

## **Secretary-General's report: Protection of coral reefs and related ecosystems for sustainable livelihoods and development – Australian submission**

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The United Nations General Assembly (UNGA) Resolution 65/150 “Protection of coral reefs for sustainable livelihoods and development” was initiated by Australia working in close partnership with Pacific countries that may be directly affected by the health of coral reefs and related ecosystems. It was adopted by consensus in the UNGA on 25 November 2010, with co-sponsors comprising 84 States from the Pacific, Caribbean, Africa, the Americas, Asia and Europe.

The resolution called for urgent action for the protection of coral reefs and related ecosystems. It also requested the United Nations (UN) Secretary-General to prepare a report on the issue. Australia considers this report as a timely opportunity to highlight the social, economic and environmental benefits of protecting coral reefs and related ecosystems and the urgent need for action to address the alarming trend in threats to the world's coral reefs and related ecosystems.

The United Nations Conference on Sustainable Development (the Rio+20 Conference) will be an important opportunity to secure a strong global outcome for coral reefs and related ecosystems, and recognition of their critical role for securing sustainable livelihoods and development, particularly in small island developing countries.

A strong outcome for coral reefs and related ecosystems must be a global response. The main threats to coral reefs and related ecosystems include climate change, catchment runoff, coastal development and under-regulated fishing. For further details see **Attachment A**. The extent and persistence of damage to coral reef ecosystems will depend on change in the world's climate and on the resilience of coral reef ecosystems. Australia and many other countries have taken actions to build the resilience of coral reef ecosystems but ultimately if changes to the world's climate become too severe, no management actions will be able to climate-proof coral reef ecosystems.

### **Coral reefs and related ecosystems in the context of poverty eradication and sustainable development**

In keeping with the Rio+20 theme of green economy in the context of poverty eradication and sustainable development, the UN Secretary-General's report could recognise the need for improved understanding of the environmental, social and economic value of services provided by coral reefs and related ecosystems. This could include a socio-economic analysis of the costs and benefits of protecting coral reefs and related ecosystems. Such an analysis would be a valuable contribution to the Rio+20 process.

The ability of coral reefs to support sustainable development is under significant pressure from coral bleaching. For example, a 2010 mass coral bleaching event in the Greater Coral Triangle Region significantly impacted local economies in Thailand, Malaysia, and Indonesia. Australia has been actively supporting the ‘Rapid Response to Coral Bleaching in South-East Asia (Phase1) Project’ to develop

improved understanding of the socio-economic and ecological impacts of the event, to support improved responses in the face of future coral bleaching events.

An estimated half a billion people rely on coral reefs for their food resources and income<sup>1</sup>, and around 30 million of the world's poorest and most vulnerable people in coastal and island States are totally reliant on reef-based resources as their primary means of food production, sources of income and livelihoods.<sup>2</sup>

The human welfare benefits from coral reef ecosystems arise from fisheries, shoreline protection, tourism, recreation and aesthetic value. While the monetary value of human welfare benefits from coral reef ecosystems is difficult to estimate, their damage or loss will have implications for global fisheries productivity that could lead to future food crises.<sup>3</sup>

Nineteen percent of the original area of coral reefs has been effectively lost since 1950 and 80 percent of corals in South East Asia are under medium to high threat from human activities.<sup>4</sup> Coral reefs are one of the most productive ecosystems on earth and are closely linked with coastal estuaries, marshes, mangrove forests, dunes, seagrass beds and lagoons. All these coastal ecosystems are biologically highly productive and under threat from human activities. Coral reefs cover just 1.2 percent of the world's continental shelves but are the most biodiverse ecosystems on earth, home to an estimated 1-3 million species and a quarter of all marine fish species.<sup>5</sup>

The potential impoverishment of 500 million people who depend on coral reefs and related ecosystems for their livelihoods and the potential loss of millions of species demands action now.

