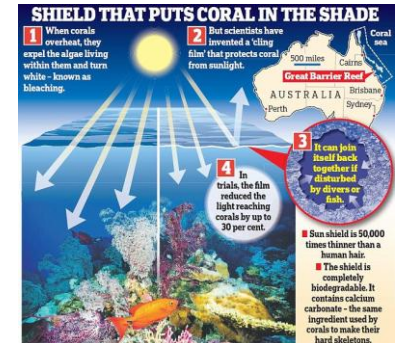


Understanding Tourists' Attitudes Toward Interventions for the Great Barrier Reef



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1. Background Context
 2. Aim and Research Methods
 3. Preliminary Findings
 4. Conclusion and Implications
-

- Importance of the GBR
 - In 2015 Economic contribution of the GBR and catchment region was AU\$7.976 Billion - generated 8.2% of all employment in the region including 46,000 direct tourism jobs and tourism expenditure of AU\$3.3 Billion (ABS, 2017)
 - GBR valued at \$56 billion and value as a tourist attraction was the largest contributor and valued at \$3.2 billion (Deloitte Access Economics, 2017)
 - Threats to reef systems and GBR
 - GBRMPA (2017) climate change is a great threat to the GBR
 - IPCC Report (2018) stated that a 1.5C increase in ocean temperatures will lead to the loss of between 70-90% of corals globally
 - IPCC found that ocean temperatures will rise by 1.5C between 2030 and 2052 depending on the effectiveness of global mitigation strategies
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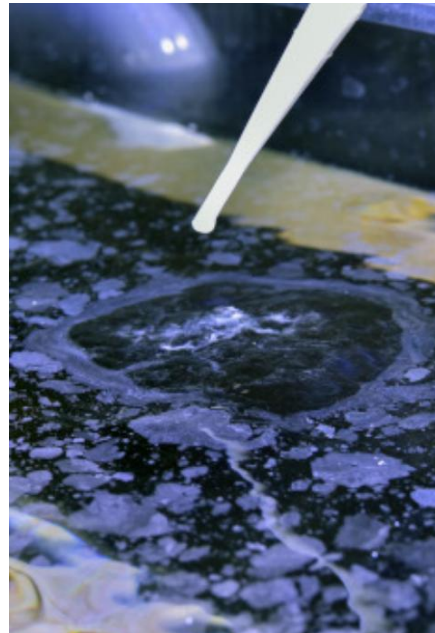
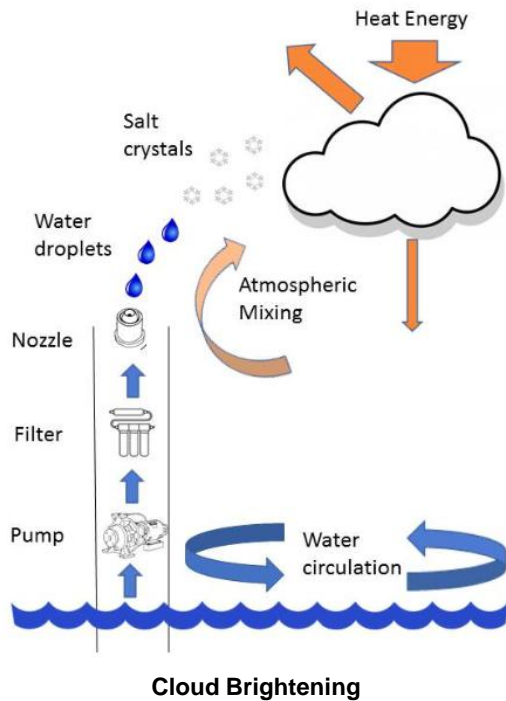
Background Context



- Proposed interventions to restore, repair and build resilience to GBR:
 - Some are at early stages of R & D – new and technological focus
 - Feasibility Design via Reef Restoration and Adaptation Program (RRAP)
 - Social science program to understand public attitudes toward GBR restoration and eight proposed interventions (UQ, CSIRO, JCU, QUT)
 - Research tends to focus on Australians (Goldberg et al., 2016; Taylor et al., 2018)
 - Limited work to explore international and domestic tourists' attitudes toward proposed interventions
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Background Context

Types of novel interventions and technologies could include:



