Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia

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NETWORK OF SITES OF IMPORTANCE FOR MARINE TURTLES

At their Sixth Meeting (Bangkok, 2012), the Signatory States resolved to establish a Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region, culminating many years of developmental work and discussion.

The overarching goal of the IOSEA Marine Turtle Site Network is to promote the long-term conservation of sites of regional and global importance to marine turtles and their habitats. The network serves as a mechanism for sites to operate more cooperatively and synergistically, both ecologically and administratively, rather than working in isolation with minimal coordination. The use of objective criteria to evaluate sites nominated for inclusion in the network aims to prioritise the most critical sites needed to secure the future of marine turtle species/management units.

The expected benefits of the region-wide site network include:

- **Optimal use of limited resources available for governance**

A fully functional network will coordinate available financial, technical and human resources to conduct common training, facilitate exchange of information on best practices, carry out joint research and monitoring, undertake performance evaluation, and encourage adaptive management;

- **Enhanced local-to-global scale recognition of the importance of the networked sites**

The strength of a credible site selection process should in turn catalyse increased support and resources for more effective site-based and regional management.

- **Mitigation of adverse socio-economic impacts over a wider geographic scale**

Activities incompatible with marine turtle conservation cannot be eliminated entirely, but with careful design of the network the adverse impacts of such activities can be diffused across a wider area.

- **Protection of ecological connectivity between habitats**

The spacing and shape of network sites will be taken into account in the development of the network in such a way as to promote connectivity between nesting, foraging and developmental habitats required by marine turtles.

- **Optimisation of regional resistance and resilience of turtle habitats to environmental stress**

Resistance and resilience will be strengthened by including and managing sites containing the marine turtle habitats necessary for different life cycle phases, by protecting multiple examples of each habitat type, and by including sites that act as refugia to current and predicted stress.

Evaluation Criteria

Considerable time and effort were spent developing the Evaluation Criteria that will be used by the Advisory Committee to objectively assess site nominations submitted by Signatory States. The 18 selection criteria are divided into four categories: (1) Ecological/ Biological, (2) Governance-related,

(3) Socio-economic / Political, and (4) Network-wide ecological. The criteria were carefully refined and re-circulated in September 2012, taking into account the feedback received at IOSEA SS6; and a further minor revision was prepared (along with a French language translation) in July 2013.

That so much effort has gone into their design is a reflection of the importance attached to ensuring that the site network upholds a high standard and promotes effective governance of individual sites and the network at large. The robustness of the criteria should help to secure confidence among the donor community of the likelihood of success of initiatives conducted at individual sites, as well as network-wide activities.

The Evaluation Criteria should continue to be regarded as a working document, subject to adjustment and further refinement based on experience gained as they are actually used. While earlier versions have been tested on a limited number of sample sites, closer scrutiny with full proposals is certain to reveal (hopefully minor) inconsistencies, discrepancies and other issues that will need to be addressed on a case-by-case basis. While there is not likely to be sufficient time to thoroughly review and revise the criteria during the Signatory State meeting, the Advisory Committee is expected to compile a list of recommendations in this regard which can be worked on intersessionally. Similarly, the template for the Site Information Sheets used for submission of nomination proposals would benefit from user feedback and possible adjustment intersessionally.

Parallel process

While all Site Network nominations must be channelled through a governmental authority in order to attain official endorsement prior to their submission to the Secretariat, nomination proposals may be developed by a variety of sources, including NGOs interested in promoting recognition of a particular site. Appreciating that governmental bodies may not have the capacity to identify and develop suitable proposals on their own, the Site Network concept provided for a complementary, parallel process whereby a list of priority candidate sites would be drawn up to help guide Signatory States in their site nomination considerations.

The Secretariat solicited suggestions of potential candidate sites from members of the IOSEA Advisory Committee and other experts, an exercise that generated a list of about 80 potential candidate sites or areas in some 34 countries around the IOSEA region. Subsequently, the Secretariat compiled Site Information Sheets for nearly 20 of the suggested sites in order to demonstrate what information was already available, while drawing attention to information gaps that would need to be filled; and to encourage interested Signatories to bring the draft proposals to fruition.

A dedicated **Site Network page** was added to the IOSEA website in March 2013 to serve as a one-stop shop for all network-related information.

Procedural considerations and assessment of results to date

The Resolution that established the IOSEA Marine Turtle Site Network encouraged Signatory States to begin preparing and submitting site nominations as of September 2012 until six months prior to the Seventh Meeting of the Signatory States. Informally, the Secretariat set a target of ten nomination proposals to be submitted for consideration by IOSEA SS7 – a number considered sufficient to demonstrate a variety of interest in the Site Network, without overwhelming the capacity of the volunteer Advisory Committee charged with reviewing them.

With its nomination of the Rufiji Delta-Mafia Channel Complex, in October 2013, the United Republic of Tanzania became the first IOSEA Signatory State to officially propose a site for inclusion in the Network. Since that time, site nomination proposals have slowly trickled in from various other countries across the region. As of the time of writing, the Secretariat had received the following nine proposals (in chronological order):

- United Republic of Tanzania: Rufiji Delta-Mafia Channel Complex (31 October 2013)
- South Africa: iSimangaliso Wetland Park World Heritage Site (1 July 2014)
- Myanmar: Thameehla Island (5 July 2014)
- Islamic Republic of Iran: Sheedvar Island (28 July 2014)
- Seychelles: Aldabra Atoll (11 August 2014)
- Comoros: Itsamia, Mohéli (28 August 2014)*
- United Arab Emirates: Bu Tinah Shoal (30 August 2014)*
- United Arab Emirates: Sir Bu Na'air (1 September 2014)*
- France: Europa Island (1 September 2014)

** At the time of writing, the Secretariat was in the process of confirming that these particular proposals have the endorsement of the national authorities.*

The Secretariat is aware of at least one additional site proposal that might still be presented for consideration before the meeting. The above-mentioned proposals, as originally submitted (but in some cases without their appendices), are available for downloading from the IOSEA website at the following URL, where they have been posted as annexes to the present document: http://ioseaturtles.org/iosea_meeting.php?id=17.

Ove the past year, the Secretariat was also in communication with another dozen countries that seemed to have good potential to submit proposals, aided in part by the draft Site Information Sheets it had prepared for them. While several of these Signatory States expressed interest, ultimately this did not translate into the preparation of concrete proposals.

The Secretariat commends the pioneering efforts of Tanzania and all of the other countries that worked hard to develop substantial proposals and deal with sometimes challenging internal approval processes. The recommended submission deadline of six months prior to the Meeting of Signatory States was intended to give time for the Secretariat to offer initial feedback and editorial guidance, and for the Advisory Committee to suggest improvements that would strengthen the proposals' content. The fact that almost all of the proposals were submitted within about two months of the Meeting strained the capacity of the Secretariat and the Advisory Committee to deal with them. Compressing the review process into a few short weeks inevitably compromises it to some degree; and this should be avoided in future. It may be helpful to have a discussion at the Meeting of the kinds of challenges faced by Focal Points in meeting their collective commitments, without re-opening a debate about the fundamental nature of the Site Network that was agreed in Bangkok in January 2012.

The Secretariat and/or members of the Advisory Committee have reviewed all of the proposals and have provided constructive feedback to all of the proponents. At the time of writing, the extent to which some proponents have revised their proposals (or whether they will be in a position to do so before the meeting) in the light of the comments received is unclear. The Advisory Committee will hold a special session on 7 September in order to undertake a final review of all of the proposals and to formulate its recommendations to the Meeting of Signatory States.

The exercise of compiling baseline information on a given site is highly informative and useful. Yet while the Site Information Sheet template is demanding in terms of substantive content, and matched by the rigour of the Evaluation Criteria, the proponents' completion of the information sheet may also be regarded, simply, as a means to an end – which is to enable the Committee to recommend whether or not a particular site merits inclusion in the Site Network. A proposal may fall short of perfection – in terms of completeness, organisation, English grammar and spelling – but still make a strong substantive case for inclusion in the Network. Following the SS7 meeting, the Secretariat will undertake editorial revisions of the submitted proposals to correct minor linguistic or organisational deficiencies (without affecting their substance), prior to their publication on the IOSEA website.

The Advisory Committee is free to develop its own methodology for evaluating the proposals, making use of the Evaluator Rating Sheet attached to the Evaluation Criteria (Annex 1). The Secretariat suggests the Committee consider formulating its recommendations along the following lines:

1. Unconditional acceptance of the proposal, without need for further revision (apart from Secretariat editorial corrections).

2. Acceptance of the proposal, subject to minor substantive clarification/revision to be completed by the proponent before the conclusion of SS7.

3. Conditional acceptance of the proposal, subject to the provision of additional information by the proponent within [three] months of the conclusion of the SS7 meeting; followed by Advisory Committee review and positive recommendation.

4. Rejection of the proposal, on the grounds that it is unlikely to meet the criteria for inclusion, even if substantive revision were undertaken.

This guidance, which the Advisory Committee is free to amend, suggests the need for a further inter-sessional review process that should be limited to proposals that are actually tabled at the Meeting of Signatory States, rather than entertaining the possibility for Signatory States to submit new proposals for consideration between regular meetings. At the Meeting itself, Signatory States will be invited to consider and collectively endorse, by consensus, the Advisory Committee's recommendations.

Post-meeting follow-up

The Guidance Paper that accompanied the Resolution which established the IOSEA Marine Turtle Site Network includes options for networking of sites under different funding scenarios (Section 5) as well as some ideas about sustainable financing (Section 6.4). Rather than reproducing those suggestions here, readers are invited to refer to the Resolution and Guidance paper attached as Annex 2. A strong argument may be made for directing resources that are (or become) available for IOSEA technical support/capacity building to those Signatory States in need of assistance that made a concerted effort to submit Site Network proposals to the present Meeting.

The Site Network Resolution calls for the establishment of "a steering committee to seek financial support for the implementation of the Site Network and to consider other operational issues that may arise intersessionally". The Secretariat has attempted, in consultation with the United States Focal Point, to lay the groundwork for such a steering committee; but progress has been modest on account of limited capacity and other challenges. To date, preliminary contacts have been made with foundations that might have an interest in the Site Network, with nongovernmental organisations with a good track record of fund-raising and, most recently, with corporate interests that might eventually view the Site Network as a worthy investment for funds that are part of a mandatory conservation offset schemes. All of these avenues need to be pursued more actively in the months following the meeting.

The "soft-launch" of the IOSEA Marine Turtle Site Network in Bonn should be followed up with the development of some well-designed publicity materials and Site Network certification, along with an expansion of the existing dedicated webpage on the IOSEA website (for example, to provide for a searchable database containing information derived from the individual Site Information Sheets). These might be areas in which interested Signatory States, with in-house public relations and technical expertise, could make a valuable in-kind contributions.

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Action requested / Expected outcome:

1. Consideration and endorsement, by Signatory States, of the Advisory Committee recommendations regarding Site Network proposals, as appropriate.

2. Agreement on an intersessional procedure for reviewing/endorsing Site Network proposals deemed to require further revision.

3. Agreement on a way forward for further review and revision, as necessary, of the Evaluation Criteria and Site Information Sheet template (and possibly simultaneous translation into Arabic).

4. Discussion of difficulties encountered by Focal Points/Signatory States in preparing/submitting Site Network proposals within the agreed time frame, and by the Advisory Committee in its evaluation process; and consideration of ways to address them (cf. also Doc. 12, Terms of Reference and Guidance for IOSEA Focal Points)

5. Agreement on follow-up actions arising from the launch of the Site Network, including the functioning of a steering committee to seek financial support for implementation.

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Annex 1: IOSEA Site Network Evaluation Criteria
Annex 2: IOSEA Site Network Resolution and Guidance Paper

Web-only annexes: IOSEA Site Network proposals, as originally submitted by the proponents (possibly not the most up-to-date version) are available at: http://ioseaturtles.org/iosea_meeting.php?id=17

Criteria for the Evaluation of Nominations to the Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region

Version:
19 July 2013

Secretariat of the Indian Ocean – South-East Asia Marine Turtle Memorandum of Understanding

INTRODUCTION

The Signatory States to the *Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* (IOSEA Marine Turtle MoU) have resolved to establish a *Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region.* The overarching goal of the IOSEA Marine Turtle Site Network is to promote the long-term conservation of sites of regional and global importance to marine turtles and their habitats. The network will serve as a mechanism for sites to operate more cooperatively and synergistically, both ecologically and administratively, rather than working in isolation with minimal coordination. The use of objective criteria to evaluate sites nominated for inclusion in the network aims to prioritise the most critical sites needed to secure the future of marine turtle species/management units.