### **Coral reef management**

The UN Secretary-General's report could recognise the importance of an integrated and adaptive management approach for coral reefs and related ecosystems based on a comprehensive program of scientific input, community involvement and innovation. Such an approach could take into account the social, economic and environmental values of coral reef ecosystems. Greater research into the state of oceans and the interactions of people, industry and the marine environment would help improve decisions for the conservation and sustainable use of marine resources. An integrated, ecosystem based management approach could include partnership programs to strengthen communication between local communities, managers and reef stakeholders. It could also helpfully build better understanding of Traditional Owner issues in relation to the management of coral reefs and related ecosystems.

An example of this approach is Australia's Great Barrier Reef Marine Park Management Authority's Traditional Use of Marine Resource Agreements

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<sup>1</sup> UNEP. Towards a green economy: Pathway to sustainable development and poverty eradication (2011).

<sup>2</sup> TEEB. Climate Issues Update (2009).

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

(TUMRAs). TUMRAs are legally recognised documents that provide collaborative opportunities to protect cultural values and manage culturally important species in accordance with traditional lore. TUMRAs are also used to address other impacts on Aboriginal and Torres Strait Islander peoples' sea areas such as illegal fishing or resources poaching.

### **Improving water quality from catchments into coral reef ecosystems**

The UN Secretary-General's report could usefully explore the role of partnerships between governments, industry peak bodies and regional natural resources management organisations on water quality issues. Training and capacity-building and market-based incentives to change land management practices and improve water quality flowing from catchments into coral reef ecosystems are central to the long-term health of coral reefs and related ecosystems.

Australia has invested in science to improve understanding of the link between agricultural land management practices and reef water quality and ecosystem health. It has also developed a fully integrated monitoring, modelling and reporting program for water quality in the Great Barrier Reef. The UN Secretary-General's report could explore to what extent greater international efforts are needed in these areas.

For further details on Australia's national initiatives for the protection of coral reefs and related ecosystems for sustainable livelihoods and development see **Attachment B**.

### **International and regional initiatives**

The UN Secretary-General's report could acknowledge the importance of regional and international collaboration to halt the decline in coral reefs and related ecosystems. The opportunities of working collaboratively to improve management of coral reefs and related ecosystems deserves special attention in the report.

Australia will be hosting the International Coral Reef Initiative (ICRI) from January 2012 to December 2013. Australia is a founding member of ICRI and a strong supporter of ICRI's principal role in developing and fostering a growing awareness of the ecological, cultural and socio-economic importance of coral reefs and related ecosystems. Australia works actively with ICRI partners to promote actions to protect coral reefs and related ecosystems from further degradation.

Australia is providing assistance to vulnerable countries in the Asia-Pacific region to adapt to the adverse impacts of climate change. Vulnerable countries are able access assistance to improve their understanding of changes to climate and oceans, assess their vulnerabilities to climate change and develop evidence-based adaptation strategies. Australian support is provided to Pacific Island countries to implement priority adaptation actions.

There is broad scientific consensus that the Coral Triangle represents a global epicentre of marine biodiversity and sustains the health and livelihoods of approximately 240 million people. Australia actively supports the Coral Triangle

Initiative on Coral Reefs, Fisheries and Food Security which provides an innovative and practical framework for progressing sustainable development goals.

For further details on Australia's support for international and regional initiatives for the protection of coral reefs and related ecosystems for sustainable livelihoods and development see **Attachment C**.

**Attachments:**

- A. Main threats to coral reefs and related ecosystems
- B. Australia's national initiatives for the protection of coral reefs and related ecosystems for sustainable livelihoods and development
- C. Australia's international and regional initiatives for the protection of coral reefs and related ecosystems for sustainable livelihoods and development

## **Attachment A. Main threats to coral reefs and related ecosystems**

### Climate change

- . Almost all the biodiversity of coral reef ecosystems will be affected by climate change.
- . Coral bleaching resulting from increasing sea temperature and lower rates of calcification in skeleton-building organisms, such as corals, because of ocean acidification, are the effects of most concern and are already evident.
- . It is predicted that at atmospheric concentrations of carbon dioxide of 500 ppm, hard corals would likely become functionally extinct and coral reefs and related ecosystems would be eroding rapidly.
- . It is predicted that the progress of degradation would not be linear, rather ecological responses to climate change will likely occur in a series of abrupt steps separated by intervals of relatively minor change.

