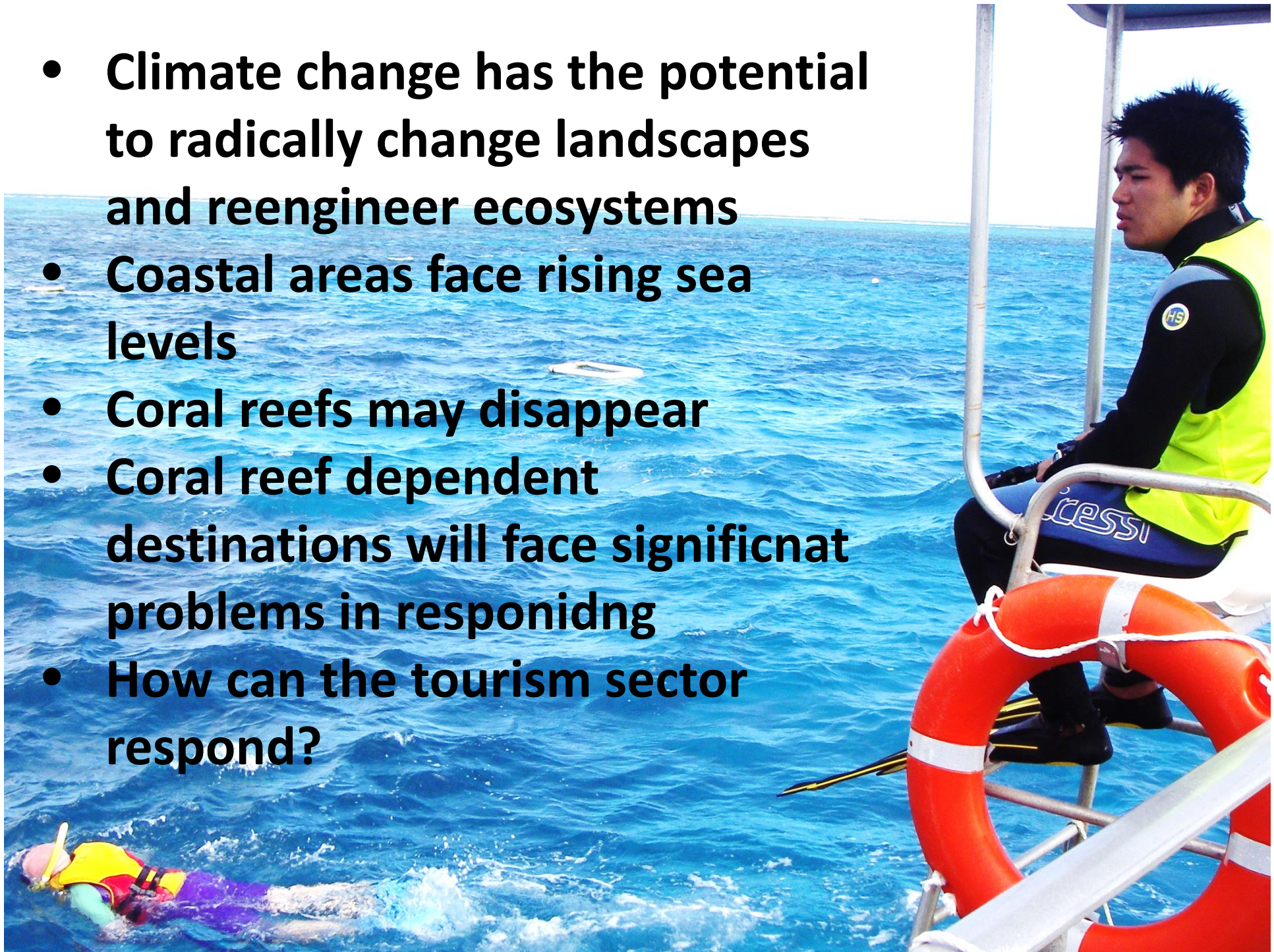


Climate Change as a Major Crisis Event: Implications for a Tropical Nature Based Destination

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- **Climate change has the potential to radically change landscapes and reengineer ecosystems**
- **Coastal areas face rising sea levels**
- **Coral reefs may disappear**
- **Coral reef dependent destinations will face significant problems in responding**
- **How can the tourism sector respond?**



Destinations under threat from climate change will need to adopt new innovative strategies to remain competitive.

