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ABSTRACTS

Identifying Important Conservation Zones for Supporting KBA and MPA Designation using Species-level Information in the Coral Triangle

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The Coral Triangle (CT) in the Indo-Malay-Philippine Archipelago is known to harbor the greatest concentration of marine biodiversity on the planet. As marine life in this region supports the livelihoods and sustenance for millions of people, its loss has serious negative implications for the social and economic welfare of coastal communities and for marine ecological health. The Coral Triangle Initiative (CTI) is a program designed to protect the biodiversity in the region and to safeguard marine resources into the future, spearheaded by the participating country governments. Globally, marine conservation planning has largely been conducted in the absence of comprehensive species-specific information, relying on habitat type information. The Global Marine Species Assessment is an initiative designed to address this gap, and assesses complete groups of marine species against the gold standard, the *IUCN Red List Categories and Criteria*. This will provide information on threatened status and extinction risk to marine species, which will feed directly into the five priority goals of the CTI. Data for a number of selected groups is already in existence (sharks and rays, sea turtles, marine mammals, reef-building corals, mangroves, seagrasses, sea snakes, seabirds, groupers and wrasses) and has been spatially analyzed to support the identification of site-level priorities within the CT. The first cut highlights significant marine sites identified as priority conservation targets and will aid the designation or improved management of marine protected areas (MPAs) and key biodiversity areas (KBAs). However, the threatened status of many of the lower trophic levels is missing, including most fish groups, some of which are important indicators of the effects of climate change and overall ecosystem health. It is therefore recommended that the assessment cover a wider range of species, including commercial and subsistence species on which livelihoods depend.

Inferring Patterns of Connectivity and Defining Conservation Priorities in the Coral Triangle through the Integration of Genetics and Modelling

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The reefs of the Coral Triangle are the most diverse and most threatened reefs in the world. Although marine protected areas (MPAs) are essential to the conservation of this global biodiversity hotspot, successful implementation will require a regional focus for management planning and a knowledge of patterns of connectivity so that the ecological and evolutionary links among reefs required for long-term stability can be maintained. This study examines the patterns of phylogeography and genetic connectivity across Indonesia in a broad range of reef dwelling taxa, representing multiple reef functional groups ranging from corals to pelagic fish. Results indicate an absence of connectivity in many regions, including (i) between Indian and Pacific Ocean populations spanning the Indonesian

Archipelago, (ii) between populations east and west of the Maluku Sea, and (iii) between populations north and south of the Java and Flores Seas. Absence of genetic connectivity across these regions indicates an absence of demographic connectivity, providing data to support the designation of biogeographic boundaries for regional management planning. Genetic models of connectivity were compared to predictions based on geographically explicit predictive models of larval dispersal on ecological time scales. The use of genetic data to validate computer-based models of connectivity may allow a more detailed understanding of patterns of larval dispersal and connectivity within regional management areas, allowing managers to appropriately site and space MPAs throughout the Coral Triangle.

Integrated Environmental Management of Tomini Bay

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As the largest bay in Indonesia (59,500 km²), Tomini Bay has a wealth of natural resources, such as fish, coral, mangrove, pearl, and seagrass. The bay is situated within three fast growing provinces (North Sulawesi, Gorontalo, and Central Sulawesi) with 14 districts (*kota* and *kabupaten*) and about 1.5 million inhabitants. Twenty-five rivers drain into the bay, loaded with wastes from illegal logging, mining, domestic and industrial activities, and disturbing its environmental equilibrium. In addition, illegal fishing as well as coral and mangrove harvesting tend to exacerbate the condition of the marine resources. This paper highlights current environmental issues in the region, both terrestrial and aquatic/marine, and describes the environmental plans and measures that have been implemented in the bay and its surroundings. To sustain its natural resources, an integrated Tomini Bay management is proposed, which considers key elements such as human resources, local governance, institutional capacity development, research, funding, and networking.

Marine Protected Area Networks in the Coral Triangle: Development and Lessons from the Marine Learning Partnership

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Marine protected areas (MPAs) and networks of MPAs are accepted tools for protecting coral reef habitats and managing the nearshore fisheries. MPA networks are also being established to maintain ecosystem functions and connectivity and to enhance resilience by spreading risk in the case of climate change or localized disasters. Since 2004, the United States Agency for International Development (USAID) has supported a joint initiative of The Nature Conservancy (TNC), World Wildlife Fund (WWF), Conservation International (CI), and the Wildlife Conservation Society (WCS) to build upon and draw key lessons from MPA Networks under the "MPA Learning Partnership." As part of the final stage of the Project (2007 – 2008), a team examined six MPA networks in the Coral Triangle region. The findings revealed substantial gaps between the theory and practice of creating