### Catchment runoff

- . Coral reefs and related ecosystems continue to be exposed to increased levels of sediments, nutrients and pesticides, which are having significant effects inshore close to developed coasts, such as causing die-backs of mangroves and increasing algae on coral reefs.
- . Progress to improve water quality to coral reef ecosystems is slow and patchy.

### Coastal development

- . Coastal development is increasing the loss of coastal habitats that support coral reef ecosystems.
- . Coastal areas have population densities nearly three times higher than the global average<sup>6</sup>.
- . Coral reefs and mangroves help provide protection against extreme weather events and tsunamis.
- . If growth in population densities in coastal areas is not adequately planned with careful environmental management, it could lead to increased pollution and sedimentation, decreased water quality and changes in natural drainage channels.

### Direct use – extractive

- . The impacts of fishing at the ecosystem level are not well understood.
- . Illegal, unreported and unregulated (IUU) fishing can undermine management arrangements in place to protect coral reef ecosystems.
- . Changes in global fisheries production patterns are likely to increase demand for wild caught seafood and drive diversification in the species targeted and the areas fished. This may also lead to an increase in the likelihood of IUU fishing.

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<sup>6</sup> Small C., et al. A global analysis of human settlement in coastal zones. Journal of Coastal Research, 19, 584-599 (2003).

## **Attachment B. Australia's national initiatives for the protection of coral reefs and related ecosystems for sustainable livelihoods and development**

### Australia's Great Barrier Reef Marine Park

The uniqueness of the Great Barrier Reef was recognised in 1981 when it was inscribed on the World Heritage List. From the late 1990s, there were concerns that the existing levels of protection did not adequately protect the range of biodiversity known to exist within the Great Barrier Reef Marine Park. Between 1999 and 2004, the Australian Government through the Great Barrier Reef Marine Park Authority (GBRMPA) undertook systematic planning and a consultative programme to develop a new Zoning Plan for the Marine Park. The primary aim of the programme was to better protect the range of biodiversity in the Great Barrier Reef, by increasing the extent of 'no-take' areas, ensuring they included 'representative' examples of all the different habitat types. A comprehensive programme of scientific input, community involvement and innovation achieved these aims.

The new Zoning Plan for the Marine Park became law on 1 July 2004. It increased the proportion of the Marine Park that was highly protected by 'no take zones' from less than 5% to more than 33%, and now protects representative examples of each of the 70 bioregions (broad habitat types) occurring across the entire area, including the surrounding waters. Other multiple use zones also provide increased protection of biodiversity.

A recent published review of the effectiveness of the 2004 Great Barrier Reef Marine Park zoning identified that:

- "the Great Barrier Reef provides a globally significant demonstration of the effectiveness of large-scale networks of marine reserves in contributing to integrated, adaptive management;
- a comprehensive review of available evidence shows major, rapid benefits of no-take areas for targeted fish and sharks, in both reef and non-reef habitats, with potential benefits for fisheries as well as biodiversity conservation;
- large, mobile species like sharks benefit less than smaller, site-attached fish; and
- critically, reserves also appear to benefit overall ecosystem health and resilience: outbreaks of coral-eating crown-of-thorns starfish appear less frequent on no-take reefs, which consequently have higher abundance of coral, the very foundation of reef ecosystems."

