group			a	a	a		a						
Bag limit													
Increase	5		0	0	7	0	7		0	0	0	8	3
Remain the same	36		50	23	34	0	41		100	0	50	39	29
Decrease	58		50	77	57	100	52		0	100	50	51	69
Unsure	1		0	0	2	0	0		0	0	0	2	0
CLUSTER-SIMPROF group			a	a	a		a						
Boat limit													
Increase	5		0	8	5	0	7		0	0	0	8	3
Remain the same	40		58	38	36	0	41		100	0	83	39	37
Decrease	49		42	54	48	100	48		0	67	17	44	60
Unsure	6		0	0	11	0	3		0	33	0	8	0
CLUSTER-SIMPROF group			a	a	a		a						

**Supplementary Table S13:** Mean ratings for each Blue Swimmer Crab stock enhancement belief across (a) belief strength (0; very unlikely to 6; very likely), (b) belief evaluation (-3; very bad to +3; very good) and (c) cross-products (belief-based attitude: -18; very likely and very bad to +18; very likely and very good) for each fishing location and fisher group. Cells shaded according to the magnitude of their values with for belief strength and belief evaluation those in dark red being the lowest and those in dark green the highest and for the belief-based attitude from dark red to dark blue.

Blue Swimmer Crabs		Fishing location					Fisher groups						
Belief strength (0 to 6)	Overall	Peel	Swan	Lesch.	Shark		a	b	c	d	e	f	g
Increasing crab numbers	4.78	4.73	4.88	5.15	5.40		5.20	4.75	4.79	4.29	4.63	4.96	5.00
More crabs to catch	4.82	4.78	4.85	5.19	5.00		5.25	4.67	4.87	4.38	4.78	4.86	4.67
More fishers fishing	4.54	4.59	4.38	4.81	4.67		5.14	4.42	4.43	4.69	3.90	4.77	5.40
No change in crab abundance	2.20	2.27	2.01	1.61	1.20		1.86	2.57	2.08	2.85	3.50	1.81	2.25
Increasing fishing pressure	3.05	3.09	2.83	3.17	1.50		2.38	2.87	3.14	3.34	1.88	3.18	5.00
Environment impact	2.87	2.62	2.94	2.57	1.00		2.60	2.14	3.02	2.98	3.22	3.26	3.00
CLUSTER-SIMPROF group		a	a	a	b		a	a	a	a	a	a	a
Belief evaluation (-3 to +3)													
Increasing crab numbers	2.14	2.14	2.12	2.20	2.67		2.33	2.12	2.26	1.87	1.90	2.13	3.00
More crabs to catch	2.17	2.17	2.17	2.55	2.50		2.80	2.04	2.25	2.07	2.10	2.09	1.20
More fishers fishing	-0.55	-0.77	-0.35	0.60	0.50		1.14	-0.44	-0.55	-0.86	0.29	-0.69	-1.20
No change in crab abundance	-1.31	-1.32	-1.45	-1.35	-2.33		-2.00	-1.22	-1.36	-0.95	0.80	-1.64	-2.00
Increasing fishing pressure	-1.50	-1.46	-1.70	-1.26	-2.33		-1.67	-1.44	-1.47	-1.49	-1.11	-1.67	-1.60
Environment impact	-1.30	-1.38	-1.34	-0.31	-2.20		-0.88	-1.43	-1.19	-1.46	0.13	-1.39	-1.50
CLUSTER-SIMPROF group		a	a	a	a		a	b	b	b	c	b	d
Belief-based attitude (-18 to +18)													
Increasing crab numbers	10.45	10.25	11.01	11.25	12.17		13.11	9.76	10.74	9.96	8.00	10.83	11.25
More crabs to catch	10.39	10.11	10.66	13.75	13.33		11.80	9.06	10.85	10.57	10.30	9.56	4.40
More fishers fishing	-1.18	-1.85	-0.30	3.60	4.17		2.86	0.44	-0.76	-2.81	3.00	-2.86	-6.40
No change in crab abundance	-1.28	-1.15	-1.68	-1.00	-1.83		-0.50	-1.73	-1.57	-1.43	4.80	-1.23	-4.25
Increasing fishing pressure	-3.41	-3.46	-3.52	-3.63	-2.83		-5.83	-3.12	-3.40	-2.82	1.67	-4.31	-7.00
Environment impact	-2.10	-2.45	-2.55	1.50	-1.20		-2.50	-1.65	-2.30	-2.54	2.75	-2.25	-3.00
CLUSTER-SIMPROF group		a	a	b	b		a	b	b	b	c	b	d

**Supplementary Table S14:** Mean ratings for each Black Bream stock enhancement of belief across (a) belief strength (0; very unlikely to 6; very likely), (b) belief evaluation (-3; very bad to +3; very good) and (c) cross-products (belief-based attitude: -18; very likely and very bad to +18; very likely and very good) overall and for each fishing location and fisher group. Cells shaded according to the magnitude of their values with for belief strength and belief evaluation those in dark red being the lowest and those in dark green the highest and for the belief-based attitude from dark red to dark blue.