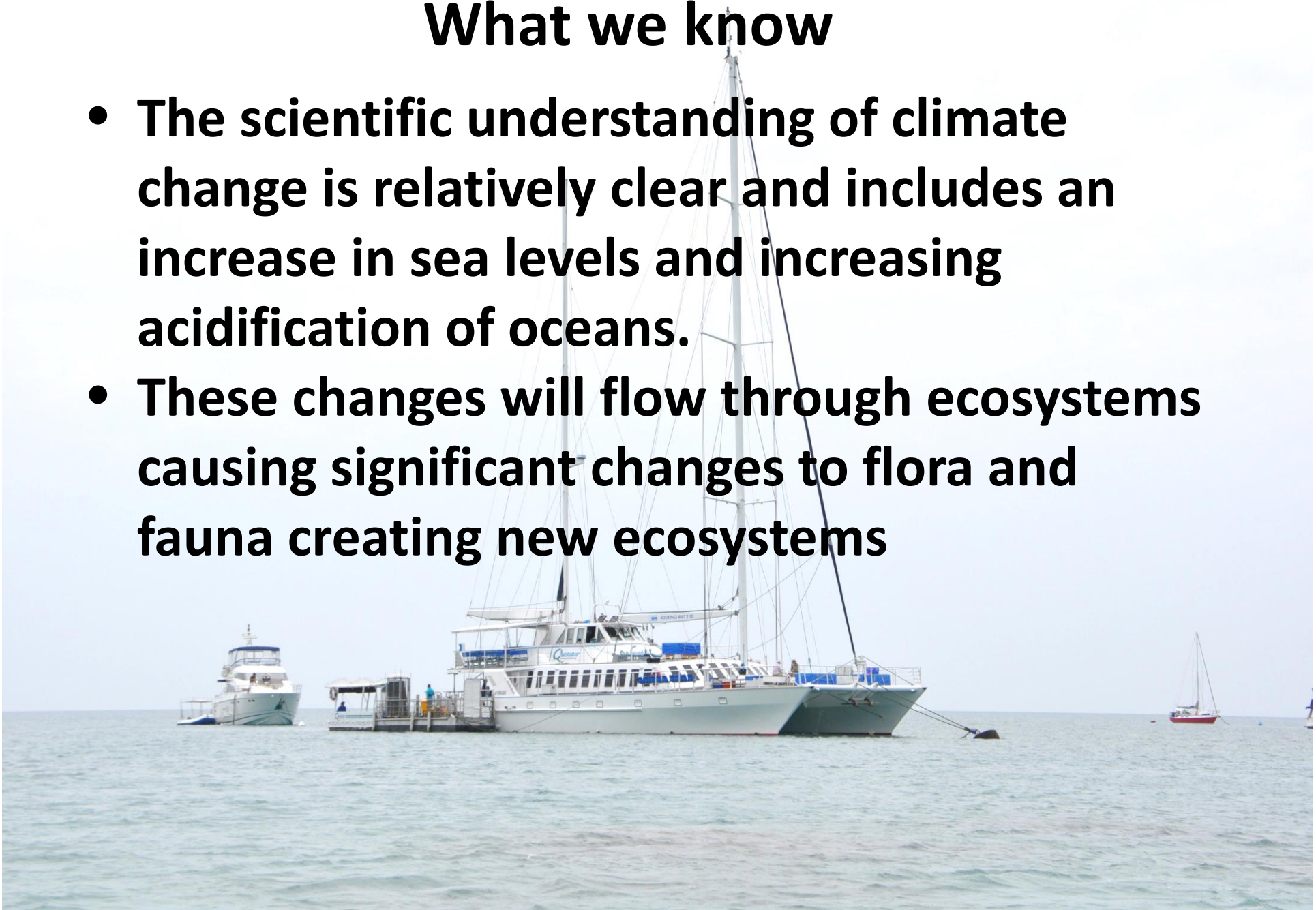


This presentation looks at how climate change may affect coral reef dependent destinations and discusses strategies for adaptation to future changes



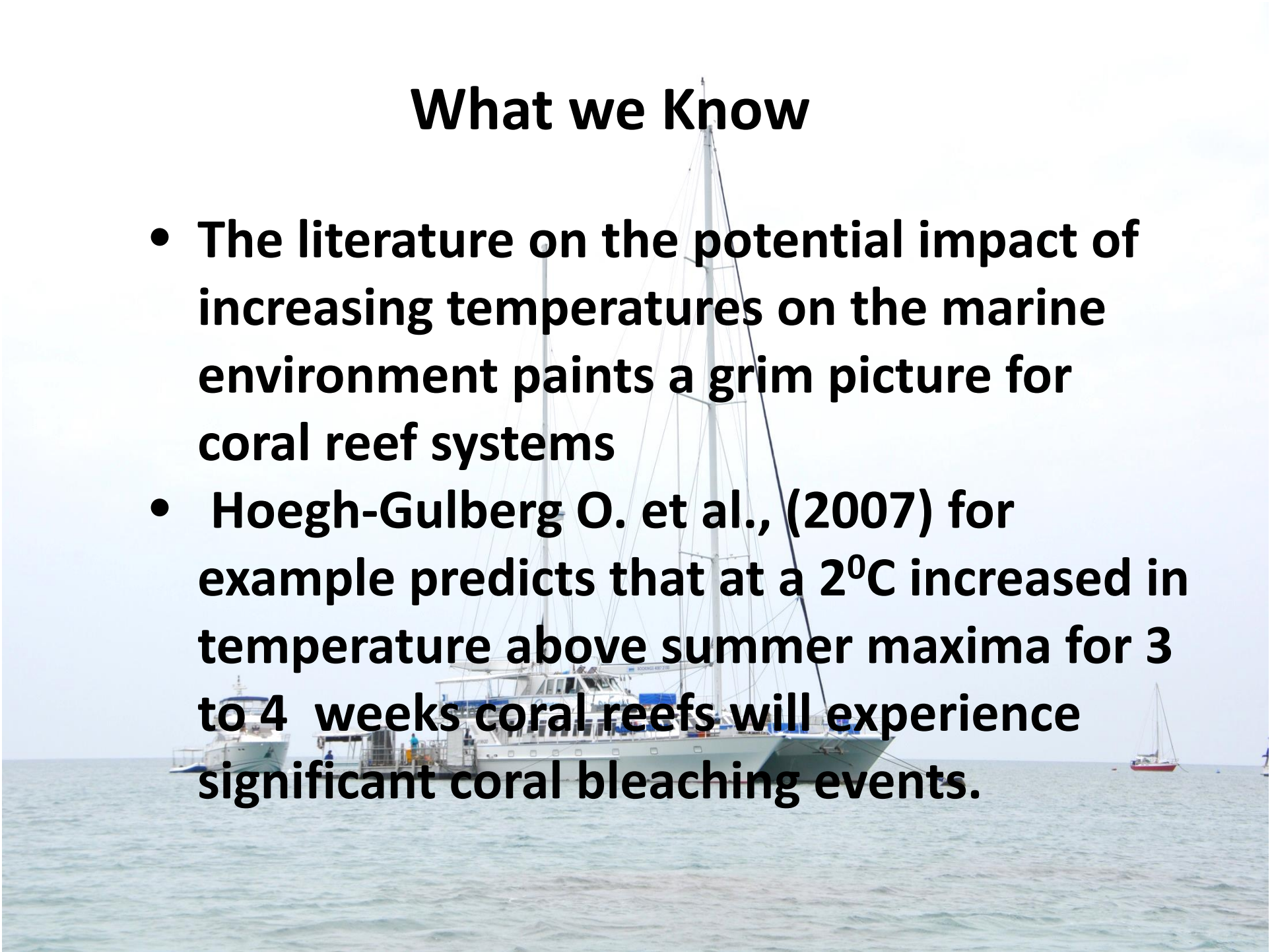
What we know

- The scientific understanding of climate change is relatively clear and includes an increase in sea levels and increasing acidification of oceans.
- These changes will flow through ecosystems causing significant changes to flora and fauna creating new ecosystems