Surface Films



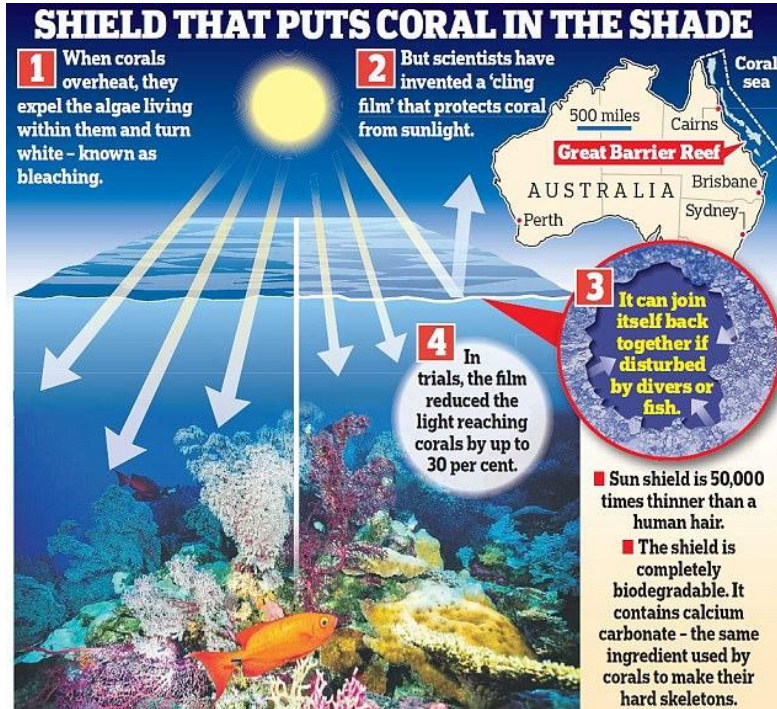
Rubble Stabilisation



Coral Hybridisation

Background Context

Media coverage



Geoengineering: The quick, and potentially catastrophic, fix for climate change

RN By Michael Dulaney for Big Ideas

Updated 4 Jun 2018, 10:42am

Proposals for geoengineering projects sound like something out of science fiction.

Pumping aerosols into the upper atmosphere to make clouds more reflective, for example. Or fertilizing oceans with iron to promote the growth of plankton and algae so they consume more carbon dioxide.

Then there are proposals to plant vast swathes of trees in desert areas, or brighten clouds above marine areas to prevent ocean warming.

They sound like drastic interventions because that's what geoengineering is: the active and intentional modification of the climate.



But Dr Hunt said this required more research and thought applied to the topic.

"I don't know which is worse - a seven metre sea level rise or geoengineering.

Great Barrier Reef: Scientists use new technology to regenerate Australian icon

By Nicole Chettle

Updated 26 Nov 2017, 7:29pm

Scientists are regrowing coral from larvae on damaged patches of the Great Barrier Reef in a project that could change the management of reef systems worldwide.

Professor Peter Harrison from Southern Cross University has been collecting coral spawn off Heron Island on the Great Barrier Reef (GBR), and maturing it in tanks.

RELATED STORY: Great Barrier Reef shows signs of recovery after coral bleaching

RELATED STORY: A massive floating dumpsite has appeared in the Caribbean

RELATED STORY: 'Crack team' kicks off 'pivotal' mission to save Great Barrier Reef

"It's really exciting, this essentially is the rebirth of the reef," Professor Harrison said.