Detailed information on the rationale for the site network proposal, the process for nominating and evaluating candidate sites, and alternative approaches for coordinated governance of sites included in the network is presented in the annex to the resolution that formally established the Site Network[1]. The Site Network will be populated with sites nominated by Signatory States, and formally accepted for inclusion in the network by the Meeting of Signatory States, based on a recommendation of the IOSEA Advisory Committee. A complementary, parallel process is envisaged whereby a "master list" of priority candidate sites will be drawn up to help guide Signatory States in their site nomination considerations.

This document presents the criteria that will be used by the Advisory Committee to: (i) evaluate Signatory State nominations of new sites; (ii) assess the rationale for continued inclusion of existing sites; and (iii) conduct gap analyses for the overall network to identify priorities for inclusion of additional sites. While proponents need not be pre-occupied with the details of the scoring mechanism, they should be familiar with the rationale and guidance underpinning each of the evaluation criteria when considering whether to nominate a given site. Throughout the document, cross-references are made to the template for the IOSEA Site Network Information Sheets that are to be completed for each site nominated for inclusion in the network. These cross-references, shown in square brackets [**SIS #**], are meant to guide evaluators to where they might expect to find relevant information in the Site Information Sheet submitted with the nomination proposal. (Similarly, the template for the Site Information Sheet has cross-references to the Evaluation Criteria, to help proponents assess whether or not they have provided sufficient information for evaluation purposes.)

There are 18 evaluation criteria, divided into four categories: Ecological and Biological, Governance, Socio-economic and Political, and Network-wide Ecological. A weighting scheme is used to differentiate the relative importance of the various criteria. The maximum value assigned to each criterion determines its relative importance in the overall rating. Points are awarded against each criterion, up to its maximum value.

Guidance is provided to assist evaluators and proponents in their respective tasks. While the assessments should strive to be objective, they will inevitably include a measure of subjectivity. In cases where quantitative data or even expert opinion are not available, evaluators should try to reach consensus on a score that best reflects the actual situation. Where uncertainty or lack of data is an important issue for a particular site, evaluators might recommend that priority be given to future funding/research to fill the data gap.

For a site to be recommended for inclusion in the network, it must obtain a minimum score against *each* of the four categories, as well as a minimum *total score*. For example, a site must obtain a minimum score of 20 from the five criteria that make up the Governance Criteria category. The site must also achieve a minimum total score of 75 over all categories combined.

EVALUATION CRITERIA FOR THE IOSEA MARINE TURTLE SITE NETWORK

I. ECOLOGICAL AND BIOLOGICAL CRITERIA (Minimum Total Category Value: 18)

EB1a. Turtle abundance (at nesting sites) [SIS 9]

Definition: The number of marine turtles constituting a management unit [2], the size of which is considered to be of regional importance, which the associated nesting site regularly supports.

Rationale: At marine turtle nesting sites, the larger the number of adult females, the larger the number of clutches or hatchlings expected to contribute to the maintenance/growth of the population (except if density-dependent mortality is occurring, such as on a massed nesting beach). Thus, a site that supports a large number of marine turtles is critical for sustaining turtle management units.

Maximum Possible Value: **15**

Fixed Scale (for nesting sites): (Adapted from Wallace et. al. 2010, Plos One paper on Regional Management Units, where numbers are derived from an average number of annual nesting females, for the management unit, for at least 5 years of data).

Score per associated management unit	3	6	9	12	15
C. caretta	<100	101-1,000	1,001-5,000	5,001-10,000	>10,000
C. mydas	<100	101-1,000	1,001-5,000	5,001-10,000	>10,000
L. olivacea	<100	101-1,000	1,001-10,000	10,001-100,000	>100,000
N. depressus	<10	11-500	501-1,000	1001-5000	>5,000
D.coriacea	<10	11-100	101-500	501-1000	>1000
E. imbricata	<10	11-100	101-500	501-1000	>1000

Guidance: If quantitative data are lacking in the site nomination, local or other expert opinion may be called upon to provide an indicative measure of abundance. [3]

EB1b. Turtle abundance (foraging sites) [SIS 9]

Definition: The relative number of marine turtles (of any species) foraging at a site, which is considered to be of regional importance.

Rationale: At marine turtle foraging sites, the larger the relative number of individuals (as evidenced by any of the following categories), the more important that foraging site is likely to be for sustaining one or more turtle management units.

Maximum Possible Value: **15**

FIXED SCALE		INDICATORS OF RELATIVE ABUNDANCE
NO RECORDS	**0**	No records of foraging turtles despite efforts made to assess foraging habitat.
SPORADIC FORAGING	**5**	Foraging turtles only occasionally recorded in the area
MODERATELY IMPORTANT FORAGING SITE	**10**	• Foraging turtles regularly but intermittently observed from boat or by divers; and/or • Occasional records of international flipper tag returns (from >200 km); and/or • Occasional stranded turtles; and/or • Occasional by-catch reported; and /or • Occasional destination of satellite tracked turtles
VERY IMPORTANT FORAGING SITE	**15**	• High density of foraging turtles easily observed on a daily basis from boat or by divers; and/or • Relatively high rate of long distance flipper tag returns (from >200 km); and/or • Relatively high rate of stranded turtles; and/or • Relatively high rates of by-catch reported; and /or • Destination of relatively high numbers of satellite tracked turtles

EB2. Species or management unit richness [SIS 9]

Definition: The number of species or marine turtle management units (if known) regularly using a site's nesting habitat or foraging habitat (for which abundance data are generally lacking).

Rationale: The greater the number of marine turtle management units supported by a site, the higher the contribution of the site to regional marine turtle conservation.

Maximum Possible Value: **15**

Fixed Scale:

6 = The site regularly supports 1 species or management unit (if known)
9 = The site regularly supports 2 species or management units (if known, of one or more species)
12 = The site regularly supports 3 species or management units (if known, of one or more species)
15 = The site regularly supports > 3 species or management units (if known, of one or more species)

Guidance: This criterion considers only the *number* of species or management units supported by a given site; it does not consider the *rarity* of the species concerned, which is addressed by criterion EB3.

EB3. Presence of rare marine turtle species [SIS 9]

Definition: Presence of a marine turtle species that is considered rare in the IOSEA region.

Rationale: Protection of sites supporting regionally rare marine turtle species contributes to conserving genetic diversity, which provides turtles with greater adaptive alternatives in the face of future (unpredictable) changes. This in turn reduces the risk of devastating population declines, local extirpations and species extinctions, by providing more options for recovery and resilience.

Maximum Possible Value: **12**

Fixed Scale:

6 = Site is frequented by individuals of one species considered rare, from a regional perspective, by virtue of published regional assessments or expert opinion
9 = Site is frequented by individuals of two species considered rare, from a regional perspective, by virtue of published regional assessments or expert opinion
12 = Site is frequented by individuals of three or more species considered rare, from a regional perspective, by virtue of published regional assessments or expert opinion

Guidance: A species may be rare due to limited overlap of its distribution with the IOSEA region, or because of low abundance in the region; with such a finding based on published regional assessments (e.g. United States Endangered Species Act listings with regard to loggerheads) or expert opinion.

EB4. Resistance and resilience [SIS 6, 7, 8, 9, 15, 16]

Definition: A site containing habitat of importance to marine turtles that is likely to be relatively resistant and/or resilient to disturbance.

Rationale: This criterion specifically considers predicted ecosystem vulnerability and responses to (primarily) anthropogenic disturbance, with an underlying premise that it is important to protect areas that can resist and/or recover quickly from disturbance.

Maximum Possible Value: **8**

Flexible Scale:

1 = Relatively disturbed site, with low/minor relative degree of resistance and resilience.
4 = Site with a relatively modest degree of disturbance, and thus modest resistance or resilience.
8 = Undisturbed site, thus considered to possess a high degree of resistance or resilience.

Guidance: A site where few or no threats to marine turtles and their habitats are known to exist would be characterised as relatively undisturbed and hence of relatively high resistance and resilience; such a site might be assigned a value of 7-8. Examples might include sites where there is a relatively low degree of existing human development and where threats from habitat degradation, including coastal erosion, and natural threats are considered to be low.[4]

II. GOVERNANCE CRITERIA (Minimum Category Value: 20)

G1. Legal framework [SIS 11, 12, 13, 14]

Definition: A legal framework provides adequate protection of the site and of the life stage(s) of the marine turtle population found at the site.

Rationale: While legal and management frameworks vary for protected areas depending on the local context – from traditional management to government-led management, or combinations thereof – the existence of legal (and management) frameworks for protection of the site and its marine turtles, are critical in most cases. A site that lacks adequate legal protection is likely to be a "paper park" with little or no implementation of needed management interventions. A site network designation could be an important driver for an appropriate legal/management framework to be put in place.

Maximum Possible Value: **8**

Flexible Scale:

1 = Documentation provided by proponent suggests very limited degree of legal protection of the site and/or its turtle population.
5 = Moderate, but not completely sufficient, degree of legal protection.
8 = Documentation provided by proponent describes comprehensive and fully adequate legal protection, appropriate to the site context.

Guidance: Site descriptions are expected to include sufficient detail of the legislation and regulations (or traditional laws and norms) in effect to permit an assessment of their efficacy in addressing known/predictable threats. A low score would be assigned to a site where incompatible human activities and/or uses of land or sea are not prohibited through legislation and/or regulation, or where such activities/uses are allowed to occur without any mitigating processes. Where a convincing rationale is given that either private and/or public tenure or customary or traditional approaches do not require legislation, and that land/sea management is demonstrated to be providing fully adequate protection, then the full score may be awarded for the site[5].

G2. Conservation actions [SIS 17, 18]

Definition: Conservation interventions have been undertaken to mitigate known[6] threats to marine turtles identified at the site.

Rationale: Implementation of effective management actions to address threats facing marine turtles at a site indicates a high degree of socio-political will and support for marine turtle conservation and protection. A management authority that is able to demonstrate implementation of activities designed to mitigate important threats to marine turtles indicates that the site has the potential to retain high regional conservation value to marine turtles for the long term. Effective exclusion of activities determined to be incompatible with the conservation of marine turtles and their habitats ensures the long-term protection of the site's value to marine turtles.

Maximum Possible Value: **10**

Flexible Scale:

1 = Documentation provided by proponent suggests a relatively low/minor degree of actual conservation effort.
6 = Modest, but not completely sufficient degree of conservation effort.
10 = Documentation provided by proponent describes a very high degree of exemplary conservation effort (or otherwise the site requires no or only nominal conservation intervention due to the total absence of any threats).

Guidance: This criterion focuses on the "what", whereas the next criterion (G3) focuses on the "how". Refer to the Site Network Information Sheet template for examples of expected management interventions. A site benefitting from a wide array of described interventions and few current threats to marine turtles and their habitats might be assigned a value of 8-9 when assessed against this criterion. Exceptionally, a site lacking natural or human threats to marine turtles and their habitats may be assigned a high value, even in the absence of intensive management intervention, if the demonstrated conservation action includes regular monitoring of the site in question. An extra point may be give to sites where concrete conservation actions have been planned or proposed, but not yet implemented.

G3. Collaborative management, surveillance and enforcement [SIS 17,18]

Definition: Participatory work with local stakeholders to strengthen local stewardship of marine turtles, and/or to provide for adequate surveillance and enforcement of prevailing regulations.

Rationale: In areas where customary management systems or private tenure are in place, community-based approaches to management and enforcement, including co-management [7], will be essential. Adequate human and financial resources for enforcement demonstrate strong support for protecting the site and its marine turtles. For most protected areas, if resources for some form of enforcement are lacking, efforts to prevent overuse and misuse of resources will not be achieved.

Maximum Possible Value: **8**

Flexible Scale:

1 = Documentation provided by the proponent suggests a negligible level of collaborative management, surveillance and enforcement which is clearly insufficient in the context of the site.

4 = Modest degree of collaborative management, surveillance and enforcement, with room for improvement.

8 = Documentation provided by the proponent demonstrates fully adequate level of collaborative management, surveillance and enforcement, in the context of the site.

Guidance: Obstacles to effective collaborative management may include inadequate social organisation, inadequate surveillance due to inaccessibility of portions of a site, inadequate funding for sufficient enforcement staff and equipment to patrol the entire site, as well as insufficient human and legal resources to deal with violations of the regulations in place. Site descriptions are expected to outline in sufficient detail the organisation and resources available for these purposes.

G4. Research and monitoring [SIS 8, 19, 23]

Definition: Extent to which: (i) the site is currently used to monitor marine turtle abundance or other critical parameters (such as at index nesting beaches and other reproductive areas, foraging grounds, refuge and migratory areas); and/or (ii) the site has marine turtle surveys with standardised data that span > 15 years for the site; and/or (iii) survey data are used to estimate trends in the size of management units.