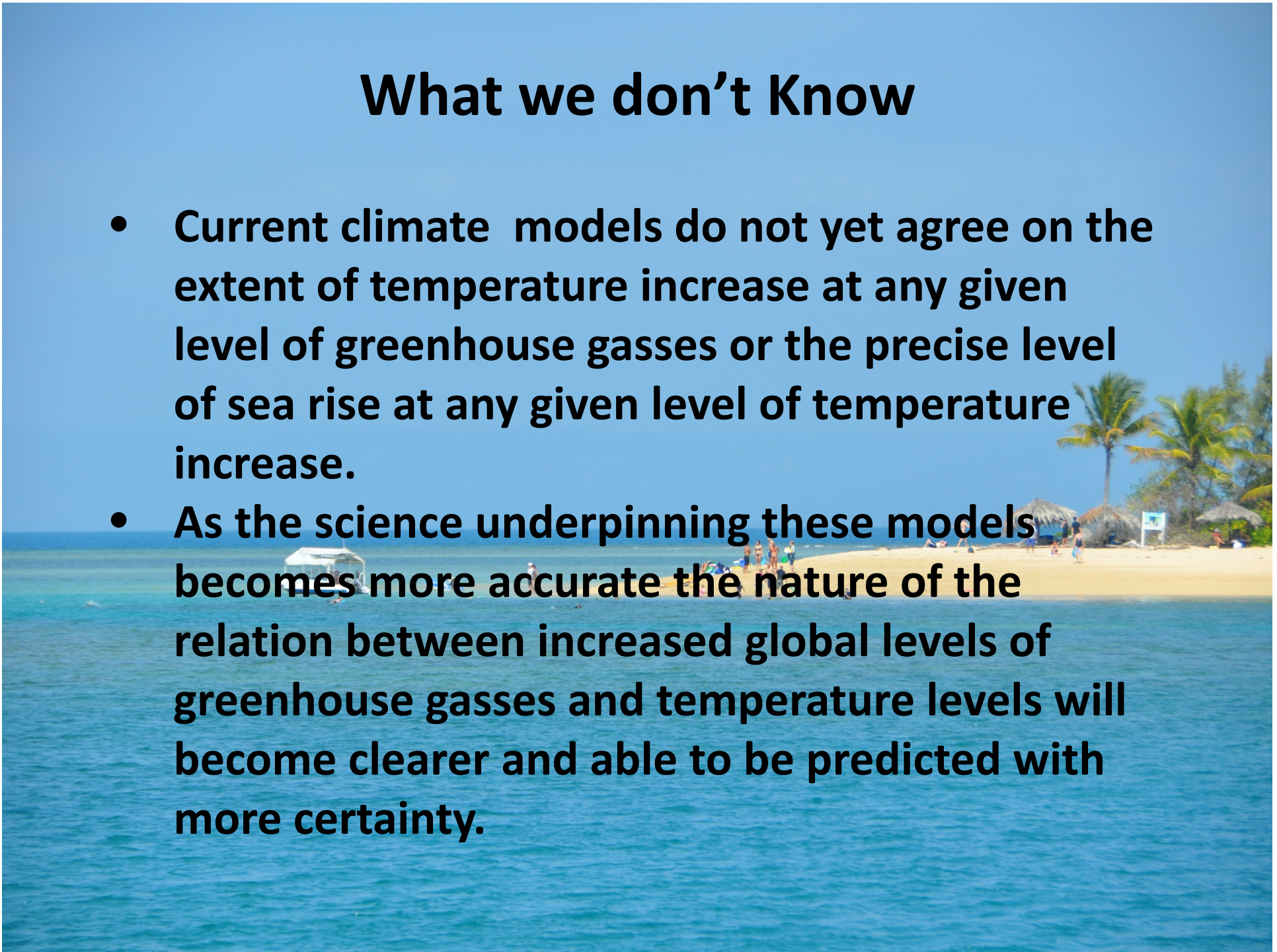
What we Know

- The literature on the potential impact of increasing temperatures on the marine environment paints a grim picture for coral reef systems
- Hoegh-Gulberg O. et al., (2007) for example predicts that at a 2⁰C increased in temperature above summer maxima for 3 to 4 weeks coral reefs will experience significant coral bleaching events.



