Lepidochelys olivacea, Olive Ridley


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Taxonomy

<table>
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<td>Reptilia</td>
<td>Testudines</td>
<td>Cheloniidae</td>
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</table>

Taxon Name: *Lepidochelys olivacea* (Eschscholtz, 1829)

Synonym(s):
- *Chelonia olivacea*

Common Name(s):
- English: Olive Ridley, Pacific Ridley
- French: Ridley du Pacifique, Tortue Bâtarde, Tortue de Ridley, Tortue Olivâtre
- Spanish: Tortuga Carpintera, Tortuga Golfina, Tortuga Guaraguá, Tortuga Lora, Tortuga Manila, Tortuga Mulato, Tortuga Olivacea, Tortuga Parlama

Assessment Information

Red List Category & Criteria: Vulnerable A2bd ver 3.1

Year Published: 2008

Date Assessed: June 30, 2008

Justification:

Assessment procedure

In accordance with the IUCN guidelines for Red List Assessments, the focus of this evaluation has been the number of mature individuals (IUCN 2001). For Olive Ridleys, as with other sea turtle species, as it is not possible to survey mature individuals we used an index of abundance in the form of the number of annual nesting females. Although not all females breed every year (see section on Reproduction below) and males are not evaluated, this index is considered to be the most reliable estimator for long-term population trends of marine turtles since the proportion of the total number of females that nest in any given year and the sex ratio is believed to be fairly constant across time within and between subpopulations (Meylan 1982, Limpus 1996).

Direct counts of the number of nesting females (NF) are not always available so we also relied on alternative information that can be converted to NF: number of nests per season, nests/km/yr or number of protected nests per season; annual estimates of hatching or egg production, or census estimates of nesting females from arribada rookeries. When these proxies were used, the counted units were converted to NF based on the following constants: 105 eggs/nest and 2.5 nests/season/female. Some conservation programs reported annual number of protected nests but did not include the quantity of poached or otherwise destroyed or predated nests. For these cases we extrapolated to the total number of nests based on local estimates of conservation efficiency. All conversions to NF were made under the assumptions that (a) the mean number of eggs/nest and the number of nests/female/season do not differ significantly over the timescales we have used; and (b) the effort and the coverage of the biological parameters we used are reasonably constant through the time frame evaluated. In cases where the different surveys involved different levels of coverage, explicit corrections...
were made and specified in the result tables.

In spite of the Olive Ridley being the most abundant sea turtle, available quantitative information is extremely scarce and unevenly distributed across regions. We thus relied on a subset of the world’s rookeries which, we assume, exhibit population trends that are representative of the population as a whole or, at least, for each of the regions. We selected 28 Index Sites (see Figure 1 and Table 1 in the Supplementary Material, see below) for which reasonably long time series of quantitative data are available. They include all the largest known populations, as well as an assortment of smaller rookeries from almost all of the regions where the species is found. All sites are assumed to be demographically independent. However, although genetic data indicate a high degree of inter-rookery migration between some rookeries (e.g., Brazil-Suriname- Bowen et al. (1998); between México to Central America in the Eastern Pacific- Briseño-Dueñas (1998)) the results reflect events within an evolutionary timescale (many generations). Within the time span relevant to the assessment (two to three generations), available evidence suggests significant demographic independence between the pairs of rookeries in question (e.g., mark-recapture in Nancite and Ostional indicate the vast majority are different turtles-reviewed by Bernardo and Plotkin (2007); absence of exchange by tagged turtles and non-overlapping nesting seasons Brazil vs Suriname/French Guiana- de Silva et al. (in press); and the lack of re-colonization of depleted arribadas in Jalisco and Guerrero in México by the very large Escobilla rookery, 500 to 1,000 km distant in over four decades).

The population abundance estimates were based on raw data or on extrapolations from regressions performed on available data. As the relatively data-rich trends consistently indicated exponential trajectories we relied on these as the method of choice for extrapolations. Some data sets contained a number of trajectories across the time frames employed and in these more than one regression was employed or a combination of regressions and raw data. We have constrained our back extrapolations to time spans close to known historical events that are believed to have defined major abundance changes in order to avoid gross exaggerations with no supporting evidence. This has, however, meant that in some cases the extrapolations have only been performed back two generations (40 years) and could be considered underestimates of decline.