Rationale: Information obtained through monitoring informs adaptive management processes/initiatives. Monitoring activities also present a mechanism to promote stakeholder involvement. An index site and/or sites with a long time-series of monitoring data are of critical importance for understanding the changes in marine turtle populations regionally. They provide essential data to enable modelling robust estimates of population trends, changes in age and sex structures, sources of mortality, etc. A sufficiently long time-series of monitoring data (>15 years), as well as long-term understanding of management activities, is critical to separate long-term temporal and spatial trends from cyclical or shorter-term, serially correlated patterns in ecosystem changes and in changes in characteristics of populations of long-lived, slow maturing species. For these species, anthropogenic and other mortality effects are likely to be detectable only over periods of decades or longer. Furthermore, for marine turtles,

mortality of juveniles and sub-adults may be undetected when monitoring only focuses on nesting females. Therefore, long term monitoring using standardised procedures across marine turtle habitats and on diverse life stages is critical.

Maximum Possible Value: **8**

Fixed Scale:

4 = The site is characterised by one of the following: (i) Contains an index beach, foraging habitat, or reproductive habitat; (ii) Survey data based on standardised procedures span > 15 years; (iii) Survey data have been used to estimate trends in the size of the management unit associated with the site (if known).

6 = The site is characterised by two of the following: (i) Contains an index beach, foraging habitat, or reproductive habitat; (ii) Survey data span > 15 years; (iii) Survey data have been used to estimate trends in the size of the management unit associated with the site (if known).

8 = The site is characterised by all three of the following: (i) Contains an index beach, foraging habitat, or reproductive habitat; (ii) Survey data span > 15 years; (iii) Survey data have been used to estimate trends in the size of the management unit associated with the site (if known).

Guidance: Site descriptions are expected to give evidence (for example, by citing published literature) that one or more of these conditions have been met.

G5. Sustainable human and financial resources [SIS 15, 21, 22]

Definition: Availability of long-term resources (human and financial) to enable effective governance activities, including monitoring, management interventions, surveillance and enforcement, and performance evaluation. Such resources may be considered to be sustainable where, for example, a legal mechanism provides for finance and staffing.

Rationale: Effective implementation of governance activities requires long-term funding. Sustainable financing for a site indicates strong political will and leadership support for protection of the site and its marine turtles. Secure finance strategies are comprised of a diverse portfolio of complementary revenue sources. Different funding mechanisms will be appropriate depending on the type of organisation managing the site and the types of permanent and short-term activities that are identified, as required, to ensure the long-term conservation of marine turtles and other resources of the site.

Maximum Possible Value: **8**

Scale:

1 = Documentation provided by the proponent suggests low/very limited actual or prospective long-term financing and/or human resources.

5 = Modest long-term financing/human resources, with only modest prospect of improvement.

8 = Documentation provided by the proponent indicates substantial long-term financing/human resources already in place.

Guidance: Site descriptions are expected to document the extent of human and financial resources available for governance activities, and offer evidence of future prospects in this regard. Strong evidence that substantial long-term financing will be forthcoming in the near-future, perhaps catalysed by inclusion of the site in the network, may be scored toward the upper end of the scale. An additional point may be added for proponents that have clearly articulated specific human and resource needs at the site [SIS 22], a prerequisite to securing necessary financing.

III. SOCIO-ECONOMIC AND POLITICAL CRITERIA (Minimum Category Value: 15)

S1. Cultural importance [SIS 10]

Definition: Site contains prehistoric, historic, and/or contemporary resources, or embodies non-consumptive traditional beliefs/practices of cultural, religious and/or spiritual significance, in relation to marine turtles.

Rationale: A site that is culturally important provides additional justification for its protection, with added social and political values that may help to leverage more resources for long-term protection.

Maximum Possible Value: **6**

Flexible Scale:

1 = Site is described as having low/minor cultural importance.
3 = Site is recognised as having national cultural importance.
6 = Site is recognised as having national cultural importance and is managed through customary/traditional law

Guidance: Site descriptions are expected to document a site's cultural importance, if any, preferably with reference to published or unpublished historical or other accounts which may give an indication of relative importance in a national context.

S2. Compatible activities [SIS 14, 15]

Definition: Activities occurring within the vicinity of the site that are compatible with the conservation of marine turtles and their habitats.

Rationale: Allowing and encouraging local communities associated with protected sites to engage in socio-economic and cultural activities that are consistent with ecological objectives (i.e. do not degrade the integrity of marine turtle habitat and do not entail unsustainable use of marine turtles) should complement effective governance through community support for restrictions on incompatible activities. Conversely, a large number of incompatible socio-economic activities occurring at the site may degrade its value for marine turtle conservation.

Maximum Possible Value: **6**

Flexible Scale:

1 = Mostly (but not only) incompatible socio-economic activities occur at the site.
3 = Some incompatible socio-economic activities are occurring at the site.
6 = Few, if any, incompatible socio-economic activities are occurring at the site.

Guidance: Site descriptions are expected to document the activities occurring at the site and indicate whether or not any of these are incompatible with the conservation of marine turtles, in sufficient detail to allow for a subjective rating. Refer to instructions given with the Site Information Sheet template (especially point 16) for examples of potentially incompatible activities. Sites that demonstrate that they have a higher probability of making a significant contribution to the network (e.g. by virtue of having to contend with fewer incompatible activities) are rated more highly [8].

S3. Educational value [SIS 20]

Definition: Existence of actual, or future opportunities for, educational and outreach activities, by virtue of the site's location and other inherent characteristics.

Rationale: Education and outreach programs that raise awareness of the value of coastal habitats (which are also of importance to marine turtles) can bring about changes in behaviour and attitudes, by providing the local community with information to make informed decisions about the use of their resources.

Maximum Possible Value: **6**

Flexible Scale:

1 = Documentation provided by the proponent suggests limited existing educational/outreach activity or potential.
3 = Modest educational/outreach activity or potential.
6 = Documentation provided by the proponent suggests extensive existing educational/outreach activity or potential.

Guidance: Site descriptions are expected to document existing educational initiatives, and/or to indicate the potential for extending the scope and coverage of these activities. Factors to consider include: permanence of the educational value, accessibility of the facility and integrity of the access infrastructure, and number of people influenced by the facility. A site with a well-established community-based programme might score towards the upper range of the scale; whereas a relatively isolated site that lacks practical public access might be assigned a low score when assessed against this criterion. A site that has no interaction with the general public may have no direct educational value to marine turtle conservation (but might score highly in other criteria that tend to favour remote sites).

S4. Existing recognition [SIS 13]

Definition: Length of existing protected status or other national, regional or international recognition for the site's value to marine turtles.

Rationale: A history of recognition of the importance of the site to marine turtles may be indicative of awareness and political support for the site's protection. While it could be argued that sites already benefiting from protected status for an extended period of time are *least* in need of additional recognition from inclusion in the network, the counter-argument is that a site with longstanding protected status has more immediate potential to engage actively with other network sites (and therefore make a significant contribution to the formation of the regional network, through sharing of experience, lessons learned etc.).

Maximum Possible Value: **6**

Fixed Scale:

0 = The site has never been afforded any protection status
2 = The site has been afforded protected status for < 5 years.
4 = The site has been afforded protected status for ≥ 5 years and ≤ 10 years.
6 = The site has been afforded protected status for > 10 years.

Guidance: Note that this criterion looks only at existing 'recognition' of the site in quantitative terms, as distinct from the efficacy of the legal framework for protection and actual management interventions, which are to be assessed through the Governance Criteria.

S5. National significance [SIS 8, 9, 10, 19]

Definition: Significance of the site in a national context, relative to other sites.

Rationale: Uniqueness of the site (for example, if this is the only area of high abundance or nesting of marine turtles in the country, or the country's only transboundary site) may provide additional justification/motivation for social and political support for the site's protection. A site identified to be of national importance, by virtue of its uniqueness, might assist in leveraging resources for long-term protection.

Maximum Possible Value: 6

Flexible Scale:

1 = Site is not readily distinguished from other sites, in terms of its physical/ecological characteristics and national importance.
3 = Site is described as having physical/ecological characteristics and national importance shared by some other sites in the country.
6 = Site is described as having exceptional national importance by virtue of its unique physical/ecological characteristics.

Guidance: A site containing the only marine turtle nesting habitat in a country might be assigned a maximum value of 6 when assessed against this criterion. Where many sites exist in a given country, making it difficult to differentiate among them (in the absence of information from the proponent), other indicators of relative importance might include existing local or national protected status designation.

S6. Perceived ancillary benefits as a consequence of the site's inclusion in the network [SIS 8, 9, 18]

Definition: Perception of ancillary conservation benefit (e.g. for other biodiversity/local communities associated with the site, or other related conservation initiatives), that would be achieved through the site's inclusion in the network.

Rationale: Marine turtle conservation should not and cannot occur in isolation. Value is placed on adding sites to the network that, as a result of their designation, would likely secure substantial, ancillary conservation benefits, irrespective of other considerations. Potential conservation benefits might be described in terms of protection of other biodiversity occurring at the site, greater social and political commitment to stronger conservation policies, enhanced community-based commitment to long-term conservation, greater private sector support for related conservation initiatives (e.g. initiatives to address threats posed by inshore and offshore fisheries) etc.

Maximum Possible Value: **6**

Flexible Scale:

1 = Limited ancillary conservation benefit is expected from inclusion of the site in the network, by virtue of low or unknown biodiversity value or other threatened species.

4 = Modest ancillary conservation benefit is expected from inclusion of the site in the network (e.g. by virtue of empirical or expert data indicating the site's biodiversity value or presence of other threatened fauna).

6 = Substantial ancillary conservation benefit is expected to be achieved through inclusion of the site in the network (e.g. by virtue of other biodiversity value and expected value added to existing conservation initiatives, supporting/ strengthening existing socio-economic interventions etc.)

Guidance: This is a largely subjective interpretation, both on the part of the proponent and reviewer. The potential for ancillary conservation benefits for biodiversity might be assessed from empirical or expert data indicating the site's high biodiversity value or presence of other species of conservation concern that would directly benefit (e.g., sea bird colonies, dugong, cetaceans, sea grass pastures, coral reefs, fragile coastal dune systems) or other statements made by the proponent with regard to existing socio-economic initiatives.

IV. NETWORK-WIDE ECOLOGICAL CRITERIA (Minimum Total Category Value: 10)

N1. Representativeness and replication [SIS 8, 9]

Definition: Inclusion of the site contributes to the network's: (i) adequate representation of the full range of habitat diversity required for the maintenance of marine turtle management units and species of the IOSEA region (*representativeness*), and/or (ii) inclusion of multiple sites containing identical habitat types (*replication*).

Rationale: Representativeness and replication are required components of an effective site network. Including examples of each habitat used by marine turtles across their life history stages – including nesting, foraging, reproductive and migratory habitat, and examples of each community type within these habitats – achieves a network of representative marine turtle habitat sites. Replication of these critical habitat types in the network reduces the risk of regional losses of a single habitat type by spreading the risk, and increases the chance for a marine turtle habitat type to survive disturbances[9].

Maximum Possible Value: **4**

Flexible Scale:

1 = Low/minor contribution to representativeness/replication: the habitat types included in the site are already well represented in the network.

2 = Modest contribution to representativeness/replication: the habitat types found at the site are moderately covered within the network.

4 = Very significant/unique contribution to representativeness/replication: the habitat types found at the site are not yet well represented in the network.

Guidance: Evaluators must bear in mind other sites already in the network when making this assessment. In the initial phase of network development with few sites in the network, assessment against this criterion is likely to result in a score of 3 or 4. For example, a site containing marine turtle nesting, foraging and development habitat, which at the initiation of the network would contribute to representation (and eventual replication) of the full range of marine turtle habitats, would be assigned a score of 4.

N2. Ecological connectivity [SIS 5, 24]

Definition: Inclusion of the site contributes to protecting functional links among areas of marine turtle habitat. Inclusion of this site – considering geographic location and ecological characteristics in relation to other sites in the network, and based on information from ecological, migration and genetic studies – contributes to ecological connectivity between sites.

Rationale: Providing, protecting and promoting connectivity among habitat types required for life history stages of marine turtles is critical for the maintenance of turtle management units. A network of managed sites can be designed to protect functional connectivity between marine turtle habitats, where conservation activities at individual sites in the network benefit from one another. The *shape* (to consider edge effects, where margins of protected areas may be heavily exploited) and *spacing* of the individual sites in the network determine the ecological connectivity of the network as a whole.

Maximum Possible Value: **8**

Flexible Scale:

1 = Low/minor contribution to connectivity.
5 = Modest contribution to connectivity.
10 = Very significant contribution to connectivity

Guidance: Functional links between individual sites might include, for example, inter-nesting habitat adjacent to a nesting beach, or serial nesting beaches known to be used by individuals of a single management unit. Sites that are known to be in close proximity to other important marine turtle habitats would be assigned a high value. For example, a site that lies adjacent to other marine turtle foraging areas might be assigned a value of 6 or 7 when assessed against this criterion[10].

N3. Area [SIS 24]

Definition: The area of a site or combined area of functionally-linked sites contributes to protecting the area of marine turtle habitat needed to sustain turtle management units.