What we don't Know

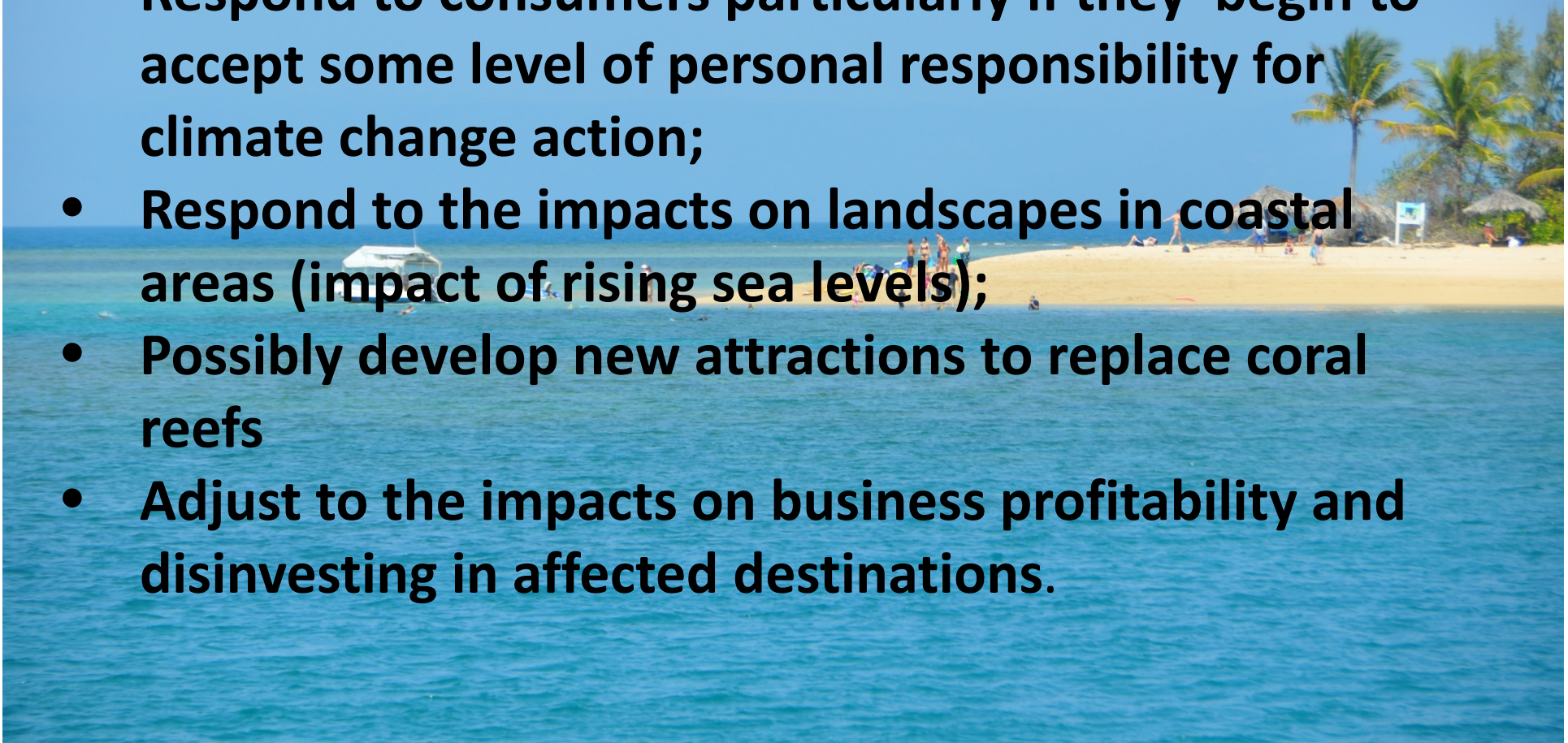
- Current climate models do not yet agree on the extent of temperature increase at any given level of greenhouse gasses or the precise level of sea rise at any given level of temperature increase.
- As the science underpinning these models becomes more accurate the nature of the relation between increased global levels of greenhouse gasses and temperature levels will become clearer and able to be predicted with more certainty.



Implications

At a destination level the tourism industry will have to:

- **Cope with the future impacts of policy settings to mitigate and adapt to climate change;**
- **Respond to consumers particularly if they begin to accept some level of personal responsibility for climate change action;**
- **Respond to the impacts on landscapes in coastal areas (impact of rising sea levels);**
- **Possibly develop new attractions to replace coral reefs**
- **Adjust to the impacts on business profitability and disinvesting in affected destinations.**



How can destinations respond?

Although science is not yet able to give accurate timings, destinations should begin exploring response strategies that will allow them to increase resilience to deal with the structural disruptions that climate change will generate.

