



National Environmental Science Programme

NESP Tropical Water Quality Hub

Research Priorities for 2nd Round 2015

Note – These priorities are specific to this September 2015 funding call and may differ from priority lists used in future funding calls.

	Priorities
1	<p><i>Reducing water quality Impacts: Identify and prioritise practical management actions capable of protecting and improving water quality in the Great Barrier Reef region</i></p> <ul style="list-style-type: none"> a) Local scale identification of priority contaminant export loss (hot spots) for better targeting of on-ground works and extension activity. b) Determining the source and marine fate of environmentally relevant sediments. c) Develop/evaluate practical on-farm nutrient and sediment loss mitigation and capture and land management practices that will influence behavioural change and improve water quality outcomes – link to field trials. d) Develop/evaluate practical methods for ‘off farm’ nutrient and sediment loss mitigation and capture – link to field trials. e) New methods for encouraging behaviour/practice change/improving compliance with BMP. f) Compare the ability of different social and/or economic levers to encourage practice change in different contexts. g) Methods for assessing cumulative impacts from human activities and measures/approaches for ensuring a net environmental benefit.
2	<p><i>Water quality Monitoring and Reporting</i></p> <ul style="list-style-type: none"> a) Developing effective and cost-effective catchment and marine water quality indicators, thresholds and sub-lethal health-indicators for key marine organisms and processes in support of the Reef Integrated Monitoring Program. b) Use of citizen science in monitoring ecosystem health and connectivity, GBR water quality and/or catchment runoff to the GBR.
3	<p><i>Protecting the Reef: Crown of Thorns Starfish</i></p> <p>Development of a systematic approach to the on-ground management of Crown of Thorns Starfish (CoTS) current and future outbreaks</p>

4	<p>Reducing Potential Impacts: Dredging activity</p> <ul style="list-style-type: none"> a) Determine critical turbidity and sedimentation tolerance thresholds for environmental resources likely to be influenced by dredging activities. b) Quantify sediment transport pathways and water quality over relevant timeframes to better understand interactions with, and contributions to, the broader catchment inputs within the GBR. c) Understand the potential environmental risks associated with dredging activities, especially land-based disposal and reclamation, and identify impact mitigation techniques that will reduce identified significant risks.
5	<p>Impact of water quality and climate factors on economically relevant Reef Species</p> <ul style="list-style-type: none"> a) Early warning and detection systems for forecasting jellyfish/irukandji occurrence. b) Understanding the influence of water quality and associated factors on jellyfish/irukandji.
6	<p>Protection of identified Reef systems of high biodiversity value</p> <p>Identifying and evaluating emerging water quality and ecosystem health threats to the Far Northern GBR (particularly the Torres Strait region) by runoff from the Fly River.</p>
7	<p>Supporting traditional co-management</p> <p>Building capacity of indigenous rangers by linking with scientists/managers for estuarine/wetland repair, key species management, co-management/planning, identifying key heritage sites.</p>