Rationale: Protection of sufficient habitat area is a required component of an effective site network. The area of relatively undisturbed habitat may be critical to the ability of members of a turtle management unit to nest, forage, reproduce or migrate.

Maximum Possible Value: **12**

Fixed Scale:

1 = Site comprises less than 5% of the estimated habitat area for a marine turtle management unit.
3 = Site comprises 5% to 20% of the estimated habitat area for a marine turtle management unit.
6 = Site comprises > 20% to 35% of the estimated habitat area for a marine turtle management unit.
9 = Site contributes from > 35% to 50% of the estimated habitat area for a marine turtle management unit.
12 = Site encompasses more than half of the estimated area for a marine turtle management unit.

Guidance: The proportion of essential habitat refers to a marine turtle management unit's required habitat for each life history stage. For instance, a site that comprises about a third of the area of a management unit's total known nesting habitat, would warrant the assignment of 6 points. Higher values might be assigned to sites whose area is transboundary in nature; with an expectation that this attribute should, in itself, promote cooperation among the jurisdictions responsible for management.

Endnotes

1. Resolution to Establish the IOSEA Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region (Bangkok, 2012). Available at:

http://ioseaturtles.org/UserFiles/File/Resolution_IOSEA_Network_of_Sites_of_Importance_for_MT+Annex.pdf

Some have suggested that there is a need to elevate the site network to an ecological network, in the true sense, by incorporating provisions that go beyond the protection of nesting, foraging and reproductive habitat (i.e. to embrace new ways to promote the management of critically important corridors and other marine areas, especially those beyond national jurisdictions, by establishing international marine sanctuaries/reserves or incorporating existing ones that are important for turtles, into the network). While it is beyond the scope of this particular document to contemplate such additional measures, it is clear that further consideration should be given to the challenge of addressing threats to marine turtles beyond national jurisdictions.

2. Management units can be based on molecular studies as per Moritz et al. 2002 and Dethmers et al. 2006 etc., such that they are genetically determined and synonymous with genetic populations; they can be based on tagging/migration data in combination with molecular data eg. DPS (Connant et al. 2009); or in the absence of detailed quantitative data they could be considered in context of RMUs (Wallace et al. 2010). It is left to the (Advisory Committee) evaluators to agree upon and use consistently a suitable definition of the management unit and to determine whether or not a proposed site is associated with a known management unit.

3. Alternatively, for future consideration: it has been suggested to use some estimator of percentage of population rather than a fixed absolute number; as this fixed number will change over time as the population increases or decreases, and also as population estimates vary from different techniques and improved information. A percentage value could be less subject to gross variation, thereby reducing the need to continually revise these scores. However, the present difficulty in obtaining estimates of population (management unit) size makes this approach unrealistic to implement at the present time.

4. It is recognised that outcomes of climate change – including relative sea-level rise, rising air and sea surface temperatures, and possibly the spread of invasive alien species (alterations to species' distributions) – are also predicted to affect marine turtles and their habitats. However, making credible predictions about these threats will be a major challenge, possibly requiring the development of vulnerability risk models. Given the inherent difficulties in evaluating this criterion objectively, it has been proposed that this criterion focus on mainly on anthropogenic threats that can realistically be evaluated (and possibly mitigated) by the agency/agencies concerned; and that consideration be given in future to designing an alternative scale that is less subjective.

5. The efficacy of such alternative legal frameworks may need to be verified through an independent expert or local referees etc., and re-assessed over time to be confident of the efficacy of the level of protection that is reported.

6. Ideally, site management would include also an effective mechanism for contingency planning to deal with new and unpredicted threats; however this is unlikely to be realised in the present situation of most Signatory States.

7. Co-management may be defined as management through the collaboration of the local community, agencies from all levels of government, NGOs and, potentially, additional external organisations.

8. It could be argued that sites with many incompatible activities could benefit as much or more from inclusion in the network, however it should be remembered that this is only one of nearly 20 criteria that will be assessed to determine a site's suitability for inclusion in the network. If there are other compelling grounds for selecting a given site, this should be manifest in the overall assessment of the site.

9. This criterion implies that there will be a clear advantage for sites that are nominated in the initial stage of the network (i.e. a site may receive a relatively high score by virtue of the fact that it is evaluated when the network has very few sites). Once a network is "mature" and more "populated" the higher scores of the early nominated sites could well have much less value relative to later-nominated sites. Although it is only one of 18 criteria, this bias favouring sites with early nomination needs to be kept in mind. The maximum possible score for this criterion has been set at a low value, to avoid having this bias cause too much distortion in the early formation of the network.

Note also that there is inherent possibility of conflict between representativeness and replication – a site might contribute to representativeness by adding a previously unrepresented habitat type, but in this case it would have no replication value. Conversely, a site might contribute to replication value by replicating the habitat type in existing sites, but add nothing new for representativeness.

10. Consideration should be given in future to improving some of the scale definitions, in cases where the current draft is subjective.

General Remarks

Sites should be grouped into clusters that are relevant in terms of turtle ecology and biology, but also management/governance. Having sites too finely split or too coarsely grouped becomes similarly irrelevant in the context of the Site Network.

Paired sites are those that are contiguous in the Site Network, which may or may not span more than one country; *twinned* sites are spatially separated in the Site Network, but a species uses both directly. It may be possible for one country to submit a single, multi-site nomination (i.e. a single nomination that includes multiple sites); but a single multi-site nomination that encompasses multiple jurisdictions (i.e. involving more than one country) might be difficult to achieve.

While a site that lies adjacent to, for example, foraging areas would clearly serve connectivity, the value of connectivity must be balanced with the importance of the sites being connected. The connection of sites, no matter how strong the connection, may not advance the objectives of the network if one of the sites is of low value.

The concept of connectivity also raises questions about the geographic scope of a given site where, for example, it might make sense to incorporate and manage a number of beaches as components of a single site, rather than treat them as separate, "connected" entities.

* * * * *

In a previous version of these Evaluation Criteria, a criterion was included to deal with the situation of degraded sites with capacity for rehabilitation which could be important for preventing the extinction of management units and promoting their eventual recovery. However, it was decided to remove that particular criterion for the time being, on account of a number of unresolved issues with the concept. While it is unlikely that Signatory States will prioritise the inclusion of degraded sites in the network, at least in the initial stages, it may be worthwhile flagging such sites for future consideration since they may eventually contribute to connectivity, representativeness etc.

Acknowledgements

The first version of these Evaluation Criteria was prepared by Dr. Eric Gilman, under contract to the IOSEA Secretariat, and subsequently refined by the Secretariat (Douglas Hykle) in consultation with the IOSEA Advisory Committee and other experts. A previous version benefitted from careful scrutiny and extensive comment from members of the Advisory Committee (Dr. Jack Frazier and Dr. Mark Hamann, in particular), as well as several external reviewers (Dr. Ben Lascelles, Dr. Kelly Macleod, Dr. Taej Mundkur, and Dr. Paul O'Neill). The current text incorporates a number of additional constructive changes proposed by the fourth meeting of the Western Indian Ocean – Marine Turtle Task Force (South Africa, December 2012). The Secretariat has endeavoured to incorporate as many of their suggestions and comments as possible, and has introduced numerous other refinements to the text, which has been significantly improved as a consequence.

Selected references

Bass, D, Anderson P & De Silva, N (2011) Applying thresholds to identify key biodiversity areas for marine turtles in Melanesia. *Anim. Conserv.* 14(1),1-11.

De Silva, N & Bass DK (2011) Nesting conservation priorities by geographic scale: preliminary lessons from the application of percent thresholds to the identification of Key Biodiversity Areas for Marine Turtles in Melanesia. *Anim. Conserv*.14(1), 16-17.

Edgar, GJ & Brooks, TM (2011). Testing absolute and percentage thresholds in the identification of key biodiversity areas *Anim. Conserv*. 14(1), 1-2.

Wallace BP, DiMatteo AD, Hurley BJ, Finkbeiner EM, Bolten AB, et al. (2010) Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales. PLoS ONE 5(12): e15465. doi:10.1371/journal.pone.0015465

Annex: DRAFT EVALUATOR RATING SHEET

Signatory State: _____ Site name: _____

Date evaluation concluded: _____

Evaluator(s): _____

**** * PLEASE REFER TO THE INSTRUCTIONS ON NEXT PAGE * ****

CRITERIA	SCORE RANGE	SCORE	SUB-TOTAL
I. Ecological and Biological Criteria			
EB1a. Turtle abundance (at nesting sites)*	**3 6 9 12 15**		
EB1b. Turtle abundance (foraging sites)*	**0 5 10 15**		
EB2. Species and/or management unit richness	**6 9 12 15**		
EB3. Presence of rare marine turtle species	**6 9 12**		
EB4. Resistance and resilience	**1 to 8**		
Sub-Total [*cf. Expected minimum category value = 18*]			
II. Governance Criteria			
G1. Legal framework	**1 to 8**		
G2. Conservation actions	**1 to 10**		
G3. Collaborative management, surveillance and enforcement	**1 to 8**		
G4. Research and monitoring	**4 6 8**		
G5. Sustainable human and financial resources	**1 to 8**		
Sub-Total [*cf. Expected minimum category value = 20*]			
III. Socio-economic and Political Criteria			
S1. Cultural importance	**1 to 6**		
S2. Compatible activities	**1 to 6**		
S3. Educational value	**1 to 6**		
S4. Existing recognition	**0 2 4 6**		
S5. National significance	**1 to 6**		
S6. Perceived ancillary benefits as a consequence of the site's inclusion in the network	**1 to 6**		
Sub-Total [*cf. Expected minimum category value = 15*]			
IV. Network-wide Ecological Criteria			
N1. Representativeness and replication	**1 to 4**		
N2. Ecological connectivity	**1 to 8**		
N3. Area	**1 3 6 9 12**		
Sub-Total [*cf. Expected minimum category value = 10*]			
GRAND TOTAL [*cf. Expected minimum total score = 75*]			

Instructions to Evaluators:

As seen throughout this document, the evaluation scales have values ranging from 0 to 15, together with descriptive text (particularly for the top and bottom end of the scale, and one to three values in between) to help guide evaluators. **In general, values can be assigned along the full continuum, and need not be restricted to the indicative values / descriptions shown in each scale.** Also, in exceptional cases, a zero value may be assigned when a particular criterion is not met at all.

However, the "Fixed Scales" associated with criteria EB1, EB2, EB3, G4, S4, and N3 are the exceptions to this general rule, as they do not accommodate intermediate or zero values.

Note in relation to Criterion EB1 (a/b): Where several species nest or forage at a single site, the score for the most abundant species is to be used, not the sum of scores for all of the species present. This is because species/management unit richness is evaluated under Criterion EB2.

Feedback to proponent (optional):

Recommendation to Meeting of IOSEA Signatory States, and final comments:

Resolution to Establish the IOSEA Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region

Adopted by the Signatory States at their Sixth Meeting (Bangkok, 2012)

Recalling that the IOSEA Marine Turtle Memorandum of Understanding encourages co-operative measures for the protection, conservation and management of marine turtles and their habitats throughout the Region;

Recalling further that the Tenth Meeting of the Conference of the Parties to the Convention on Migratory Species (Bergen, November 2011) adopted Resolution 10.3 on the role of ecological networks, which calls upon Signatory States to CMS Memoranda of Understanding to consider the network approach in the implementation of their instruments;

Recognizing the need to identify and promote the long-term conservation of sites of regional value for benefit of marine turtles and their habitats throughout the IOSEA region, while respecting existing national designations;

Appreciating the importance of coordinating efforts with the many other initiatives and programmes at various levels that provide for the designation and protection of sites of importance for biodiversity in the IOSEA region;

Acknowledging the substantial developmental work undertaken by the Secretariat, the Advisory Committee, and the Site Network Working Group to refine the site network proposal since the Fifth Meeting of the Signatory States (Bali, 2008);

Further recognizing the importance of the role of IOSEA in providing technical oversight and international legitimacy to cooperative conservation efforts in the region, and acknowledging the leading role of Signatory States in the designation and active management of sites of importance for marine turtles;

The Sixth Meeting of Signatory States to the IOSEA Marine Turtle Memorandum of Understanding:

1. Agrees to establish the IOSEA Network of Sites of Importance for Marine Turtles, as described in the annex to this resolution;

2. Requests the Advisory Committee to review and, as necessary, revise the Site Evaluation Criteria described in Document MT-IOSEA/SS.6/Doc. 7/Working Paper #2, prior to the submission of site nominations; and to draw attention to any further adjustments that may warranted in the course of using the criteria;

3. Requests the Secretariat to circulate to all Signatory States, by 31 May 2012, the revised Site Evaluation Criteria for final review and written comment by Signatory States no later than 31 July 2012; with a view to circulating a final version of the Site Evaluation Criteria by 31 August 2012;

4. Encourages Signatory States to begin preparing and submitting site nominations, as of September 2012 until six months prior to the Seventh Meeting of the Signatory States, tentatively anticipated to take place in the first half of 2014;

5. Agrees to consider, at the Seventh Meeting, recommendations of the Advisory Committee for the possible inclusion of network sites, to enable the network to be formally launched in 2014;

6. Decides to establish a steering committee to seek financial support for the implementation of the Site Network and to consider other operational issues that may arise inter-sessionally.