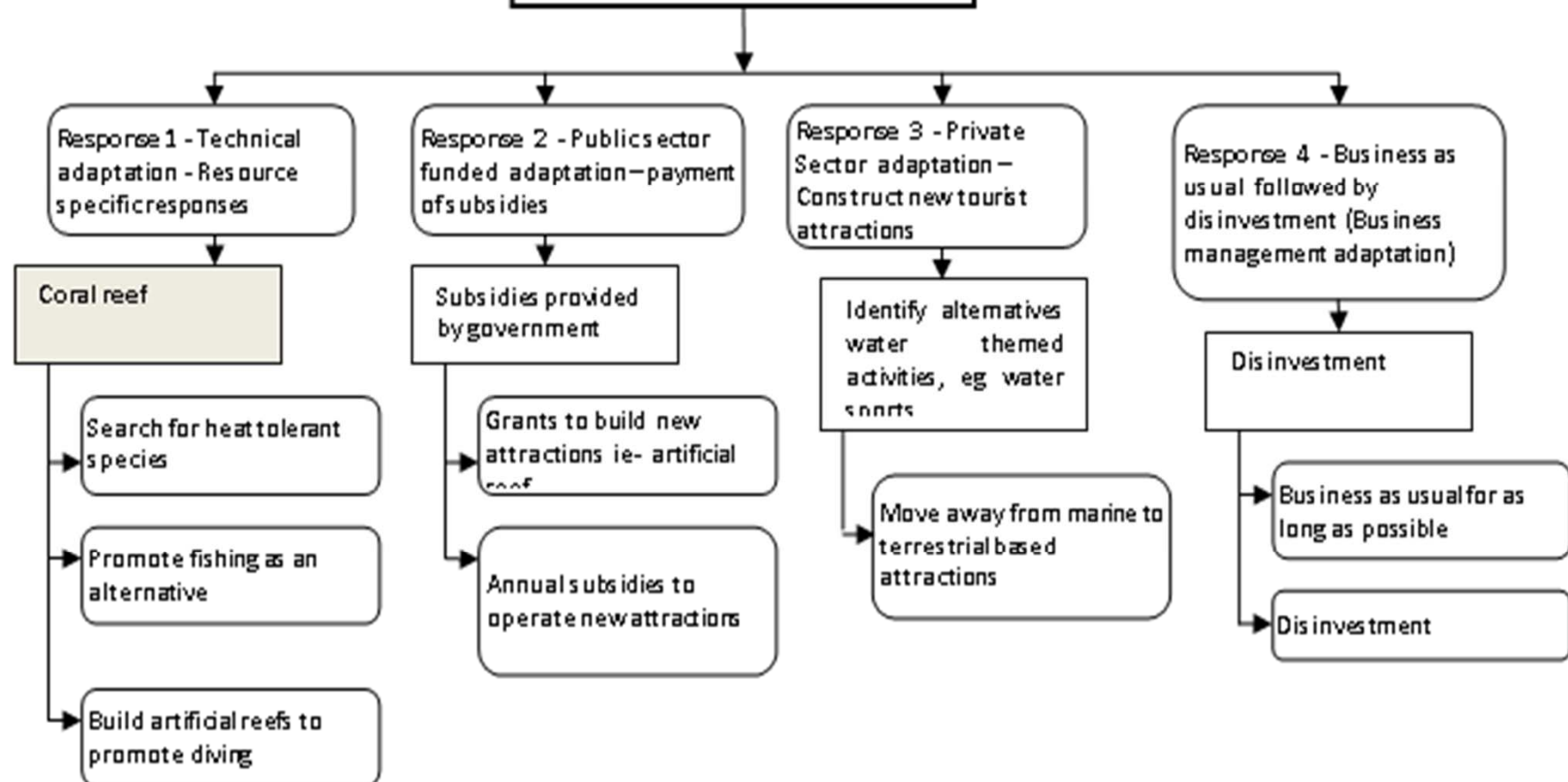


Modelling Adaptation Alternatives

- Four adaptation strategies are suggested.
- It is likely that destinations will respond with a mix of these strategies