Study Aim and Objectives

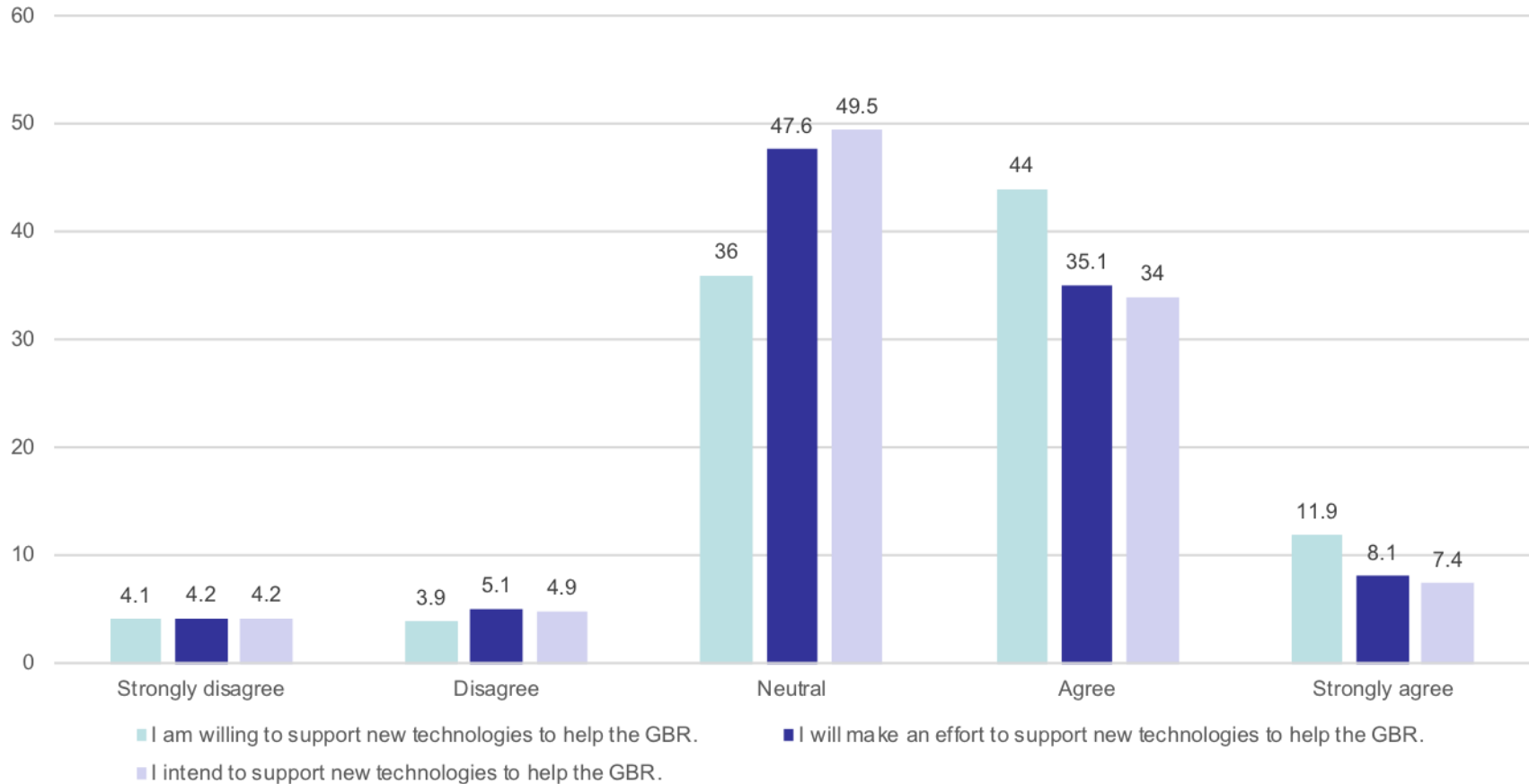


- To understand tourists' attitudes toward proposed GBR reef restoration interventions:
 - Identify tourists' attitudes and support levels for technological interventions
 - Examine the influence of psychological factors on attitudes and support for interventions
 - Examine differences by type of tourist (domestic/international)
 - Survey implementation
 - Cairns airport from July 2018 until November 2018
 - 468 responses (48% domestic and 52% international)
-

- Survey design
 - *Attitudes* toward interventions/technologies – 4 items (Ajzen, 1991)
 - *Support* for direct interventions/technologies – 3 items (Ajzen, 1991)
 - *Factors* associated with attitudes/support (Bamberg et al., 2007; De Groot et al., 2007; Onwezen et al., 2013):
 - *Awareness of consequences* – 3 items
 - *Ascribed responsibility* – 3 items
 - *Personal norms* – 3 items
 - *Information* about interventions/technologies to make a more certain assessment – 1 to 5 scale from no more to a lot more information (Yang et al., 2015)
- Differences by type of tourist