Guidance for the Establishment of a Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region

as adopted by the
Sixth Meeting of IOSEA Signatory States
Bangkok, January 2012

Secretariat of the Indian Ocean – South-East Asia Marine Turtle Memorandum of Understanding (IOSEA)

ACKNOWLEDGEMENTS

A major revision of the IOSEA Site Network proposal was developed and refined by Dr. Eric Gilman (consultant) and Douglas Hykle (IOSEA Co-ordinator) between April 2010 and May 2011. The contents have benefitted from review and comment by members of the Site Network Working Group established by the Fifth Meeting of IOSEA Signatory States, chaired by Alexis Gutierrez (United States); the IOSEA Advisory Committee; and other experts around the IOSEA region. The individual contributions of Ali Al-Kiyumi (Oman), Lee Butcher (Australia), Renato Cruz (Philippines), Dr. Jack Frazier (United States), Jillian Grayson (Australia), Dr. Mark Hamann (Australia), Dr. George Hughes (South Africa), Meera Koonjul (Mauritius), Dr. Ronel Nel (South Africa) and Francesa Marubini (United Kingdom) are gratefully acknowledged. The document has benefitted from further input and refinement by participants of the Sixth Meeting of IOSEA Signatory States (Bangkok, January 2012).

Executive Summary

The Signatory States to the *Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* (IOSEA Marine Turtle MoU) have considered options for the establishment and administration of a *Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region* (IOSEA Marine Turtle Site Network). The network will serve as a mechanism for sites to operate more cooperatively and synergistically, both ecologically and administratively, rather than working in isolation with minimal coordination.

The overarching goal of the IOSEA Marine Turtle Site Network is to promote the long-term conservation of sites of regional value for benefit of marine turtles and their habitats.

The IOSEA Marine Turtle Site Network objectives are to:

(i) Provide a regional mechanism to enhance the conservation of sites of importance to marine turtles;
(ii) Derive ecological and governance benefits that are not possible to achieve by managing individual sites in isolation;
(iii) Contribute, through enhanced regional conservation of marine turtles and their habitats, to more effective maintenance of ecosystem services that support human well-being; and
(iv) Catalyse opportunities for participatory resource management and community development centred on marine turtles, through network-wide information exchange.

A number of benefits arising from the site network are critical to achieving regional-scale objectives. These include:

- Optimal use of limited resources for governance. A fully functional network will coordinate available financial, technical and human resources to conduct common training, facilitate exchange of information on best practices, carry out joint research and monitoring, undertake performance evaluation, and encourage adaptive management;
- Enhanced local-to-global scale recognition of the importance of the networked sites, on the strength of a credible selection process. This in turn should catalyse increased support and resources for more effective site-based and regional management;
- Mitigation of adverse socio-economic impacts over a wider geographic scale. Activities incompatible with marine turtle conservation cannot be eliminated entirely, but such activities may be restricted at selected network sites in a way that diffuses adverse impacts across the wider region;
- Protection of ecological connectivity between habitats through strategic spacing and shape of sites; and
- Optimisation of regional resistance and resilience of marine turtle habitats to environmental stress. This will be achieved by including and managing sites containing marine turtle habitats necessary for different life cycle phases, by protecting multiple examples of each habitat type, and by including sites that act as refugia to current and predicted stress.

Countries will be invited to nominate turtle nesting beaches and adjacent areas considered to be important sites for marine turtles and, in doing so, will hopefully have an added incentive to secure additional resources and protection at the sites. However, provision of

additional resources is not a binding commitment or obligation upon joining the network. Site nominations must come from governments, to assure the highest level of recognition, but proposals can be drafted by other interested parties.

The need to prepare a baseline site assessment is the only fundamental requirement associated with site nomination. This exercise will be extremely valuable in and of itself, especially if one has never been conducted previously. In addition to helping identify constraints and management gaps, the assessment will lend credibility to the site selection process and will help to match potential donors to specific site needs.

Nominated sites will be recommended to the Meeting of IOSEA Signatory States for inclusion in the network based on an objective evaluation of each submission against a suite of criteria, to be conducted by the IOSEA Advisory Committee.

It is agreed that nominating a site to the network should not impose any new binding financial commitments or any new legal obligations on Signatory States. Beyond that, the structure and operation of the IOSEA Marine Turtle Site Network will depend largely on the financial resources made available for its development. Three possible models are presented to reflect different scenarios -- ranging from little or no new funding to substantial investment by interested donors.

* * * * *

This document serves to: (1) explain the rationale for the site network proposal; (2) present a draft suite of criteria against which to assess sites for possible inclusion in the network; (3) describe a process for site nomination and evaluation of candidate sites; and (4) present alternative approaches for coordinated governance of sites included in the network.

CONTENTS

1. BACKGROUND, PURPOSE AND BENEFITS OF AN IOSEA MARINE TURTLE SITE NETWORK

1.1. Background

The *Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* (IOSEA Marine Turtle MoU) is a non-binding framework under the Convention on Migratory Species through which States and organisations of the Indian Ocean and South-East Asia region, and other concerned States, are working together to conserve and replenish depleted marine turtle populations for which they share responsibility. The IOSEA Marine Turtle MoU took effect in September 2001 and has 33 Signatory States (as of December 2011). Supported by an Advisory Committee of eminent scientists and complemented by the efforts of numerous nongovernmental and intergovernmental organisations, Signatory States are working towards the collective implementation of a Conservation and Management Plan comprising 24 programmes and 105 separate activities.

Governments and numerous other organisations have undertaken marine turtle conservation activities in the Indian Ocean and South-East Asia region for many decades, allocating substantial financial, institutional and staff resources for this purpose. Impressive achievements have been realised on local, national and regional levels. The establishment of the *Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region* (IOSEA Marine Turtle Site Network) will serve to recognise these past efforts, while more effectively achieving regional-scale ecological and governance objectives that single protected sites cannot achieve in isolation.

The concept of a network of sites of importance for marine turtles has been under development for several years, having been introduced initially in 2004 at the second Meeting of the IOSEA Signatory States. While the development of the site network concept has progressed since the idea was first presented, divergent views persisted about several aspects of the proposal. Among the primary issues were: what would the governance structure of the network entail, how would sites be evaluated for inclusion and ultimately chosen, and what additional obligations, if any, would be required of governments. This document further elaborates these issues for consideration and discussion by the Signatory States.

The present initiative serves to:

- explain the rationale for the site network proposal;
- present a draft suite of criteria against which to assess sites for possible inclusion in the network;
- describe a process for site nomination and evaluation of candidate sites; and
- present alternative approaches for coordinated governance of network sites.

1.2. Context

The IOSEA region is host to six species of marine turtles: Loggerhead (*Caretta caretta*), Olive ridley (*Lepidochelys olivacea*), Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Leatherback (*Dermochelys coriacea*), and Flatback (*Natator depressus*). Across the region, there are several examples of decades-long conservation programmes whose management interventions have contributed to stable or increasing turtle populations. In addition, several countries can boast significant turtle populations that, if not still thriving, have remained resilient in the face of increasingly diverse and escalating human pressures.

However, many of the region's marine turtle populations have declined significantly, some having been almost eliminated. Various factors are thought to have contributed to

unsustainable turtle mortality, including: widespread and intense exploitation of eggs, meat and shell, fisheries-related mortality (by-catch), destruction and degradation of critical habitats, pollution, climate change, and inappropriate management practices. Consequently, where marine turtles were once a substantial economic and cultural resource in many parts of the IOSEA region, costly management interventions are now required to protect marine turtles and their habitats.

Marine turtles depend on diverse habitats at different phases of their life cycle, including suitable beaches for nesting and coastal waters for foraging and reproduction. Yet the importance of many of these coastal habitats – critical not only for marine turtles, but for a wide range of species as well as ecosystem services critical for human wellbeing – is often not recognised. Short-term economic interests trump restrictions necessary to ensure long-term sustainability.

A lack of awareness and understanding of the ecological and other values of these unique habitats may lead to inappropriate development of areas at the expense of coastal ecosystem integrity, as well as the conservation of marine turtles. In some areas marine turtles and their habitats may be protected on paper, through appropriate national legislation and regulations, yet the implementation of adequate conservation measures on the ground is often lacking. In either case, there are adverse impacts for the coastal communities that rely on the services provided by these ecosystems.

Protecting areas critical for the region's marine turtles will simultaneously yield a range of socio-economic benefits for people. Maintaining coastal water quality, protecting habitat used as nursery grounds for seafood species that support commercial and subsistence fisheries, and generally protecting mangrove and reef habitat in a way that reduces threats from coastal hazards – such as erosion, flooding, and strong wave action – is good for humans as well as turtles.

The overarching goal of the proposed IOSEA Marine Turtle Site Network is thus to promote the long-term conservation of sites of regional value for benefit of marine turtles and their habitats.

Site networks, a collection of individual sites operating cooperatively and synergistically, both ecologically and administratively, can achieve ecological and governance benefits that single protected sites cannot achieve in isolation. These include:

- Optimal use of limited resources for governance. A fully functional network will coordinate available financial, technical and human resources to conduct common training, facilitate exchange of information on best practices, carry out joint research and monitoring, undertake performance evaluation, and encourage adaptive management;
- Enhanced local-to-global scale recognition of the importance of the networked sites, on the strength of a credible selection process. This in turn should catalyse increased support and resources for more effective site-based and regional management;
- Mitigation of adverse socio-economic impacts over a wider geographic scale. Activities incompatible with marine turtle conservation cannot be eliminated entirely, but such activities may be restricted at selected network sites in a way that diffuses adverse impacts across the wider region;
- Protection of ecological connectivity between habitats through strategic spacing and shape of sites; and
- Optimisation of regional resistance and resilience of marine turtle habitats to environmental stress. This will be achieved by including and managing sites containing marine turtle habitats necessary for different life cycle phases, by

protecting multiple examples of each habitat type, and by including sites that act as refugia to current and predicted stress.

There are many other initiatives and programmes at various levels that provide for the designation and protection of sites of importance for biodiversity in the IOSEA region, including those of The World Heritage Convention, UNESCO's Man and Biosphere Programme, the Ramsar Convention on Wetlands, the Programme for the Red Sea and Gulf of Aden (PERSGA), and the Association of Southeast Asian Nations (ASEAN). IOSEA should coordinate with the aforementioned initiatives in the design and implementation of the IOSEA Marine Turtle Site Network.

1.3. Objectives

The objectives for the IOSEA Site Network are founded on the stated objective of the IOSEA Memorandum of Understanding, "to protect, conserve, replenish and recover marine turtles and their habitats, based on the best scientific evidence, taking into account the environmental, socio-economic and cultural characteristics of the signatory States," (IOSEA, 2009a). The proposed IOSEA Site Network is an important adjunct for fulfilling the six objectives of the IOSEA MoU *Conservation and Management Plan* (IOSEA, 2009b).

The objectives of the IOSEA Marine Turtle Site Network are to:

(i) Provide a regional mechanism to enhance the conservation of sites of importance to marine turtles that might otherwise not be adequately protected, that will attain additional benefits from being in a network irrespective of their current status, and that serve as regional models of effective governance;
(ii) Derive ecological and governance benefits that are not possible to achieve by managing individual sites in isolation;
(iii) Contribute, through enhanced regional conservation of marine turtles and their habitats, to more effective maintenance of ecosystem services that support human well-being; and
(iv) Catalyse opportunities for participatory resource management and community development centred on marine turtles, through network-wide information exchange.

2. SITE INFORMATION SHEET

The completion of a site information sheet is an important prerequisite for the nomination of a site to the network. It provides the justification for a site to be included in the network and is the basis upon which the merits of including a site will be evaluated by the IOSEA Advisory Committee. The sheet includes baseline information on the site; describes the current and/or planned management framework; and identifies any resources already committed or foreseen for management of the site.

The exercise of preparing such an assessment will be extremely valuable in and of itself, especially if one has never been conducted previously for the site. In addition to helping identify current constraints and management gaps, it will lend credibility to the site selection process and will help to match potential donors to specific site needs. A well-prepared site information sheet can also be used to assess management progress at regular intervals.

All site information sheets will be compiled in a searchable database that will be maintained on the IOSEA website for public viewing, thus providing another vehicle for publicising the importance of the site to the international community.

The outline of an *IOSEA Marine Turtle Site Network Information Sheet,* presented in Appendix 1, is adapted from existing site network materials from the Convention on Migratory Species (2007) and the Ramsar Secretariat (2009). In due course, a template will be prepared together with explanatory notes to facilitate the submission and processing of requested information.