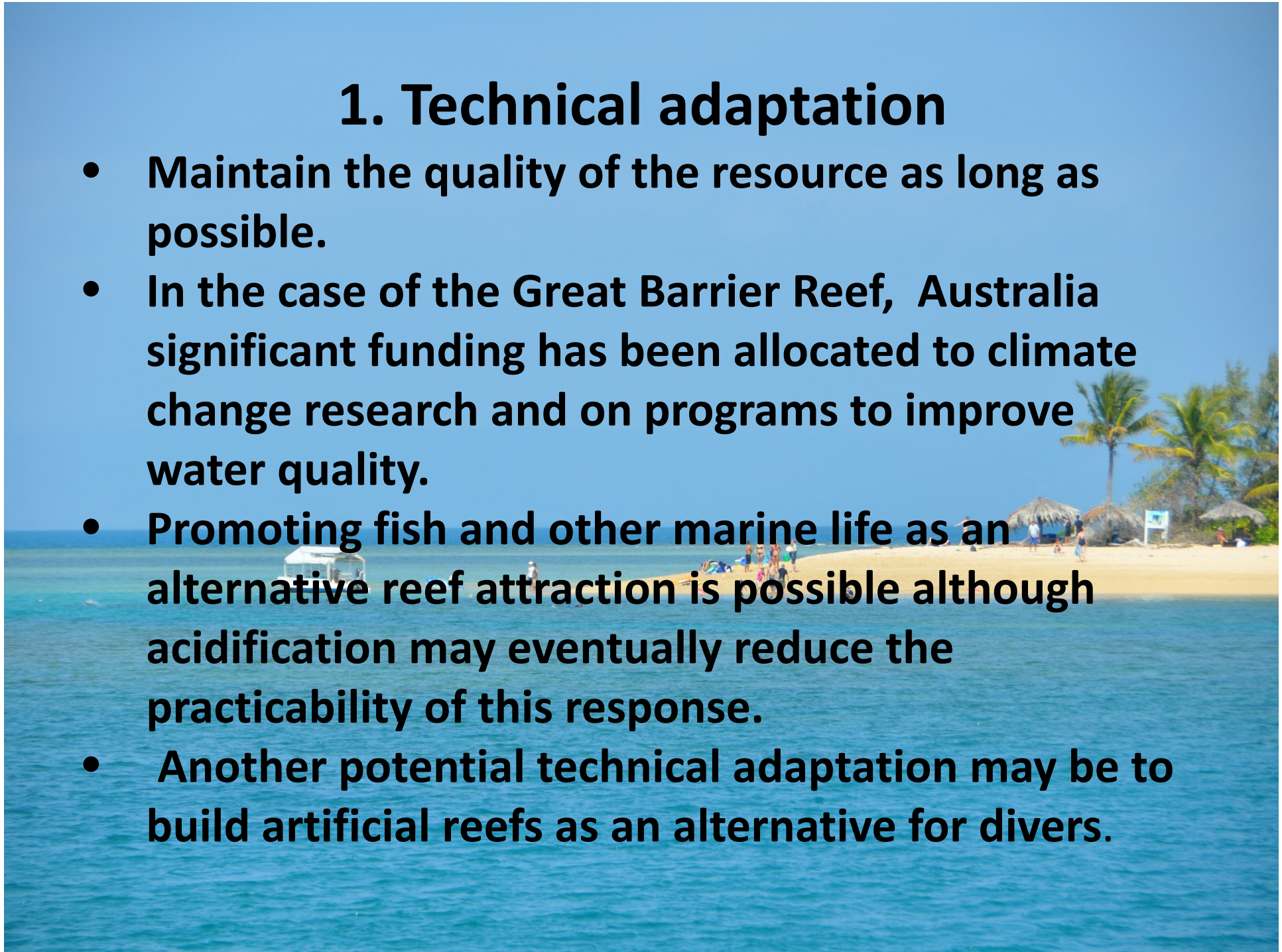


Adaptation strategies



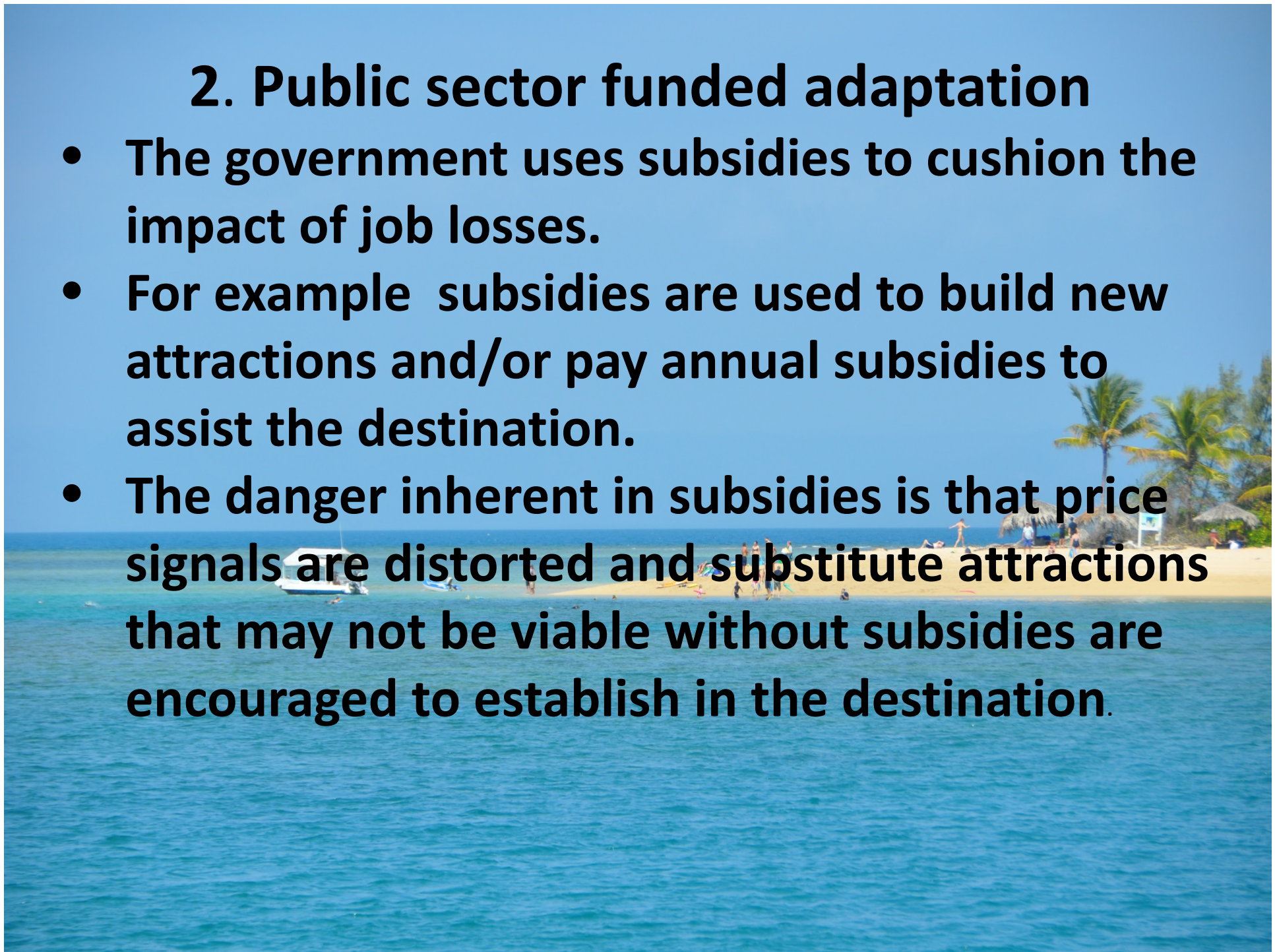
1. Technical adaptation

- **Maintain the quality of the resource as long as possible.**
- **In the case of the Great Barrier Reef, Australia significant funding has been allocated to climate change research and on programs to improve water quality.**
- **Promoting fish and other marine life as an alternative reef attraction is possible although acidification may eventually reduce the practicability of this response.**
- **Another potential technical adaptation may be to build artificial reefs as an alternative for divers.**