### Australian Government's Great Barrier Reef Marine Park Authority Traditional Use of Marine Resource Agreements

Aboriginal and Torres Strait Islander people are the two Indigenous groups of Australia. There are more than 70 Aboriginal and Torres Strait Islander Traditional Owner groups that maintain long continuing relationships with the Great Barrier Reef region and its natural resources. Traditional customs and spiritual lore continue to be practised in the use of sea country today. The Traditional Owner groups that express connections to the Great Barrier Reef Marine Park are situated along the

Queensland coast from the eastern Torres Strait Islands in the north to near Bundaberg in the south.

There are both similarities and differences between the ways Aboriginal and Torres Strait Islander groups use the sea in their customary practices. Each group has their own distinctive culture and identity, and often within groups there are many more clans and kinship groups whose discrete characteristics further distinguish one from the other. Ancestors, languages and ceremonies can provide a link between coastal clan groups and their particular areas of land and sea country.

The Great Barrier Reef Marine Park Authority is working in partnership with Traditional Owners to develop formal agreements about how they wish to manage their sea country. Traditional Use of Marine Resources Agreements (TUMRAs) are formal agreements developed by Traditional Owner Groups and are jointly accredited by the Australian Government's Great Barrier Reef Marine Park Authority (under the Great Barrier Reef Marine Park Regulations 1983) and the Queensland Government's Department of Environment and Resource Management (under the Marine Parks - Great Barrier Reef Coast - Zoning Plan 2004).

TUMRAs are legally recognised documents and contribute to the active management of the Great Barrier Reef Marine Park. Importantly, TUMRAs can provide a practical and more flexible pathway for Traditional Owner groups to express their rights and interests in sea country, where binding native title determinations are not the preferred way for Traditional Owners to have their rights recognised by management agencies. The TUMRA framework recognises entitlements under the Native Title Act 1993 and compliments existing community-based measures developed by Traditional Owner groups to manage their use and conservation of sea country resources.

The framework also provides collaborative opportunities to protect cultural values and manage culturally important species in accordance with traditional lore and to also address other activities that impact on Aboriginal and Torres Strait Islander people's sea country areas, such as illegal fishing or resource poaching. Implementation of a TUMRA provides for Traditional Owners and management agencies to work in partnership on management elements such as compliance activities and monitoring of plants and animals and human activities in their sea country.

Implementation Plans can include communication strategies and interpretive signage, the convening of regular steering committee meetings, hunting authorisation systems, record keeping of annual harvests and resource monitoring programs. Strong leadership is needed to champion and demonstrate ownership of community agreements, such as the TUMRA. Effective governance arrangements in communities and organisations, as well as strong engagement by governments, and other key partners, at all levels are essential to achieving long term sustainable outcomes. The TUMRA process provides structures and mechanisms for community members to contribute to actions and decisions that affect their lives.

## Australia's Reef Plan

The Reef Water Quality Protection Plan (Reef Plan) brings together people and projects to help improve the quality of water entering the Great Barrier Reef (the Reef) lagoon. Launched in 2003 as a joint initiative of the Australian and Queensland Governments, the plan was revised and updated in 2009.

The Reef Plan has two primary goals:

- . immediate goal - to halt and reverse the decline in water quality entering the Reef by 2013; and
- . long term goal - to ensure that by 2020 the quality of water entering the Reef from adjacent catchments has no detrimental impact on the health and resilience of the Great Barrier Reef.

Achievement of these goals will be assessed against quantitative targets established for land management and water quality outcomes.

There are two objectives to achieve these goals:

- . reduce the pollutant load from non-point sources in the water entering the Reef; and
- . rehabilitate and conserve areas of the Reef catchment that have a role in removing water borne pollutants.

The Reef Plan focuses on broadscale land use in catchments adjacent to the Reef.

## Australia's Reef Rescue

Reef Rescue is a five year (2008-2013) program under the Australian Government's Caring for our Country initiative and represents the Australian Government's primary contribution to Reef Plan.