3. NOMINATION AND EVALUATION PROCESS

Government agencies will nominate sites to become part of the IOSEA Marine Turtle Site Network by addressing a covering letter to the IOSEA Secretariat, accompanied by the required Site Information Sheet(s). Appendix 2 contains a template for a covering letter that a Signatory State Focal Point may use for this purpose. Nominations may be submitted to the Secretariat at any time, at least six months before the Meeting of Signatory States. Interested nongovernmental organizations, academic institutions and the private sector are encouraged to suggest sites for possible formal nomination by governments, and may assist governmental bodies in the preparation of the Site Information Sheet. However, the formal submission must be made by the national IOSEA Focal Point for the country in whose jurisdiction the site is located. In the longer term, it may be useful to encourage a sub-regional approach to both nomination and evaluation, in order to promote interaction among neighbouring countries as well as familiarity with the sites in question.

The IOSEA Advisory Committee will evaluate all site nominations against a suite of criteria, defined in Section 4. The Committee may call upon independent reviewers / local experts to assist in its evaluation, in cases where specialized expertise and knowledge about a particular site is lacking or where additional capacity is needed to deal with the number of submissions.

Whereas nominations may be submitted at any time, the Advisory Committee will review them only two times per year, for sake of efficiency and to facilitate relative comparisons across sites. These reviews will take place approximately 12 months and six months prior to the regular Meeting of IOSEA Signatory States.

The Advisory Committee will comment on the nominations, suggest any necessary amendments or improvements, and make recommendations to the Meeting of IOSEA Signatory States for inclusion or rejection based on the results of their assessment. The Secretariat will circulate the Advisory Committee's recommendations to IOSEA Focal Points no later than three months prior to the regular Meeting of the Signatory States.

Each Meeting of the Signatory States will have on its agenda the consideration of any new candidate sites, and will either endorse or reject the inclusion of a given site. When relevant, rejections may be accompanied by specific recommendations about what would be needed for the nomination to be approved.

4. CRITERIA TO EVALUATE THE INCLUSION OF SITES IN THE NETWORK

The suitability of including individual sites in the network will be assessed against a suite of criteria, which will help to assure minimum standards and add credibility to the selection process. This is necessary to ensure that the site network meets its rigorous ecological and socio-economic criteria, to promote effective governance of individual sites and the network at large, and to secure confidence among the donor community of the likelihood of success of initiatives conducted at individual sites, as well as network-wide activities.

The selection criteria are divided into four categories: Network-wide, Ecological/ Biological, Governance-related, and Socio-economic/Political. A weighting scheme is use to differentiate the relative importance of the various criteria. The maximum value assigned to each criterion determines its relative importance in the overall rating. Points are awarded against each criterion, up to its maximum value. For a site to be recommended for inclusion in the network, it must obtain a minimum score against *each* of the four categories, as well as a minimum *total score*.

This design is intended to allow sites that might be deficient in some areas still to be included in the network on the basis of their strengths in other areas, while setting a minimum standard for inclusion. The thresholds are also designed so that both sites with nesting beaches and sites with other habitats would be able to meet minimum thresholds.

A separate IOSEA Site Network Evaluation Criteria paper describes these criteria and the rationale behind them in more detail and defines, for each criterion, a scale that evaluators can use to assess more precisely the merits of a particular submission.

The IOSEA Advisory Committee will use the criteria to: (i) evaluate nominations of new sites; (ii) re-assess the rationale for continued inclusion of existing sites; and (iii) conduct gap analyses for the overall network to identify priorities for inclusion of additional sites. The Site Information Sheet (Appendix 1) provides all the information needed for objective assessment of nominated sites.

5. OPTIONS FOR NETWORKING SITES

It is agreed that adding a site to the IOSEA Site Network should not impose any new binding financial commitments or any new legal obligations on Signatory States. The three models presented below represent a continuum, with implementation measures and network coordination being largely dependent on available financial resources. Different levels of cost are associated with the alternative designs that can be envisaged. Combinations of aspects of the designs presented in these three alternatives are also feasible. Table 2 provides a summary of the continuum of networking activities possible under each of the three Models.

5.1. Model 1: Limited or No New Funding Available

Under this scenario of limited or no new funding, it may be difficult to achieve increased networking of sites. Nonetheless it is expected that regional and international recognition resulting from inclusion of sites in the network will help to raise their profile.

Each site will be inaugurated through a dedication ceremony, including provision of an IOSEA certificate to the Signatory State, and installation of appropriate signage identifying the site's inclusion in the IOSEA Marine Turtle Site Network. A dedicated page for each site will be created on the IOSEA website to publicise its main features. Emphasis will be given to identifying, as concretely as possible, the particular resource needs of each site. It is hoped that this increased attention may lead to additional funding that can be made available for conservation and management interventions at the site.

Even in the absence of significant new funding, ties can be developed among network sites – for example by twinning pairs or larger numbers of 'sister sites'. These sister sites can begin to coordinate their human, technical and financial resources with the aim of conducting collaborative staff training, outreach, monitoring, and management activities.

In the course of applying for inclusion in the network, a site manager and/or collaborators will have conducted basic field and desk research in order to prepare the IOSEA Site Network Information Sheet (Appendix 1). This will serve as a benchmark against which to measure progress and to guide adaptive management -- with a goal of maintaining and augmenting the long-term site-specific and network-wide values of the site. Analyses of ecological gaps in the network will help to guide its systematic growth, to ensure that it is achieving the desired objectives.

5.2. Model 2: Moderate New Funding Available

Under this scenario, new funding will be used to increase the networking of all sites through coordinated activities, including financial support to implement formal mechanisms for the coordination and sharing of technical, financial and human resources between subsets of sites in the network. Also under this scenario, new site management plans or improvements of existing plans will be developed for a number of 'model' sites. Available funding will also be used to undertake some prioritized interventions at these sites.

Site management plans will contain the following elements, some of which will have been documented already in the original site network nomination (thoseidentified below with an asterisk):

- Executive summary, covering essential issues and key decisions;
- Introduction, defining the site's contribution to the network, purpose of the plan, and legal basis, as appropriate, for the development of the plan;
- Statement of the goal and objectives for establishment of the IOSEA Network site, and its inclusion in the site network, categorizing these into short, medium and long-terms;
- Definition of the site's boundaries, and a geographic description of its setting and accessibility*;
- Baseline inventory descriptions of the site's resources, of relevance to decisions for the site's management*;
- Description of past and present types and levels of activities and resource uses*;
- Documentation of past and current threats to the site's resources*;
- Description of the site's existing legal and management framework*;
- Explore the potential for legal status, as appropriate, and integration in national planning framework;
- Description of stakeholder involvement in the site selection and planning processes and their planned continual involvement in implementation of all aspects of the management plan;
- Statement of policies, plans, actions, inter-agency agreements and responsibilities of individual agencies relevant to meeting the objectives of the protected site and to mitigate threats and conflicts;
- Zoning plan, if relevant, and definition of permitted and prohibited activities within each zone;
- Regulations, where appropriate, to implement the permitted and prohibited activities;
- Contingency plan for emergencies;
- Sustainable financing plan;
- Establishment of data collection/management systems using standardised protocols;
- Methodology for incorporation of results of monitoring, research, evaluation into planning;
- Negotiation, as appropriate, of agreements to achieve a sustainable level of traditional use of marine turtles through a collaborative management framework, that might also provide for alternative livelihoods;

- Process for the preparation of periodic performance assessment, workplans, and reporting;
- Plan for meeting reporting requirements and other obligations of being a component of the IOSEA Marine Turtle Site Network; and
- An assessment of the financial, human and physical resources required to establish and manage the protected site, including: staffing, equipment and facilities, training, budget, outreach and education, monitoring, research, rehabilitation, conservation interventions to address threats, surveillance and enforcement, performance evaluation and adaptive management.

5.3 Model 3: Substantial New Funding Available

Under this scenario, significant resources will be available to implement activities at individual sites and network-wide. Ideally, institutional donors will be attracted to make a major investment in the development and operation of the network, by committing substantial resources towards network-wide coordination activities and fundamental site-based activities, including: infrastructure development, human resource development and capacity-building, conservation interventions, community engagement and information sharing, and networking among sites.

Initial funding will be used to improve network coordination and to implement management plans at selected sites -- including a budget for subsequent infrastructure and human resource development, and activities to address priority threats to marine turtles and their habitats. Depending on the nature of the site and the amount of funding available, the following site-based activities are envisaged:

Infrastructure development:

- Construction or upgrading of visitor (information) centre;
- Construction of guard stations, as appropriate;
- Non-expendable equipment procurement and maintenance (e.g. for patrolling on land/sea); and
- Provision of standard beach-management kits (e.g. basic research, monitoring equipment).

Human resource development and capacity-building:

- Recruitment or (re-)assignment of personnel (manager, guards, community outreach/education/development specialists, researchers etc.);
- Specialised staff training (methodology, team building etc.);
- If eco-tourism activities are desirable, an eco-volunteer programme ;
- Acquisition of standard reference materials; and
- Staff exchanges with other network sites and related institutions.

Conservation interventions:

- Temporal or spatial restrictions on habitat use, as appropriate;
- *In-situ* nest (i.e. clutch/egg) protection; measures to minimise mortality from all sources and to maximise the production and survival of hatchlings;
- *Ex-situ* nest protection in accordance with defined protocol;
- Habitat restoration/rehabilitation, debris removal etc., as necessary;
- Mitigation of undesirable impacts at or near the site (lighting, vehicles, sand extraction, invasive predators, bycatch etc.);
- Research and long-term monitoring programme (on-site collection of biological and sociological data, genetics, tagging, pollution monitoring etc.); and

- Extraordinary re-introduction programme (e.g. egg exchange between rookeries), when necessary/appropriate, with adequate long-term experimental design and monitoring to measure outcomes (i.e. only as a last resort intervention, to test the efficacy of this approach).

Community engagement and information sharing:

- Education and awareness programme for defined audiences;
- Collaborative management framework, including incentives to involve local communities in benefit-sharing (e.g. managed eco-tourism, alternative livelihood development etc.);
- Initiatives to enhance community welfare (literacy, health projects etc.);
- Engagement of relevant nongovernmental and intergovernmental organizations;
- Information exchange with other network sites; and
- Sharing of data with national/regional/global databases (e.g. IMapS, OBIS).

Networking with other sites:

Participate in formal mechanisms for sharing resources with other sites, including training and implementation of standardized monitoring, sharing resources for surveillance and enforcement, and participating in "sister sites" programme.

Network sites targeted for substantial funding will be expected to designate, and preferably undertake to co-finance, a site manager before any disbursement of funds takes place. The site may already be under some form of management, in which case the existing manager could be co-opted to participate in the new framework; otherwise a new manager will need to be appointed for any new site. Disbursement of funds and administrative arrangements may vary from site to site, depending on the prevailing conditions.

Managers at each site in the network will participate in network-wide coordination of governance activities. Each site will also receive educational and technical materials; assistance in implementing a management plan; as well as support for research, monitoring, training, public outreach and educational activities.

Formal arrangements to institutionalize the networking of sites for all sites in the network will be developed and implemented within the funding available -- for instance, to provide for the exchange of information and personnel, and sharing of technical and financial resources for monitoring, surveillance, enforcement, staff training, etc.

Table 2. Potential activities for coordination and integration of sites under each of three scenarios for the IOSEA marine turtle site network.

Activity for networking marine turtle sites	Model 1 – Nominal New Funding	Model 2 – Moderate New Funding	Model 3 – Substantial New Funding
Preparation of a Site Network Information Sheet – providing an ecological and governance benchmark for the site	X	X	X
Issuance of IOSEA certification to designate inclusion of the site in the network	X	X	X
Design, production and installation of sigs identifying the site's inclusion in the network	X	X	X
Site profile page on a newly created Site Network section of the IOSEA website, focusing content to the donor community	X	X	X

Creation of 'Sister Sites' mechanisms to promote sharing of financial, technical and human resources	X	X	X
New or improved site management plans developed for a number of 'model' network sites		X	X
Establishment of ad hoc mechanisms for coordination and sharing of technical, financial and human resources (limited in scope)		X	X
Funding allocated for prioritized interventions at 'model' network sites		X	X
Establishment of more substantial mechanisms for network-wide coordination and sharing of technical, financial and human resources			X
Dedicated site managers appointed at selected sites to help implement coordinated network activities			X
Regional educational and technical materials prepared / distributed			X
Networked sites receive technical, financial and human resource assistance in implementing site management plans			X
Substantial and well-cordinated site-based activities are implemented across the network			X

5.4 Roles of the Signatory States, Advisory Committee and Secretariat

The respective roles of the Signatory States, Advisory Committee and Secretariat need to be elaborated in more detail, however the functional responsibilities may be summarised as follows:

Signatory States (individually, unless otherwise noted):

- Develop proposals for site nominations (i.e. prepare Site Nomination Sheets), in consultation with other interested partners. Focal Points are encouraged to discuss and coordinate nominations at the sub-regional level to facilitate coherence within the network.
- Formally submit the site nominations to the Secretariat, for sites located in their jurisdiction.
- Collectively decide whether or not to accept sites for inclusion in the network, taking into account recommendations made by the Advisory Committee.
- Make arrangements for the inauguration of newly listed sites, in collaboration with the Secretariat.
- Examine the potential for collaboration (e.g. twinning/sister-sites) with other sites, with a view to enhancing coordination and cost-effectiveness of conservation efforts.
- Consider the need and possibility to enhance the protection status of listed sites.
- Consider the possibility of increasing the funding available for the development of site management plans, as well as conservation interventions and research activities, at selected sites.
- Keep under review the operation of the site network, and consider proposals for further improvement.