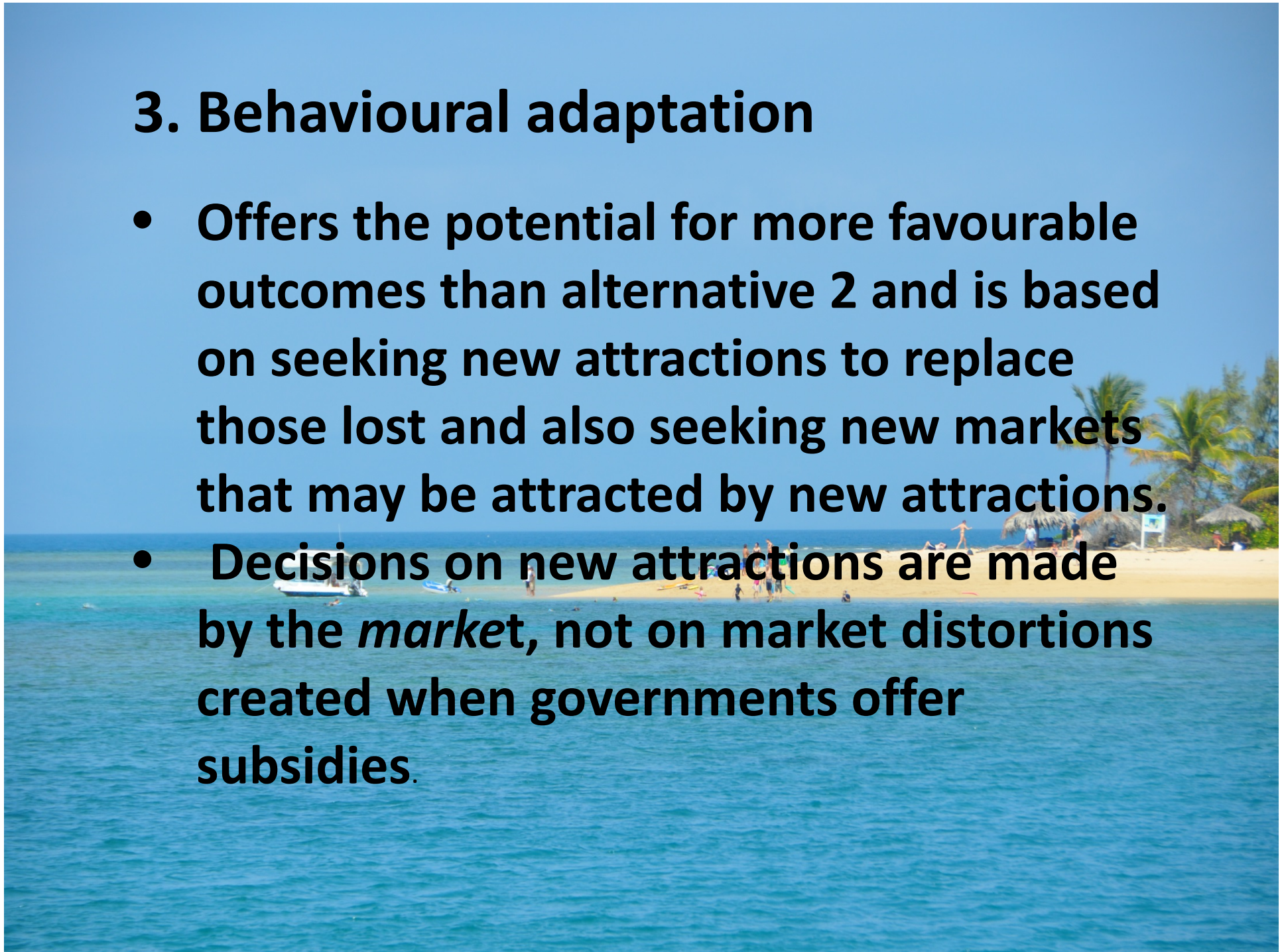
2. Public sector funded adaptation

- The government uses subsidies to cushion the impact of job losses.**
- For example subsidies are used to build new attractions and/or pay annual subsidies to assist the destination.**
- The danger inherent in subsidies is that price signals are distorted and substitute attractions that may not be viable without subsidies are encouraged to establish in the destination.**