The five year Reef Rescue outcomes are to reduce the discharge of dissolved nutrients and chemicals from agricultural lands to the Great Barrier Reef lagoon by 25 per cent and reduce the discharge of sediment and nutrients by 10 per cent. Targets that permit progress towards these outcomes are: to increase by 1300 and 650 the number of farmers and pastoralists respectively who have adopted land management practices that will improve the quality of water reaching the reef lagoon by 2013.

The main activity under Reef Rescue is the provision of assistance to land managers through the Water Quality Grants and Partnerships program. This component is delivered through a unique partnership with industry peak bodies and regional Natural Resources Management organisations and includes the provision of training and extension services, and incentives for on-ground works to improve water quality.

Through the Australian Government prioritisation process, the Government has identified and articulated broad geographic areas and activities that will help maximise water quality returns on investments and improve the Reef's capacity to respond to the effects of climate change. The prioritisation of water quality



improvement activities at the regional and local scale is guided by established science and water quality improvement planning processes.

In the first two years of the initiative more than 1480 on-ground projects were funded over an area of 500,000 hectares. A further 2000 land managers were assisted through the provision of training and extension services. Land managers contributed almost \$2 as cash or in-kind for every \$1 of Government investment.

The joint Australian and Queensland Reef Rescue Water Quality Monitoring and Reporting program is a fully integrated monitoring, modelling and reporting program under the joint Paddock to Reef Integrated Monitoring, Modelling and Reporting framework.

The Reef Rescue Research and Development program will invest in science to improve the understanding of the link between agricultural land management practices and reef water quality and ecosystem health.

The Reef Rescue Land and Sea Country Indigenous Partnerships Program will strengthen communications between local communities, managers and reef stakeholders and build a better understanding of Traditional Owner issues in relation to the management of the Great Barrier Reef Marine Park.

#### Australia's marine bioregional planning

Many Australian coral reefs and related ecosystems have already been accorded high levels of protection through their inclusion in marine reserves or other spatial management measures that ensure that threats are managed, eliminated or minimised. A significant additional way in which Australia is taking practical action to deliver long-term protection of coral reefs and related ecosystems is through its marine bioregional planning program.

Marine bioregional planning is focused on building knowledge of Australia's oceans and improving conservation and sustainable use of our marine resources, including those derived from coral reef habitats. It is also aimed at improving management of whole marine ecosystems, including the interactions of people and industry with marine environments and species. This is sometimes called an ecosystem based management approach.

Marine bioregional plans are being developed for each of Australia's marine regions. Marine bioregional plans will help improve the way decisions are made under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), particularly in relation to the protection of marine biodiversity and the sustainable use of our oceans and their resources by our marine-based industries.

As part of the marine bioregional planning process, new Commonwealth marine reserves (sometimes called marine protected areas or marine parks) are being identified. These Commonwealth marine reserves will play an important role in the long-term conservation of reefs and many other marine ecosystems and the biodiversity of our oceans. These new reserves will also meet Australia's international 2002 World Summit for Sustainable Development commitments and

national commitments to establish a National Representative System of Marine Protected Areas (NRSMPA) by 2012.

The marine bioregional planning process is targeted at Commonwealth waters which start at the edge of state/ territory waters (usually 3 nautical miles from the coast) and extend to the outer limits of Australia's Exclusive Economic Zone some 200 nautical miles from shore.

Marine bioregional planning is underway in Australia's five marine regions: - South-west, North-west, North, East and South-east. Three of these regions, the North-west, North and East, encompass many significant reef environments, many of which are already managed within marine protected areas. These include reefs within the: Great Barrier Reef Marine Park, Ningaloo Marine Park, Mermaid Reef Marine Park, Ashmore Reef National Nature Reserve and Cartier Island Marine Reserve, Elizabeth and Middleton Reefs National Nature Reserve, Coringa Herald National Nature Reserve and Lihou Reef National Nature Reserve, and Lord Howe Island Marine Park.

The NRSMPA is being established to represent the many different marine ecosystems (habitats and the marine life they support) within the national network of Commonwealth marine reserves. Reef ecosystems are just one of the marine ecosystems considered in the establishment of the NRSMPA.