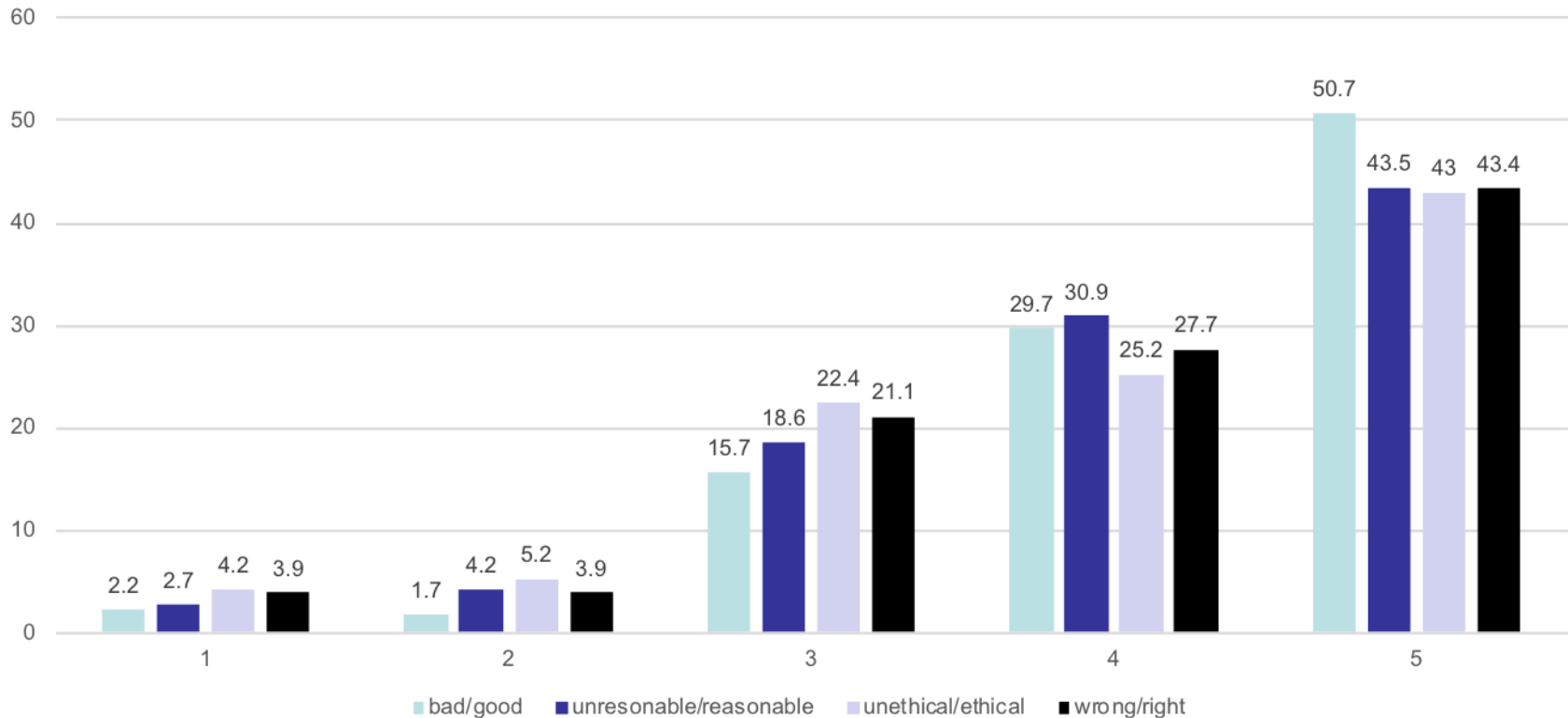
Preliminary Findings

Support for Proposed Interventions (%)