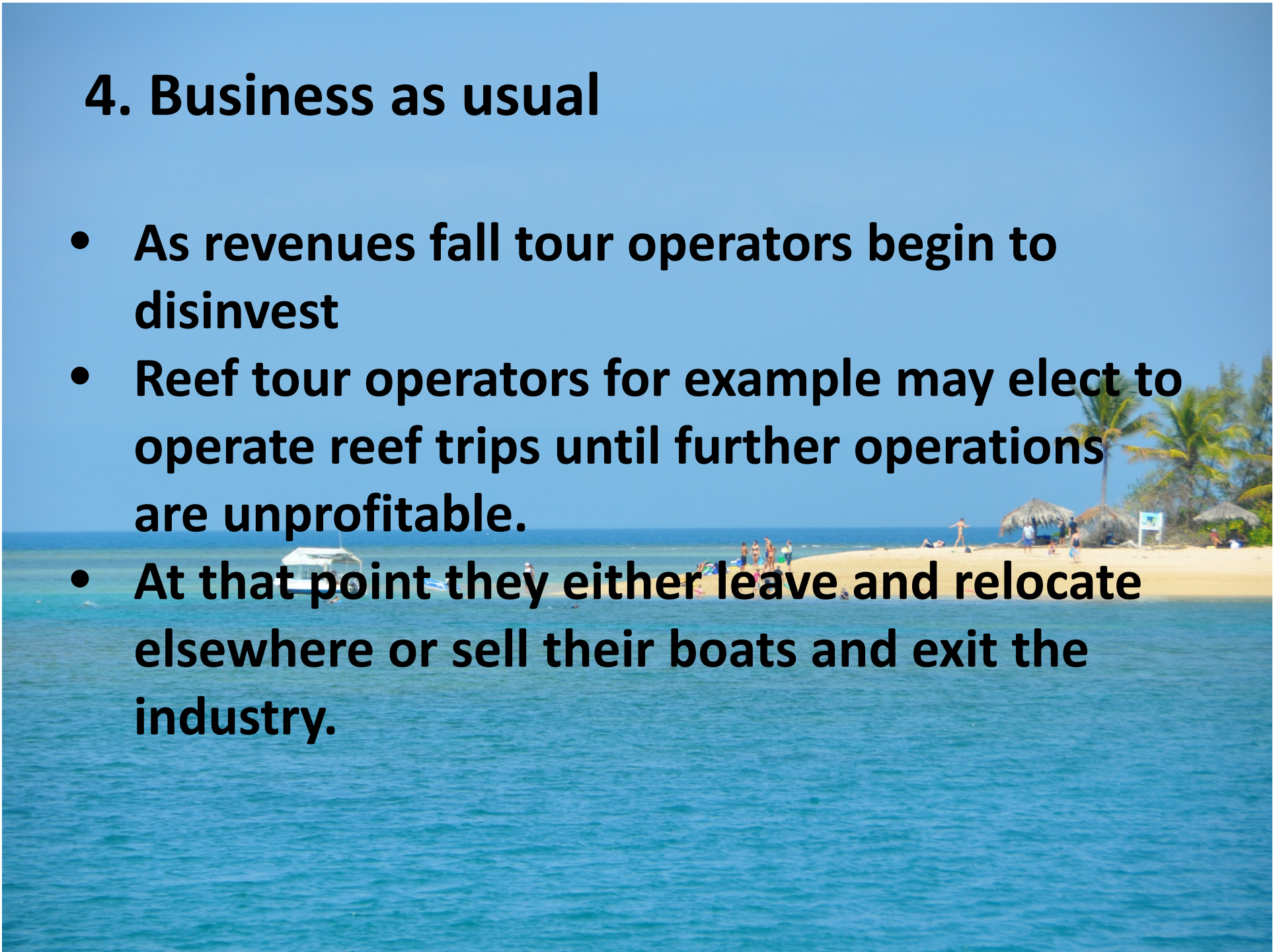
3. Behavioural adaptation

- Offers the potential for more favourable outcomes than alternative 2 and is based on seeking new attractions to replace those lost and also seeking new markets that may be attracted by new attractions.
- Decisions on new attractions are made by the *market*, not on market distortions created when governments offer subsidies.



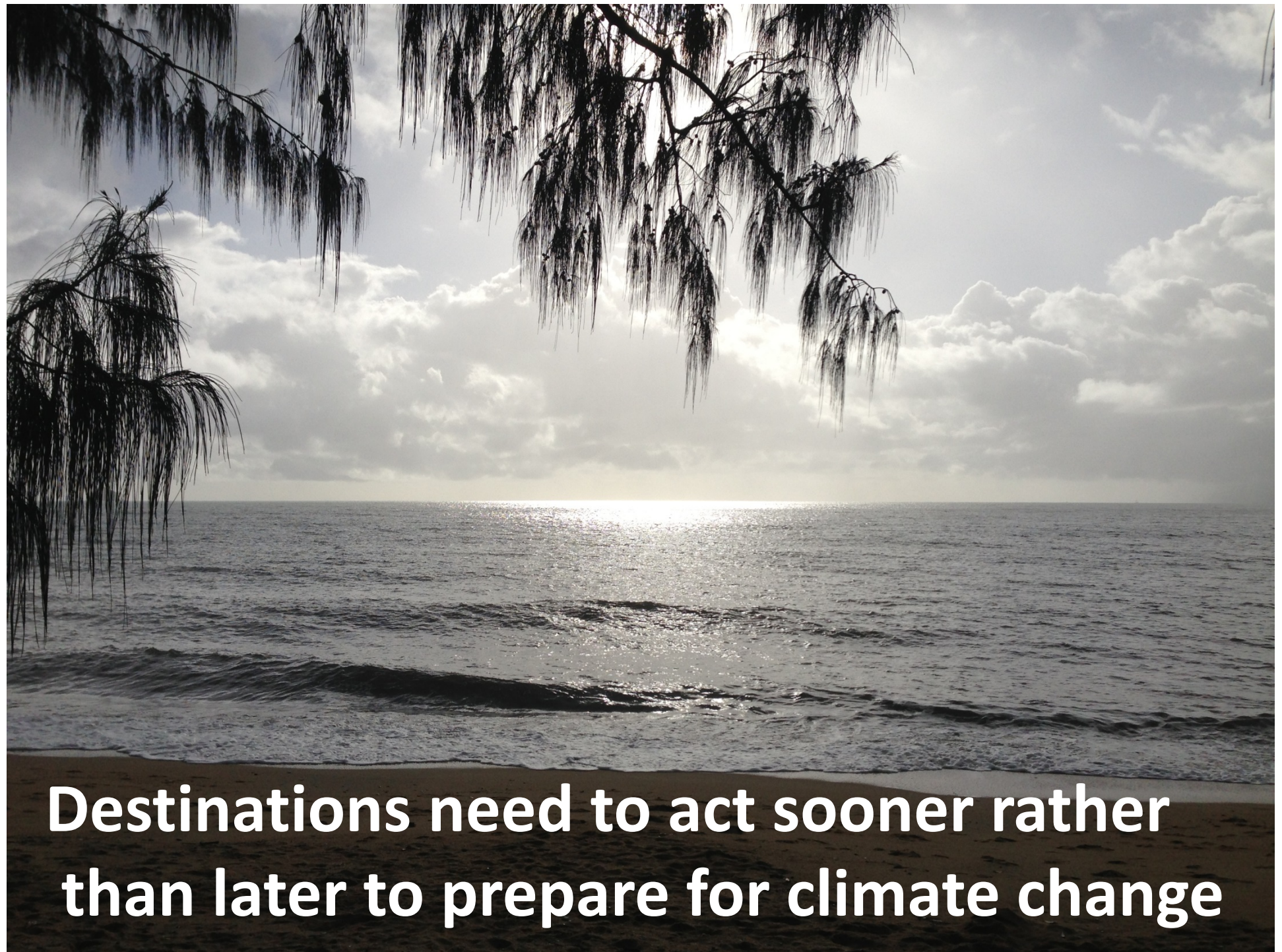
4. Business as usual

- As revenues fall tour operators begin to disinvest
- Reef tour operators for example may elect to operate reef trips until further operations are unprofitable.
- At that point they either leave and relocate elsewhere or sell their boats and exit the industry.



The current uncertainty and the propensity for policy makers to adopt a wait-and-see attitude rather than apply the precautionary principle have important implications for the tourism industry





Destinations need to act sooner rather than later to prepare for climate change