Formal consultations on marine bioregional plans and marine reserve network proposals have been held in 2011. Information received through public submissions and stakeholder consultations, together with detailed socio-economic assessments will be considered by the government before it finalises the marine bioregional plans and marine reserve network proposals for each region. Once final marine reserve network proposals have been released, there will be a separate process to formally establish the marine reserve networks under the EPBC Act, known as proclamation.

Following the release of the final marine reserve network for each region, the public will be invited to provide input to a process to establish the proposed networks of new Commonwealth marine reserves under the EPBC Act. This process will include formal statutory consultation of at least 60 days. Stakeholder feedback received during this consultation period will be considered before the Australian Government proclaims the marine reserve networks and they take effect.

## **Attachment C. Australia's international and regional initiatives for the protection of coral reefs and related ecosystems for sustainable livelihoods and development**

Australia is committed to regional cooperation for the protection and enhancement of the resilience of coral reefs and related ecosystems, and strongly supports the UNGA Resolution 65/150, including the call for development partners to support “efforts in developing countries, including the provision of financial resources, capacity-building, environmentally sound technologies and know-how on mutually agreed terms, as well as the exchange of relevant scientific, technical, socio-economic and legal information, to enable developing countries to take all action necessary for the protection of their coral reefs and related ecosystems”.

With this in mind, Australia would like to highlight a number of important regional initiatives aimed at achieving these goals:

### International Coral Reef Initiative

Australia will host the International Coral Reef Initiative from January 2012-December 2013.

The International Coral Reef Initiative (ICRI) is a unique public-private partnership that brings together governments, international organizations, scientific entities, and non-governmental organizations committed to reversing the global degradation of coral reefs and related ecosystems, such as mangrove forests and seagrass meadows, by promoting the conservation and sustainable use of these resources for future generations.

ICRI's principal role is to develop and foster a growing awareness of the ecological, cultural and socio-economic importance of coral reefs and related ecosystems and to promote action to save coral reefs and related ecosystems from further degradation.

ICRI membership now numbers in excess of sixty members, and Australia is a founding partner in ICRI. Other founding government partners are the USA, the UK, France, Japan, the Philippines, Sweden and Jamaica. International bodies including the World Bank, the UNEP Regional Seas Program, UNESCO (IOC), the secretariats of convention bodies including the Convention on Biological Diversity (CBD) and Convention on Wetlands (Ramsar Convention), large non-government organisations including the World Conservation Union are regular and consistent participants in ICRI.

Since its establishment in 1995, ICRI has been a driving force behind scientific, governmental and civil society efforts to protect coral reefs and related ecosystems. The ICRI approach is to provide a platform for information sharing, as well as mobilize governments and a wide range of other stakeholders in an effort to improve management practices, increase capacity and political support, and share information on the health of these fragile ecosystems.

ICRI identifies four cornerstone principles by which it promotes conservation and sustainable use of coral reefs and associated ecosystems:

- . addressing marine issues through an integrated coastal management approach;
- . providing a clear focus on capacity building to facilitate local competence;
- . management actions based as far as practicable on sound research and monitoring activity; and
- . periodic review of actions and achievements.

ICRI is an informal, non-binding forum. It arrives at decisions by consensus and decisions are not binding on its members. Coordination of ICRI is accomplished through a voluntary rotation of the Secretariat through ICRI member States. The current Secretariat comprises the governments of France (including initial collaboration with Monaco) and Samoa in tandem over the period mid-2009 to the end of 2011.

### Australia's International Climate Change Adaptation Initiative

Australia's International Climate Change Adaptation Initiative (ICCAI, \$328.2m over 2008-2013) is assisting vulnerable countries in the Asia-Pacific region adapt to the impacts of climate change.

Assistance provided through the ICCAI helps countries to identify and help finance priority adaptation measures to increase resilience to the impacts of climate change, increase understanding of how the climate and oceans have changed and how they may change in the future, and assess their vulnerability to climate change and develop evidence-based adaptation strategies.