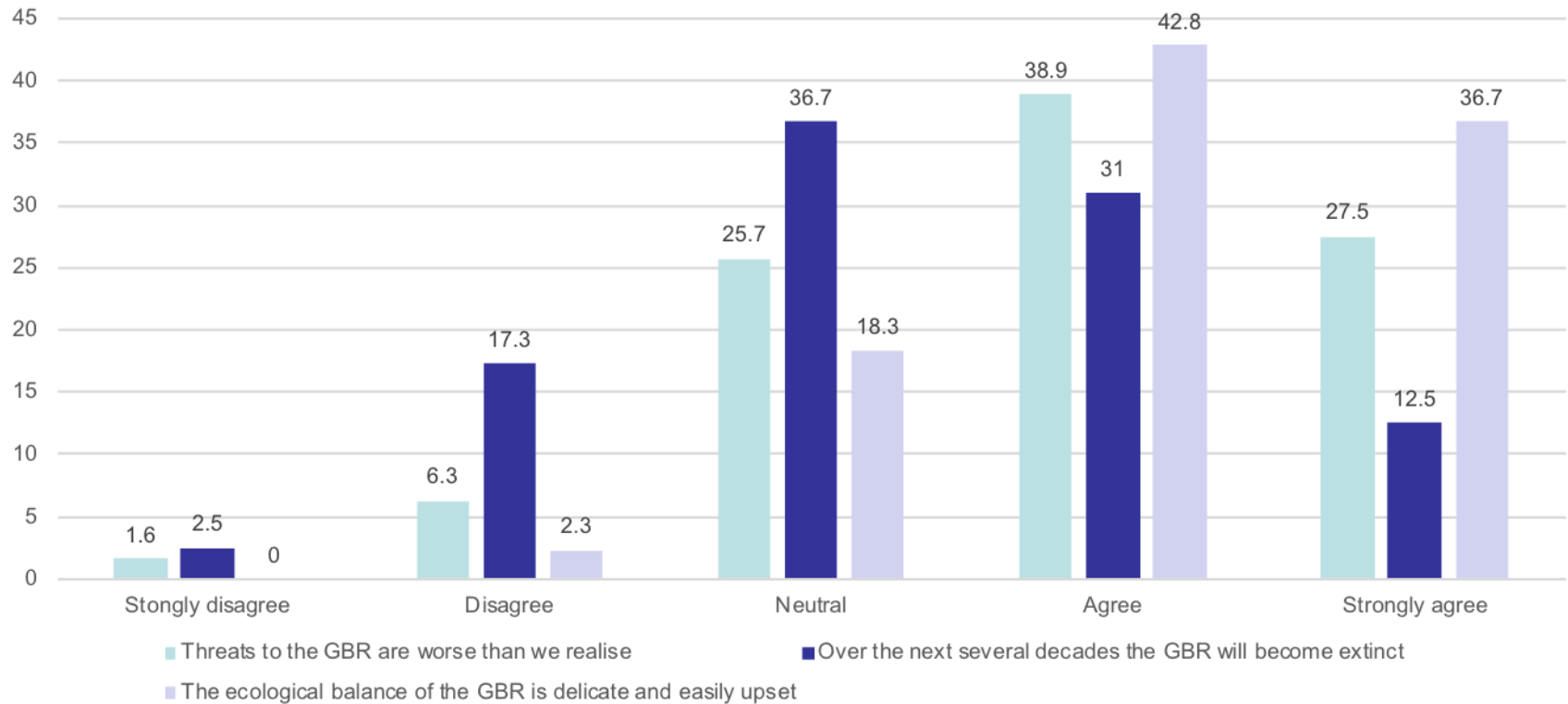
Preliminary Findings

Attitudes Toward Proposed Interventions (%)



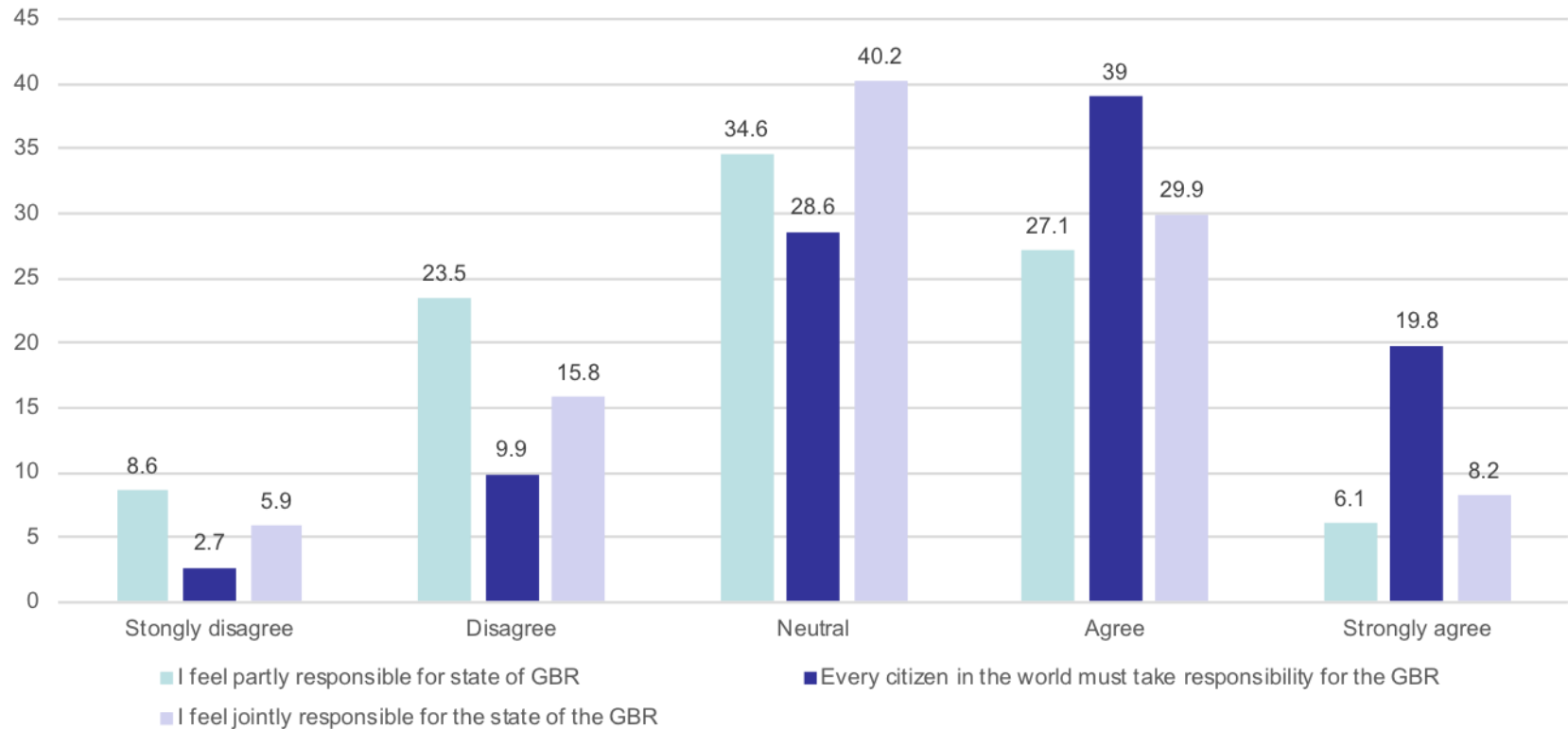
Preliminary Findings

Awareness of Consequences (%)