Advisory Committee:

- Review and evaluate proposals for site nominations against the agreed selection criteria; suggest necessary amendments/improvements; and recommend acceptance or rejection of site nominations by the Meeting of Signatory States.
- Review the existing IOSEA Site Network on a periodic basis.
- Within the framework of the IOSEA Technical Support / Capacity-building programme, offer expert advice/technical support (e.g. at selected sites) upon request of Signatory States.
- Make recommendations for improving the operation of the site network.

Secretariat:

- Advise the Signatory States in the preparation and revision of site network proposals
- Coordinate the review process for the IOSEA Site Network.
- Issue IOSEA certification for newly listed sites and cooperate with Signatory States in inauguration activities.
- Develop and maintain a dedicated section of the IOSEA Website to publicise listed sites, including mention of additional resource needs.
- Encourage interested partners to suggest additional sites for inclusion in the network.
- Work with the Advisory Committee to develop technical/training materials suitable for use at network sites.
- Seek additional funding for implementation of activities at individual sites as well as network-wide interventions.

6. NEXT STEPS

This section briefly describes possible preparatory activities to occur in advance of the launch of the proposed IOSEA Marine Turtle Site Network, and components of the site network, for consideration by IOSEA Signatory States.

6.1. Preliminary Activities

IOSEA Signatory States will be invited to submit proposals of candidate sites from which initially up to ten regionally-balanced sites will be selected. The reason for initially limiting the number of sites included in the network is so that efforts are focused on establishing effective demonstration sites that can serve as models elsewhere. Through their national governments, NGOs (including environmental groups, academic institutions and the private sector) will be welcome to suggest possible sites for formal nomination by IOSEA Signatory States, and to assist in the preparation of relevant documentation.

Although the process of identifying appropriate sites for nomination should be rigorous, country-driven and involve a wide range of stakeholders, one may make use of reviews already undertaken in other fora to begin to draw up master lists of candidate sites, for preliminary consideration. A number of sources are readily available for consultation, and have been used to produce an indicative list of sites (Appendix 3). The indicative list has not been screened against the provisional suite of criteria presented in this document. It is merely a compilation of findings from other reviews to identify some areas of importance for marine turtles. The six IUCN Protected Area Categories, familiar to most protected area managers, may be of value in categorizing the sites that are eventually selected to form the network.

6.2. Criteria Validation

It will be constructive to include a continuum of sites in a validation exercise to assess the provisional suite of criteria, as well as the definitions and assigned weights. The criteria can be tested to confirm whether they meet best professional judgement for a range of sites: from those considered not belong in the network, to those that are understood to be of highest ecological importance and clearly warranting inclusion (e.g., relatively least-disturbed reference sites).

6.3. Gap Analysis

There is a need to conduct national and regional-level gap analyses to establish national and regional priorities for the nomination of new sites for the network. The suite of criteria as well as overarching goal and objectives, provide a framework against which to identify gaps in the site network.

6.4. Sustainable Financing

Under the hypothetical Model 3 scenario, IOSEA Signatory States and the Secretariat should seek up to five years of funding to support the initial formation of the site network, after which time the sites would be expected to be self-sufficient or maintained through direct government and other funding. Capital outlays would be expected to be highest in Years 1 and 2, and substantially less in Years 3-5, to cover ongoing operational costs.

Funding needs at site level will differ from site to site, and country to country, depending on local circumstances. In some countries, a site may already have protected status and conservation programmes and infrastructure in place, and will require funding only to meet incremental improvements. In other countries, a site may be designated that has never before benefited from protection, thus requiring substantial investment.

Conceptually, there are at least two ways of presenting the site network proposal to interested donors and partners:

(1) The proposal could be offered as a complete package to a major donor that is able to provide sufficient funding to cover the network development and coordination costs, as well as the operating costs of a certain number of sites (backed by matching funds, as necessary). Administration and disbursement of funds would be handled centrally, so that the donor would need to have only one point of reference. This approach may be attractive to donors that would like to support interventions in multiple countries, without necessarily having to administer the project funding through separate arrangements.

(2) Alternatively, multiple donors may be interested in and/or may have the means only to support activities in individual sites or countries, or certain aspects of implementation at particular sites. In this case, donors may prefer to deal directly with the site management, and each site will be responsible for the administration of funds received. To assure that funds are still available to cover the basic network development and coordination costs, a certain percentage of the site's budget should be allocated to the coordinating body. In this way, individual sites can participate in and receive support from the network, while paying their fair share of the associated development and coordination costs.

These two approaches are not mutually exclusive, and the network could embrace both of them simultaneously. To complement the funds provided by major external donors, several sources of matching funds are envisaged:

(1) Voluntary contributions from interested governments, towards the overall operation of the site network (not necessarily linked to a particular site);
(2) Financial and in-kind contributions from a site's host country; and

(3) Financial and/or in-kind contributions from interested non-governmental organizations (particularly those already working in the area or at the site), private sector, academic and research institutions, and communities adjacent to the site.

6.5. Performance Assessment and Adaptive Management

Once the site network is operational, the effectiveness of management interventions can be monitored employing a modified version of a tool for "Reporting Progress at Protected Area Sites" (Stolton, 2007). Performance assessments for the network and for individual sites should be conducted according to an established schedule and methodology. Monitoring data and other information from network sites should be shared and compiled to enable periodic evaluation of the efficacy of conservation interventions and to guide adaptive management.

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8. APPENDICES

Appendix 1. IOSEA Marine Turtle Site Network Information Sheet
Appendix 2. Generic Nomination Letter
Appendix 3. Indicative List of Potential Network Sites

APPENDIX 1. IOSEA MARINE TURTLES SITE NETWORK INFORMATION SHEET

The following text will be reformatted as a template, including text boxes and explanatory notes, to make the information easier to fill in and process.

1. **Date of submission:** The date on which the Site Information Sheet was completed.

2. **Name and address of compiler:** Name and contact information (including affiliation) for the person or people who prepared this information sheet, for formal submission through the national IOSEA Focal Point.

3. **Country:** The name of the country in which the site is located.

4. **Name of site:** The name of the site (alternative names should be given in brackets).

5. **Geographical coordinates:** The geographical coordinates (latitude and longitude) of the approximate centre of the site, expressed in 'decimal degrees' or 'degrees, minutes, and seconds'. If the site consists of two or more discrete units, the coordinates of the centres of each of these units should be given.

6. **General location:** A description of the general location of the site. This should include the site's distance (in a straight line) and compass bearing from the nearest "provincial", "district" or other significant administrative centre, town or city. The population of the listed centre and its administrative region should also be stated.

7. **Area:** The approximate area of the site to be included in the network (in hectares or square kilometers).

8. **Physical features of the site:** A short description of the principal physical characteristics of the site, including the marine turtle habitat types occurring at the site**.** List the ecosystem types included in the site (nesting beach, foraging habitat, reproductive habitat, migratory habitat) and the approximate area in hectares (or km^2) of each habitat type included.

9. **Ecological resources:** A short description of the ecological resources contained in the site, including noteworthy biodiversity (such as land and seascapes, ecosystem types to genetic stocks of populations).

10. **Socio-economic value:** A short description of the principal social values of the site, especially in relation to marine turtles (e.g., tourism, outdoor recreation, education and scientific research, agricultural production, grazing, water supply, fisheries production). Whenever possible, indicate which of these values are consistent with the maintenance of natural functional processes and ecological character, and which values are derived from non-sustainable exploitation or which result in detrimental ecological changes. Also, assess the future socio-economic potential of the site.

11. **Cultural/traditional importance**: Describe cultural values (e.g., historical associations and religious significance). Describe the relative national cultural/traditional importance of the site, particularly in relation to marine turtles.

12. **Jurisdiction:** The name of the government authority with: (a) territorial jurisdiction over the site, e.g. state, region or municipality etc.; and the name of the authority with (b) functional jurisdiction for conservation purposes, e.g., Department of Environment, Department of Fisheries, traditional owners, etc.

13. **Management authority:** The name, address and contact details of the body responsible for the direct local conservation and management of the site.

14. **Current protected status and governance framework:** Mention any nationally relevant protected area status, international conservation designations and, in the case of transboundary sites, bilateral or multilateral conservation measures which pertain to all or part of the site. If a protected area or reserve has been established, give the date of its establishment and size. If only a part of the site is included within a protected area, the area of marine turtle habitat that is protected should be noted. International designations may include sites listed under the World Heritage Convention, Man and Biosphere Reserve Network, other site conservation networks, etc. If appropriate, list the IUCN (1994) protected areas management category/ies which apply to the site.

15. **Land/ocean tenure/ownership:** Details of ownership of the site and ownership of surrounding areas (e.g., state, provincial, private, etc.). Explain any terms that have a special meaning in the country or region concerned.

16. **Current and past land/ocean uses and activities within the site:** Describe the current and past human activities and land uses within the site. Some indication of the relative importance of each form of land use should be given, whenever possible.

17. **Past and current factors adversely affecting the site's overall ecological character, as well as threats to marine turtles and their habitat at the site:** Describe the human and natural factors affecting the ecological character of the site, both within and in the vicinity of the site. These may include existing, new or changing activities/uses, major development projects etc., which have had, are having, or may have a detrimental effect on the natural ecological character of the site. For all adverse and change factors reported, supply measurable/quantifiable information (when such data exist), as well as information on the scale, extent and trend of the change factor and its impact. This information should provide a basis for monitoring of ecological character of the site.

18. **Conservation and management interventions taken:** Describe conservation and management interventions already taken at the site to address threats. Some of this information may have been recorded in abbreviated form in the IOSEA Site Data Sheets, available online (www.ioseaturtles.org/reporting).

    Describe the management planning process for the site, including any management plan, if this has been developed and is being implemented, including whether it has been officially approved. Describe any other conservation measures taken at the site, such as restrictions on development, management practices beneficial to wildlife, closures of hunting, etc. Include also information on any monitoring schemes and survey methods in place at the site. Indicate any other protected area designation that might already apply to the site (e.g. UNESCO status, nationally or regionally-designated MPA etc.)

    If the site is listed as a Ramsar site, mention if the site is included on, or has been removed from, the Montreux Record and provide details of any Ramsar Advisory Missions that have been undertaken to the site.

    Any application of coastal and marine spatial planning, or integrated coastal/marine zone management planning, involving or affecting the site should be noted.

    Provide a brief assessment of the effectiveness of protected area legislation or status of any protected areas whenever possible. Involvement of local communities and indigenous people in the participatory management of the site should also be described.

19. **Conservation interventions proposed, but not yet implemented:** Provide details of any conservation measures that have been proposed, or are in preparation, for the site, including any proposals for legislation, protection and management. Summarize the history of any longstanding proposals that have not yet been implemented, and differentiate between those proposals that have already been officially submitted to the

appropriate government authorities and those which have not as yet received formal endorsement, e.g., recommendations in published reports and resolutions from specialist meetings. Also mention any management plan that is in preparation but has not yet been completed, approved or implemented.

20. **Current / proposed scientific research and monitoring:** Describe any current and/or proposed scientific research and information on any special facilities for research. Describe past and current marine turtle monitoring activities at the site (e.g., tagging, satellite tracking, genetic sampling, surveys, ongoing beach monitoring, etc.). Where relevant, identify the number of years of monitoring that has occurred.

21. **Current / proposed communication, education, and public awareness activities**: Give details of any existing and/or planned programmes, activities and facilities for communication, education and public awareness, including training; and comment on potential opportunities for future educational and outreach activities of the site.

22. **Financial resources available for management of the site and other activities:** Identify financial resources (incuding in-kind contributions) available to address immediate and near-term costs, and financial resources available for longer-term sustainable financing.

23. **Additional resource needs at the site:**
Where specific needs are identified (e.g. skilled personnel, specialised training, facilities, field equipment etc.) indicate how marine turtle conservation activities are presently impaired on account of their unavailability (e.g. inability to carry out regular surveys, to conduct certain types of research, to monitor certain parts of the range etc.) This information may be useful for compiling a general picture of deficiencies and resource needs that could be presented to potential programme sponsors.