A number of ICCAI activities in Pacific Island countries are identifying adaptation measures to enhance the coastal resilience of communities, including the protection of coral reefs and related ecosystems. For example, in the Western Province of the Solomon Islands, ICCAI funding is supporting a vulnerability assessment of remote traditional communities on the impact of climate change on the marine and terrestrial natural resources that they rely on for food and other key requirements. This includes an analysis of the threats posed to the coastal terrestrial and marine habitats and ecosystems, based on the customary resource owners' assessment and on scientific evidence.

### Coral Triangle Initiative

Australia is actively supporting regional initiatives such as the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI).

The CTI seeks to improve conservation and management of the marine environment and, through this, strengthen food security, sustainable livelihoods and economic development. Within the CTI, coral reefs and related ecosystems are recognised as particularly valuable in that they sustain vital ecosystem services for both economic and social wellbeing. For example, although the Coral Triangle region covers only 1.6% of the planet's oceanic area, it includes 76% of all known coral species, 37% of

all known coral reef fish species, 53% of the world's coral reefs, and the interconnected ecosystems serve as significant spawning and juvenile growth areas for some of the world's largest tuna fisheries<sup>7</sup>. Providing food, income and protection from severe weather events, this significant biodiversity sustains the health and livelihoods of approximately 240 million people in the region.

The CTI seeks to address the increasing pressures to coral reefs and related ecosystems – such as over-fishing, unsustainable fishing practices, land-based sources of marine pollution, coastal habitat conversion and climate change – in a holistic way. In doing so, it is addressing both conservation and development concerns and provides an innovative and practical framework for progressing sustainable development to achieve mutually supportive outcomes.

#### Rapid Response to Coral Bleaching in South-East Asia Project

Australia has actively supported the first phase of a project aimed at measuring the ecological, social and economic impacts of a 2010 mass bleaching event in the Greater Coral Triangle Region including Thailand, Malaysia and Indonesia. The project will strengthen understanding of the underpinning biophysical drivers of bleaching events so that socio-economic and environmental impacts of future events can be minimised.

Ecological and socio-economic surveys focusing on key reef user groups were used to measure the impacts of the 2010 mass bleaching event on local economies in Thailand, Malaysia and Indonesia. The socio-economic component focussed on the dive tourism sector.

The ecological and socio-economic survey instruments developed by the project provide a basis for rapid response efforts following future coral bleaching episodes to evaluate links between ecosystem health and community status. Application of these tools with further research will lead to capacity for increased resilience of coral-reliant communities in the face of future coral bleaching events.

#### Illegal, unreported and unregulated fishing

Australia acknowledges the threat illegal, unreported and unregulated (IUU) fishing can pose to coral reefs and marine ecosystems generally. Australia maintains a strong stance against IUU fishing and supports initiatives to prevent, deter and eliminate IUU fishing, particularly those implemented by Regional Fisheries Management Organisations (RFMOs).

Australia works with its neighbours to reduce IUU fishing in the region. Over the past six years through close regional cooperation, illegal foreign fishing vessel apprehensions in Australia's northern waters have reduced from 365 to only 14. Australia's efforts to eliminate IUU fishing in its northern waters could not be achieved without the close working relationship with Indonesia, which includes coordinated sea patrols and sharing of surveillance information.

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<sup>7</sup> All figures and data are drawn from the CTI Regional Plan of Action.

### Destructive fishing practices

Australia recognises that destructive fishing practices undermine the effectiveness of marine ecosystem management and threaten the ongoing ecological sustainability of shared marine resources. This in turn has the potential to impact coral reef systems.

Australia has recently submitted to UNGA its implementation report on actions taken by Australia and RFMO/As in response to paragraphs 80 and 83 to 87 of resolution 61/105 and paragraphs 113 to 117 and 119 to 127 of resolution 64/72.