Black Bream		Fishing location					Fisher groups				
<i>Belief strength (0 to 6)</i>	Overall	Black.	Peel	Swan	Wilson	Other	a	b	c	d	e
Increasing the number of bream	5.34	5.45	5.08	5.35	5.00	5.38	4.00	6.00	5.00	5.26	5.47
More bream to catch	5.31	5.55	5.09	5.40	4.00	5.19		5.50	4.83	5.15	5.72
Too many Black Bream	1.08	1.20	0.67	1.11	4.00	1.04		0.00	0.83	0.98	1.10
Less bream surviving	1.17	1.71	0.82	1.05	3.00	1.29		0.00	1.00	1.57	0.60
Increasing fishing pressure	2.02	1.22	1.91	2.27	5.00	1.78	1.00	1.67	1.00	2.37	1.63
CLUSTER-SIMPROF group		a	a	a	b	a		a	a	a	a
<i>Belief evaluation (-3 to +3)</i>											
Increasing the number of bream	2.57	2.64	2.67	2.63	2.00	2.42		2.33	2.00	2.58	2.82
More bream to catch	2.58	2.45	2.58	2.67	3.00	2.44	2.00	2.33	2.00	2.52	2.80
Too many Black Bream	1.44	2.56	2.27	1.46	0.00	0.59	-2.00	1.67	2.00	1.07	2.19
Less bream surviving	-2.41	-2.78	-2.64	-2.49	-3.00	-2.00	-1.00	-2.33	-1.80	-2.31	-2.71
Increasing fishing pressure	-1.98	-2.11	-2.27	-2.08	-1.00	-1.64	-2.00	-2.67	-1.67	-1.92	-2.20
CLUSTER-SIMPROF group		a	a	a	b	b		a	a	a	a
<i>Belief-based attitude (-18 to +18)</i>											
Increasing the number of bream	13.54	14.82	13.58	13.84	10.00	12.54		14.00	8.60	13.44	15.15
More bream to catch	13.28	14.00	12.42	13.94	12.00	12.04	0.00	11.00	10.40	12.72	15.40
Too many Black Bream	0.54	2.44	1.64	0.24	0.00	-0.14	0.00	0.00	1.75	-0.09	1.81
Less bream surviving	-1.77	-4.00	-2.00	-1.42	-9.00	-1.35	0.00	0.00	-1.80	-2.22	-1.12
Increasing fishing pressure	-2.84	-1.11	-4.91	-2.94	-5.00	-2.28	-2.00	-3.67	-2.33	-3.38	-2.13
CLUSTER-SIMPROF group		a	a	a	b	a		a	a	a	a



**Supplementary Table S15:** Percentage of recreational (a) Blue Swimmer Crab and (b) Black Bream fishers that agreed, disagreed or were unsure whether they would continue to fish if the population is stocked. Percentages are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations and fisher groups with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

(a) Blue Swimmer Crabs		Fishing location					Fisher group							
	Overall		Peel	Swan	Lesch.	Shark		a	b	c	d	e	f	g
Agree	88		88	87	89	83		100	86	89	82	80	92	50
Unsure	10		9	9	4	17		0	11	9	12	0	1	33
Disagree	3		3	4	7	0		0	4	2	6	20	7	17
CLUSTER-SIMPROF group			a	a	a	b		a	a	a	a	a	a	b

(b) Black Bream			Fishing location						Fisher group				
	Overall		Black.	Peel	Swan	Wilson	Other		a	b	c	d	e
Agree	96		92	93	97	100	97		100	100	83	95	100
Unsure	3		8	7	2	0	3		0	0	0	3	0
Disagree	2		0	0	2	0	0		0	0	17	2	0
CLUSTER-SIMPROF group			a	a	a		a			a	a	a	

**Supplementary Table S16:** Percentage of recreational Blue Swimmer Crab fishers that chose options related to what they would do if they caught a hatchery-reared crab. Percentages are given for all fishers overall and for those fishers utilising a particular fishing location and those belonging to a fisher group. Cells shaded according to the magnitude of their values with those in dark red being the lowest and those in dark green the highest. The CLUSTER-SIMPROF groups assigned are given below. Fishing locations and fisher groups with the same letter indicate no significant difference in the percentage contribution across the possible answers, whereas those with different letters are deemed to be different.

Blue Swimmer Crabs			Fishing location					Fisher group						
	Overall		Peel	Swan	Lesch.	Shark		a	b	c	d	e	f	g
I would eat it as if it was wild crab														
Agree	84		81	89	95	83		80	88	87	78	70	81	83
Don't know	13		15	9	5	0		0	11	12	16	30	16	0
Disagree	3		3	2	0	17		20	2	1	6	0	3	17
CLUSTER-SIMPROF group			a	a	a	a		a	b	b	b	b	b	a
I would eat it but would prefer wild crab														
Agree	28		28	27	29	0		60	26	25	27	60	29	17
Don't know	41		43	41	43	50		30	28	46	41	10	40	33
Disagree	32		29	32	29	50		10	46	29	33	30	31	50
CLUSTER-SIMPROF group			a	a	a	b		a	c	b	b	a	b	c
I would not eat it myself but would keep it for family/friends														
Agree	4		4	5	5	0		0	0	3	4	10	9	0
Don't know	20		22	19	14	0		0	14	16	22	30	33	20
Disagree	75		74	77	81	100		100	86	81	73	60	57	80
CLUSTER-SIMPROF group			a	a	b	b		a	b	b	b	c	c	b
I would release after capture, I don't like aquacultured crabs														
Agree	3		4	2	0	0		20	4	1	2	0	5	0
Don't know	33		35	25	29	0		20	21	29	45	60	44	20
Disagree	64		61	73	71	100		60	75	70	53	40	51	80
CLUSTER-SIMPROF group			a	a	a	b		a	a	a	b	b	b	a