Uncertainties in the assessment process

Calculations based on very different datasets obtained by different workgroups, using multiple survey methods and spanning many decades are fraught with uncertainties. A number of these could be biasing our assessment. (1) Combining abundance information for individual rookeries obtained with a number of different methodologies could provide a source of error. However, we believe that the magnitude of these errors is of minor significance to the final declines estimated. (2) Because of the assessment’s requirement for quantitative information, a very small proportion of the total known rookeries were included, and some regions are not well represented. The bias this introduces is further augmented since it is most likely that rookeries having long time series of data are also the most monitored and hence the better protected. In this case the estimates of decline will be underestimated relative to the true trends for the more numerous and less well monitored/protected rookeries. This is likely the case for regions with little (Indian Ocean and Western Pacific Ocean) or no (entire Eastern Atlantic) representation in our assessment that contribute very little to our global decline values yet where reports with qualitative evidence indicate extensive population declines (reviewed by Frazier et al. 2007, Cornelius et al. 2007). Nonetheless, although ideally a global assessment should incorporate full data from all regions to derive robust evaluations, the available information on the geographic
distribution of abundances suggests that the largest rookeries are concentrated in regions with good representation and thus their inclusion will not significantly affect the global results. This is reflected at the regional level and in results for non-arribada rookeries where our sample bias will probably have caused an underestimation of true decline levels. (3) The extent of extrapolations into time past is an aspect that will undoubtedly contribute to the uncertainty of the results, particularly with scarce information. We have avoided extrapolating far beyond the oldest datasets to avoid this type of errors and thus consider that our results are conservative.

**Rationale for the Red List Assessment:**

In spite of scarcity in historical data, information from diverse sources has made it possible to evaluate a global decline for this widely distributed species over time periods ranging from decades to 2-3 generations. Striking regional differences are observed in the estimations that undoubtedly indicate far lower survival probabilities in some of the regions than what the global results would suggest.

There was also a stark and recurring contrast between the decline estimates for subpopulations grouped according to breeding strategy- arribada or non-arribada (solitary). The global decline rate estimated from non-arribada subpopulations (-63 to -83%) reflects a widespread low conservation status for these types of subpopulations that suggests they haven't recovered to historical (pre 1960) levels even in regions with long-term protection programs (e.g., over four decades in México) in spite generalized increments over the last decade (Márquez et al. 1998). This needs to be highlighted because rookeries with non-arribada behavior are many times more numerous than those that nest as arribadas (e.g., in México about 98% of Olive Ridley subpopulations are non-arribada). Yet, as their abundances are up to three to four orders of magnitude smaller than arribada rookeries, they have an insignificant influence on the global decline estimates. In fact, the global net decline for the Olive Ridley is driven principally by population trends in just two arribada populations, Escobilla (México) and Ostional (Costa Rica), both in the Eastern Pacific.

The global decline value estimated on the basis of estimated population reductions of the annual number of Olive Ridley nesting females at subpopulations in the Index Sites used ranged between 31 and 36% (see Table 3 in the Supplementary Material, see below). As most of the back extrapolations were limited to two generations it is likely that this value is conservative.

When deciding whether to apply Red List decline criterion A1 (the causes of reduction are clearly reversible AND understood AND ceased) or A2 (the causes of reduction may not have ceased OR may not be understood OR may not be reversible) to obtain decline thresholds for the listing process three characteristics of the species' decline need to be analyzed (SPWG 2006): (1) is the reduction reversible?, (2) are the causes of the reduction identified and understood?, and (3) have the threatening factors ceased? Since the decline estimated is driven by result from arribada rookeries, the questions need to be addressed against what is known for these types of populations. While it would appear that the elimination of large scale commercial exploitation of the Olive Ridley for leather and local consumption has allowed for the stabilization of a significant portion of rookeries, particularly in the Eastern Pacific and in particular facilitated the growth of arribada rookeries such as Escobilla and Ostional, the population growth of Mismaloya, Tlalcoyunque and Chacahua in the same region and under similar conservation circumstances remain at reduced abundances well below an arribada category. This could indicate that under some circumstances, the reduction of arribada rookeries below a certain level can make it impossible or unlikely for it to recover an arribada behavior. The major cause for the reduction

http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T11534A3292503.en
in the species is thought to have been the massive commercial over-exploitations, particularly in the Eastern Pacific. Furthermore, we do not yet fully understand nor are able to manage other stressors, some intrinsic or at least due to interactions between the overcrowding of growing populations that equally provoke dramatic declines in arribadas such as that of Nancite in spite of decades of protection (Cornelius et al. 2007). Though commercial exploitation of Olive Ridleys for international markets has effectively been eliminated, at local levels significant factors continue to impact individual rookeries such as excessive egg exploitation (e.g., Isla Caña, Panama) or bycatch (such as in Orissa, India). These examples indicate that Olive Ridleys, under current circumstances, do not meet all of the conditions for A1 and hence should be evaluated under criterion A2.