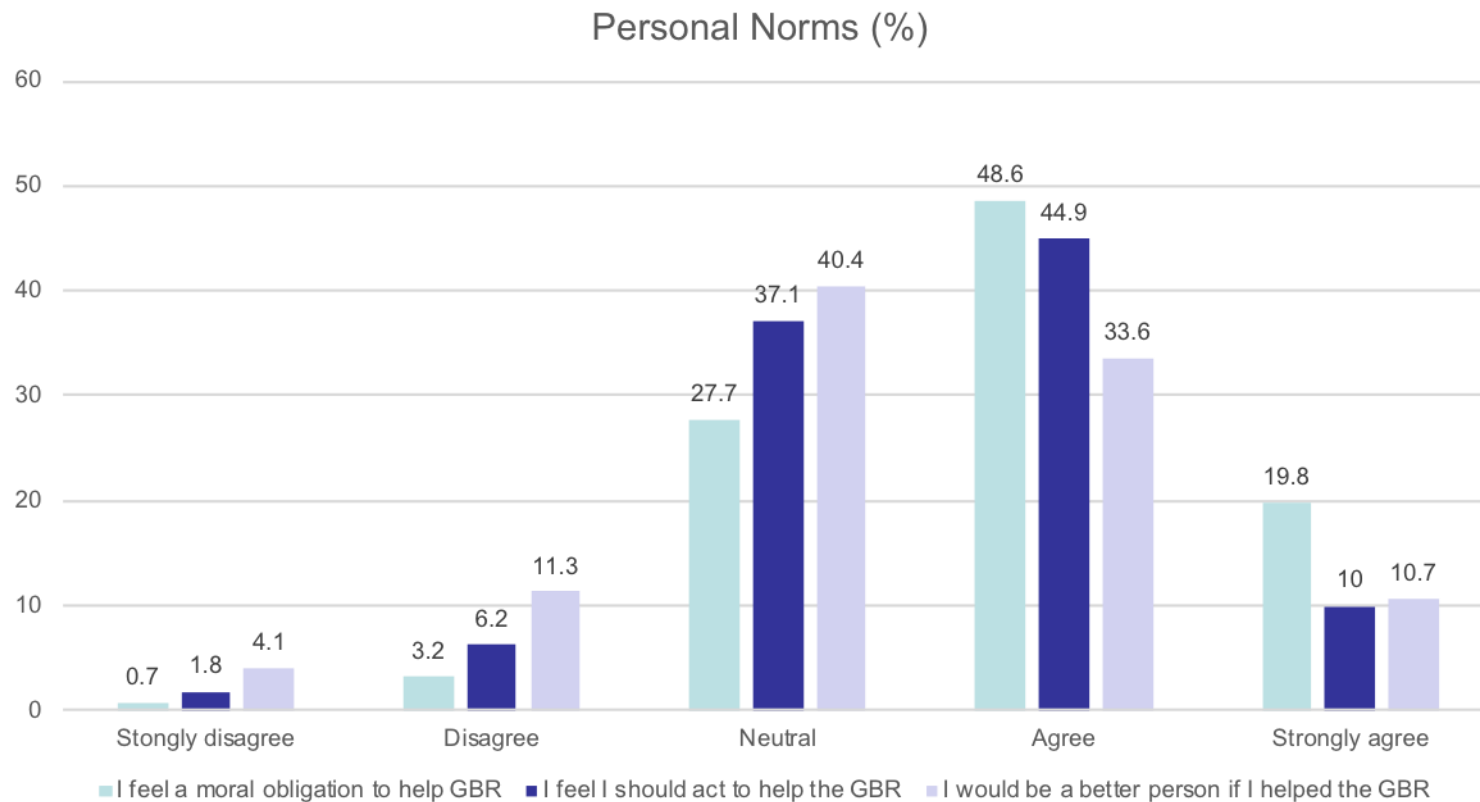


Preliminary Findings

Ascribed Responsibility (%)