24. **References:** List key references relevant to marine turtle records and to the site, including management plans, major scientific reports, and bibliographies. When a large body of published material on the site is available, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies. Reprints or copies of the most important literature should be appended whenever possible. Provide web-site addresses of references where available.

25. **Site map:** The most detailed and up-to-date map of the site available should be appended to the Site Information Sheet in digital and/or hardcopy format. The ideal site map will clearly show the area boundaries of the site, scale, latitude, longitude and compass bearing, administrative boundaries (e.g., province, district, etc.), and display basic topographical information, the distribution of the main site habitat types and notable hydrological features. It will also show major landmarks (towns, roads, etc.). Indications of land use activities are especially useful.

    The optimum scale for a map depends on the actual area of the site depicted. Generally the map should have a 1:25,000 or 1:50,000 scale for areas up to 10,000 ha; 1:100,000 scale for larger areas up to 100,000 ha; 1:250,000 for areas exceeding 100,000 ha. In simplest terms, the site should be depicted in some detail. For moderate to larger sites, it is often difficult to show detail on an A4 sheet at the desired scale, so generally a sheet larger than this is more appropriate. While an original map is not absolutely necessary, a very clear image is highly desirable. A map exhibiting the above attributes will be more suitable for scanning.

APPENDIX 2. GENERIC NOMINATION LETTER

To:
IOSEA Marine Turtle MoU Secretariat
c/o UNEP Regional Office for Asia and Pacific
United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand

Reference number <insert number>
<Insert date>

Dear Sir/Madam,

Re: Nomination of a new site in <insert country name> for inclusion in the IOSEA Marine Turtle Site Network

<Insert country name> recognizes the importance of conserving marine turtles and their coastal habitats and wishes to participate in the Network of Sites of Importance for Marine Turtles in the Indian Ocean – South-East Asia Region (IOSEA Marine Turtle Site Network). established under the Convention on Migratory Species (CMS) Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (IOSEA Marine Turtle MoU).

It is my pleasure to nominate the following sites <insert name(s) of site(s)> to join this network in order to further the aim of conserving the region's marine turtles and their coastal habitats. The relevant Site Information Sheet(s) and Site Map(s) are attached.

I understand that this application will be reviewed by the Secretariat and the IOSEA MoU Advisory Committee, which may suggest certain amendments prior to its consideration by the next meeting of the IOSEA Signatory States.

Yours sincerely,

<**insert name**>
<**insert position, organization**>
<**insert contact details**>

Enclosures: Site Information Sheet
Site Map

APPENDIX 3. INDICATIVE LIST OF POTENTIAL NETWORK SITES

The following is an indicative list of sites, determined to be areas of importance for turtles (IOSEA, 2005). The following list does not purport to be comprehensive, nor does it make any judgment as to whether a particular site or area would meet the criteria for, or would benefit from, inclusion in the proposed IOSEA Marine Turtle Site Network. The geographic scope of many of the areas included in this list extends beyond what is envisaged for the site network. Non-Signatory States of the IOSEA Marine Turtle MoU, shown in italics, are included for illustration only.

Country	Name of site/area	Remark	Source **
South-East Asia + neighbours			
Australia	Commonwealth Waters: Coringa-Herald NR, Lohou Reef NR, Ashmore Reef, Field Island; Western Australia: ca. 15 sites identified; Cocos Keeling Island; Queensland: ca. 30 sites identified' Great Barrier Reef Marine Park Area: ca. 35 sites identified; Northern Territory: many sites, including ca. 10 specifically identified.	Multiple species; using nesting, feeding and developmental habitats.	1
Cambodia	ca. 30 specific islands and beaches identified in Sihanoukville and Kampot province	Nesting and feeding grounds	1
Indonesia	Raja Ampat region / Bird's Head Peninsula (Jamursba Medi Beach); Aru Islands	Includes region's largest leatherback turtle nesting site	2
Indonesia	Derawan Archipelago (Berau Islands) – Pulau Sangalaki, Pulau Sammana	Largest green turtle nesting rookery in SE Asia	2
Indonesia	Banda Sea/Lucipara cluster	Hawksbill turtles	2
Malaysia	Terengganu and Pahang States	Nesting leatherbacks (former times; almost extinct)	10
Malaysia/Philippines	Turtle Islands (Talang-Talang Besar, Talang-Talang Kecil and Satang Besar; Boan, Lihiman, Langaan, Great Bakkungan, Taganak, Baguan)	Important nesting sites for green and hawksbill turtles; migration corridor. Turtle Islands Heritage Protected Area in place since 1996.	2
Myanmar	Thamee Hla Island, Diamond and Little Coco Islands	Olive ridley turtles	3
Papua New Guinea	Kamiali Wildlife Area, Labu/Busama, Sio, Saidor, Talasea/Kilu, Madang/Long Island, Daru Island, Gasmata, Manus	Nesting and feeding areas	1
Philippines	Tubbataha-Cagayan ridge / Bastera and Beazley reefs	Important migration route for turtles	2
Philippines	Approx. 30 other specific nesting areas identified in Bataan, Zambales, Batangas, Palawan, Occidental Mindoro, Oriental Mindoro, Sorsogon, Catanduanes, Antique, Negros Occidental, Camiguin, Guimaras, Zambboanga de Sur, Davao City, Misamis Oriental, and Siregao del Sur	Mostly green and hawksbill turtles	1

Thailand	Gulf of Thailand: Kram Island, Kra Island; Andaman Sea: Phrathong Island, Khorkhao Island, Prapat Beach, Thaimuang Beach, Maikhaw Beach, Talibong Island, Similan Island	Nesting sites and feeding habitat, for mostly green and hawksbill turtles	1
Viet Nam	Con Dao islands (14 sites)	Green turtle nesting	6
Viet Nam	Nui Chua (Ninh Thuan), Quang Ninh to Kien Giang coastal areas, including Vinh Thuc Island, Minh Chau Beach, Bach Long Vy Island (Hai Phong), Phu Quy Island; Hon Gam-Ba Lang reefs		6,8
Various (disputed territory)	Spratley Island group	Marine turtle nesting site	
			Northern Indian Ocean
Bangladesh	St. Martin's Island, Sondia and Kutubdia Island, Enani Beach, Maurdarbari (Sundarban)	Mostly olive ridley, some green turtle nesting	1,3
India	Gahirmatha and Rushikulya beaches, Bahuda and Devi River mouths (Orissa), Krishna and Godavari River mouths (Andhra Pradesh), Tamil Nadu and Gujarat coasts, Kerala and Karnataka coasts, Andaman and Nicobar Islands, Lakshadweep Islands	Olive ridley, green and leatherback turtles migrating	2,3
Maldives	Nesting islands in most atolls: e.g. Haa Alifu (Mulhadhoo Island); Baa Atoll (Kunfunadhoo, Maadhoo Islands); Ari Atoll (Hukureulhi Island); Laamu Atoll (Gadhoo Island)	Green and hawksbill turtles (nesting/foraging)	2,9
Pakistan	Sindh (Hawkes Bay, Sandspit) and Baluchistan coasts	Olive ridley and green turtles nesting	3
Sri Lanka	Rekawa, Bandarawatta, Duwemodara, Kosgoda, Kahandamodara beaches etc (about 15 in total specifically identified)	Multi-species nesting beaches	1,7
			Northwestern Indian Ocean
Eritrea	Fatuma Island group	Green and hawksbill turtles reported	
Egypt	Red Sea Islands	Green and hawksbill turtles (nesting/foraging)	

Islamic Republic of Iran	Booshehr Province: Nakhiloo, Ommolkaram Islands, Nayband Bay; Hormozgan Province: Shidvar, Hendourabi, Queshm, Lavan, Kish, Hormoz Islands; Oman Sea area (Sistan and Baluchestan Province): Kratti, Tang, Pozm, Chabahar, Miami	Mostly green and hawksbill turtles	1
Jordan	Gulf of Aqaba		
Oman	Ras Al Hadd Cape, Masirah Island/Barr Al Hickman, Dimaniyat Islands, Al Hallaniyat Islands	Ras Al Hadd: most important green turtle rookery in Indian Ocean Masirah: largest loggerhead nesting grounds in the world	1,2
Qatar	Al Ruwais Island and east coast	Green turtles	3
Saudi Arabia	Ras Baridi, Karan and Jana Islands	Green turtles	3
Saudi Arabia	Jubail Marine Wildlife Sanctuary	Largest green and hawksbill rookery in the Gulf	2
Sudan	Suakin Archipelago, Mohammed Qol Islands		4
United Arab Emirates	Murawah Island – Bu Tini Shoals	Feeding populations of green turtles, nesting hawksbills	2
Yemen	Belhaf – Bir Ali coast; Socotra Archipelago	Important turtle nesting/feeding areas	2
			Western Indian Ocean
Comoros	Moheli, other specific islands/beaches	Mostly green turtle nesting	1,4,5
France	Europa, Tromelin, Glorieuse	Very high number of nesting green turtles	2,4,5
France	Mayotte archipelago	Approx. 35 beaches important for green and hawksbill nesting	4
Kenya	Approximately 25 specific nesting beaches identified, and other 7 areas identified as feeding grounds	Mostly green and hawksbill turtles feeding	1
Madagascar	Northwest/North: Nosy Sakatia, Nosy Iranja, Nosy Hara; Northeast/East: Masoala, Ile Sainte Marie; Southeast: Ankaramany, Enakao, Ibakoko, Eledrato, Anstsotso, Sainte- Luce, Evatraha; Southwest: Nosy Ve, Ifaty, Toliara	Green, hawksbill, loggerhead, olive ridley turtles	1,2
Mauritius	St. Brandon atoll, Caragados Carajas shoals, Agalega	Nesting and foraging habitat for green and hawkbill turtles	1,2,4
Mozambique	Mainland: south coast Maputo Bay - Ponta de Ouro, Inhambane, Inhassoro; Inhaca Island, Bazaruto Archipelago, Primeiras-Segundas Archipelago	Important nesting, foraging and developmental habitat for green turtles; other sites important for loggerhead and leatherback nesting	2,4
Mozambique	Mozambique channel	Important migratory	10

channel		corridor for all species of turtles in the region (especially greens, leatherbacks and loggerheads)	
Seychelles	Southern islands: Aldabra group (Aldabra/Asomption & Cosmoledo/Astove), Farquhar group (Farquhar & Providence/Cerf)	Important green turtle nesting, and foraging habitat for immature green turtles and hawksbills	1,4,5, 10
Seychelles	Amirantes (esp. D'Arros/St. Joseph, Poivre, Alphone/ St. Francois), Granitic islands (Aride, Bird, Cousin, Cousine, Curieuse, Ste Anne) and Platte & Coetivy	Important hawksbill nesting, and foraging habitat for immature hawksbills and green turtles	1,4,5, 10
Somalia	Bajuni	Nesting sites for olive ridley, green and hawksbill turtles	2
South Africa	KwaZulu-Natal coast: Maputaland Marine Reserve, St. Lucia Marine Reserve, Aliwal Shoal, Pondoland, Tsitsikamma Nature Reserve, Aghulas Bank	Mostly leatherback and loggerhead turtles	1,5
United Kingdom	Chagos Archipelago: Peros Banhos Atoll, Diego Garcia, Salomon Atoll, Egmont Atoll, Chagos Bank (Danger Island, Cow Island)	Hawksbill and green turtles nesting/feeding	1,2
United Rep. of Tanzania	Mafia Island; Zanzibar: Unguja, Pemba Islands	Hawksbill and green turtles nesting/feeding	

** Information sources:

(1) IOSEA Marine Turtle MoU National Reports (Australia, Bangladesh, Cambodia, Comoros, Islamic Republic of Iran, Kenya, *Madagascar*, Mauritius, Oman, Philippines, *Papua New Guinea*, Seychelles, *South Africa*, Sri Lanka, Thailand, United Kingdom)
(2) Proceedings of the 2002 World Heritage Marine Biodiversity Workshop (and related background papers: http://international.nos.noaa.gov/heritage) – UNESCO World Heritage Centre, 2003
(3) A Marine Turtle Conservation Strategy and Action Plan for the Northern Indian Ocean – IUCN, 2001.
(4) A Strategy to Conserve and Manage the Marine turtle Resources of the Western Indian Ocean Region, Mortimer, 2001
(5) A Marine Turtle Conservation Strategy and Action Plan for the Western Indian Ocean – IUCN, 1996.
(6) Vietnam's First National Workshop on Marine Turtle Conservation, 2001
(7) Classification of Marine turtle Nesting Beaches of Southern Sri Lanka (Amarasooriya, 2000)
(8) Proceeding of a Training Workshop (2-4 September 2002) on Marine turtle Research, Biology and Conservation in Cambodia, 2004
(9) Maldives Marine Research Bulletin, 2000
(10) Personal communication (J. Mortimer)