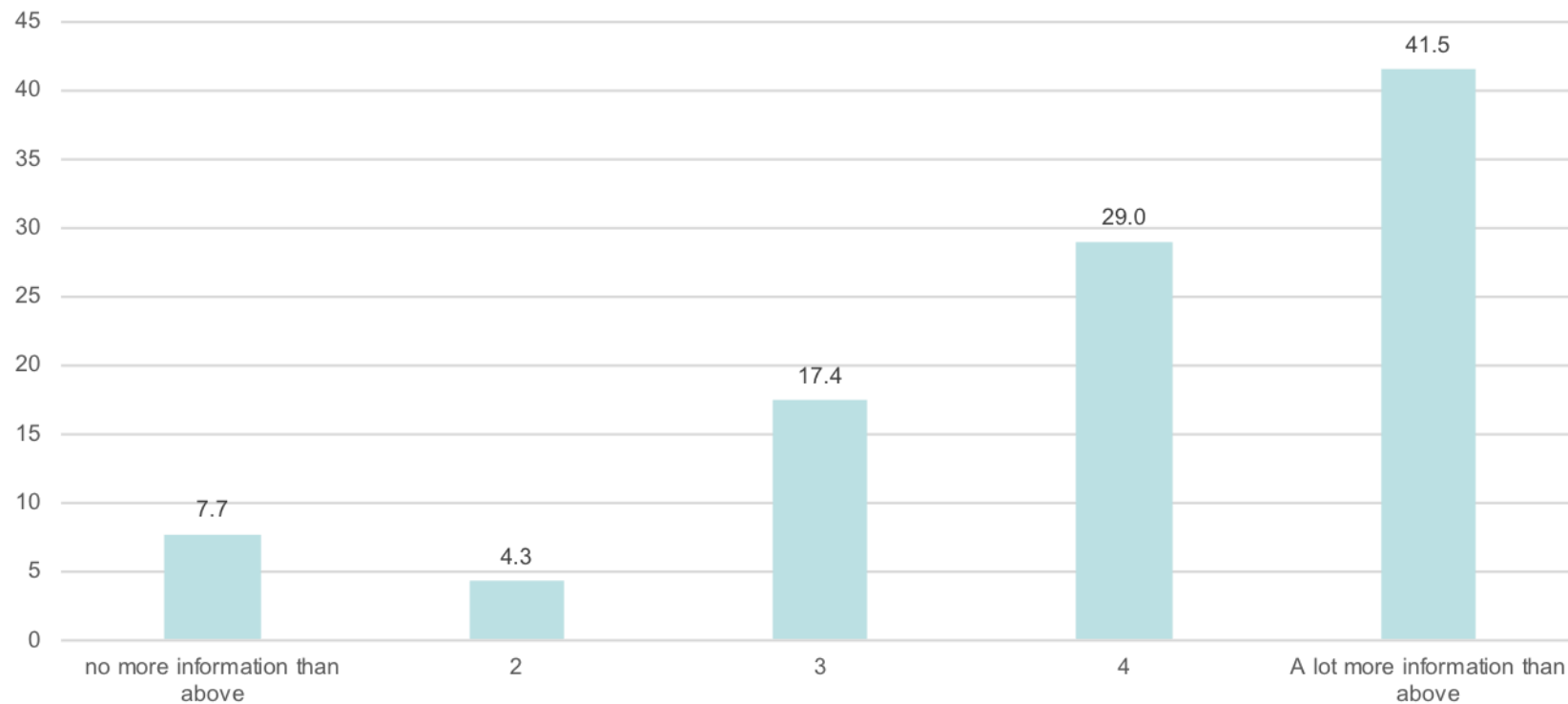


Preliminary Findings



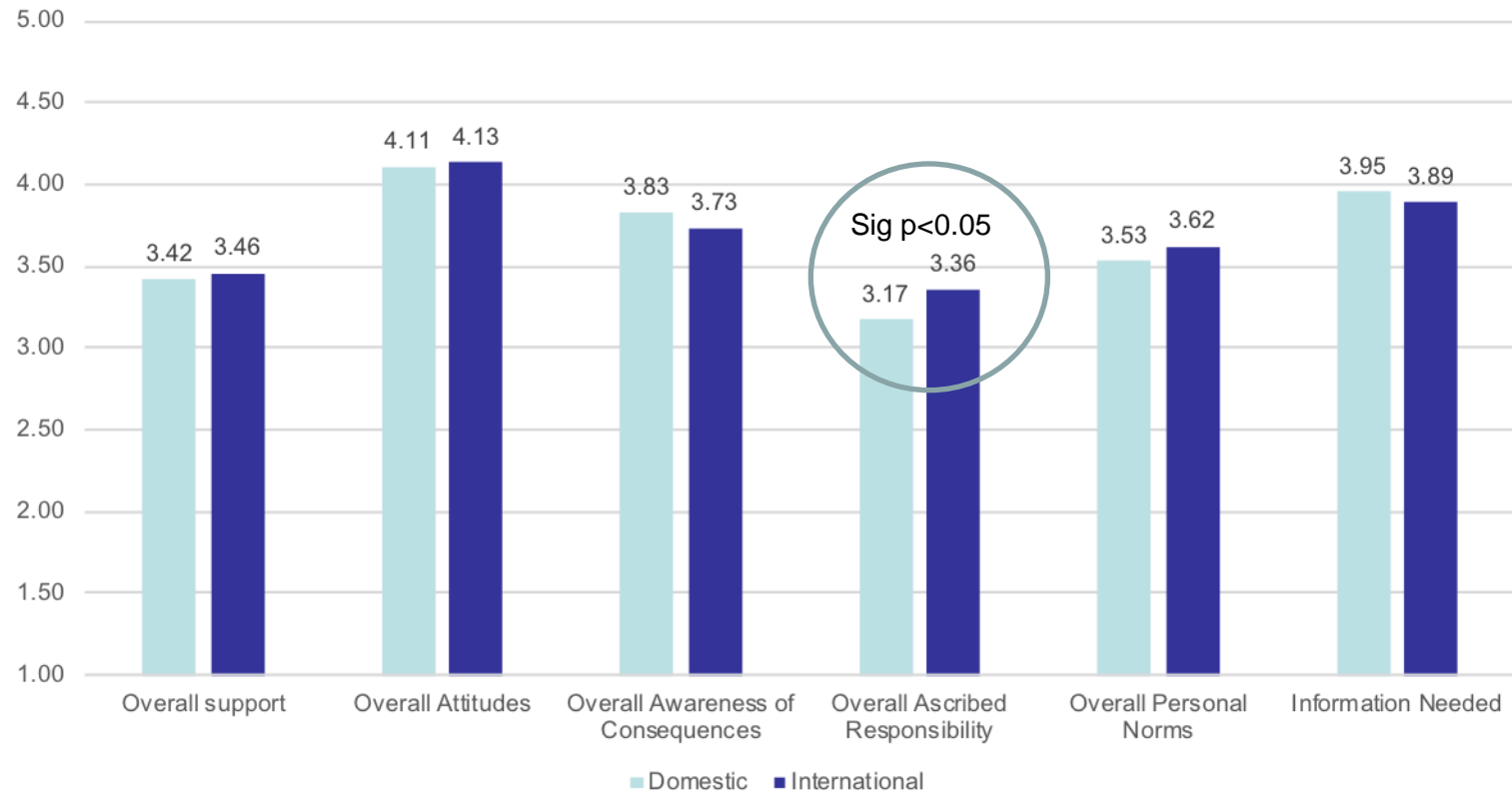
Preliminary Findings

Information Required About Proposed Interventions (%)



Preliminary Findings

Ratings Compared By Visitor Type (Mean Scores)



Preliminary Findings



- Open ended comments
 - “Would I support technologies **in principle** – yes”
 - “Only if **in tune** with the natural environment”
 - “New technologies **risky** for natural **balance**”
 - “I think that we have to be careful to not **unbalance nature**”
 - “**Impact** of this on other areas of the **eco-system**?”
 - “Worried about **unintended impacts** – need more research”
 - “I need **more information** to make a decision”
 - “Please **do not try** new technologies. No one is **certain** of “LONG” term reef lifecycle”
-

Associations between variables

Variables	1	2	3	4	5	6
1. Support	-					
2. Attitudes	.468**	-				
3. Consequences	.251**	.152**	-			
4. Responsibility	.239**	.072	.470**	-		
5. Personal norms	.422**	.105*	.445**	.724**	-	
6. Information required	.018	-.170**	.059	.095	.173**	-

Strengths of association reported in this table are characterised using Cohen's (1988) guidelines

$r = .10$ to $.29$ are small; $r = .30$ to $.49$ are medium; and, $r = .50$ to 1.0 are large associations.

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

- Positive relationship between many variables and support
- Personal norms had a positive relationship with responsibility and awareness of consequences
- Information and attitudes had a negative relationship

Conclusions/Implications



- Key conclusions
 - Attitudes are stronger than support for interventions (uncertainty)
 - Awareness of consequences high (clear threats)
 - Attitudes and personal norms are positively related to support
 - Few differences between visitor type

 - Practical and Research Implications
 - Information gap is needed due to uncertainty
 - Education campaign needed using trusted media sources that communicate proposed interventions using layman's terms
 - Personal norms such as moral obligation could be used in education
 - Need to understand risks/benefits of proposed interventions
 - Need long term monitoring of community (and tourists') attitudes, support and awareness of proposed interventions
-