Under A2, the decline estimations obtained for the Olive Ridley Turtle at a global scale correspond to the Vulnerable IUCN Red List threshold (a decline of >30% but <50%).

For further information about this species, see Supplementary Material.

Previously Published Red List Assessments
1996 – Endangered (EN)
1996 – Endangered (EN)
1994 – Endangered (E)
1990 – Endangered (E)
1988 – Endangered (E)
1986 – Endangered (E)
1982 – Endangered (E)

Geographic Range

Range Description:
The Olive Ridley sea turtle has a circumtropical distribution, with nesting occurring throughout tropical waters (except the Gulf of Mexico) and migratory circuits in tropical and some subtropical areas (Atlantic Ocean – eastern central, northeast, northwest, southeast, southwestern, western central; Indian Ocean – eastern, western; Pacific Ocean – eastern central, northwest, southwestern, western central) (Pritchard 1969). Nesting occurs in nearly 60 countries worldwide. Migratory movements are less well studied than other marine turtle species but are known to involve coastal waters of over 80 countries (see Table 1 in the Supplementary Material, see below). With very few exceptions they are not known to move between ocean basins or to cross from one ocean border to the other. Within a region, Olive Ridleys may move between the oceanic and neritic zones (Plotkin et al. 1995, Shanker et al. 2003) or just occupy neritic waters (Pritchard 1976, Reichart 1993).

For further information about this species, see Supplementary Material.

Country Occurrence:
Native: Angola (Angola); Antigua and Barbuda; Australia; Bangladesh; Benin; Brazil; Brunei Darussalam;
Cambodia; Cameroon; Cape Verde; Chile; Colombia; Congo; Costa Rica; Côte d'Ivoire; Cuba; Dominican Republic; Ecuador; El Salvador; Equatorial Guinea (Bioko); Eritrea; French Guiana; Gabon; Gambia; Ghana; Guadeloupe; Guatemala; Guinea; Guinea-Bissau; Guyana; Honduras; India (Andaman Is., Nicobar Is.); Indonesia; Iran, Islamic Republic of; Jamaica; Japan; Kenya; Liberia; Madagascar; Malaysia; Maldives; Martinique; Mauritania; Mexico; Micronesia, Federated States of; Morocco; Mozambique; Myanmar; Namibia; Nicaragua; Nigeria; Oman; Pakistan; Panama; Papua New Guinea; Peru; Philippines; Puerto Rico; Sao Tomé and Principe (São Tomé); Senegal; Sierra Leone; Somalia; South Africa; Sri Lanka; Sudan; Suriname; Taiwan, Province of China; Tanzania, United Republic of; Thailand; Togo; Trinidad and Tobago; United States (Hawaiian Is.); Uruguay; Venezuela, Bolivarian Republic of (Venezuela (mainland), Venezuelan Antilles); Viet Nam; Yemen

**FAO Marine Fishing Areas:**

**Native:** Atlantic - eastern central, Atlantic - southeast, Atlantic - southwest, Atlantic - western central, Indian Ocean - eastern, Indian Ocean - western, Pacific - eastern central, Pacific - southeast, Pacific - southwest, Pacific - western central
Distribution Map

Lepidochelys olivacea

Range
- Extant (resident)

Compiled by: IUCN

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

The boundaries and names shown and the designations used on this map do not imply any official endorsement or acceptance by IUCN.
Population
For the purposes of Red List assessments, generation length is defined as the “average age of parents” (IUCN 2001). Since this information is not available from direct observation of sea turtle species, we derived a comparable value from estimates of age at which 50% of the breeders are expected to have survived, using information for age at sexual maturity and adult survival rates. An important caveat is that, while it is known that different populations of the same species can attain sexual maturity at different ages (Heppell et al. 2003) and therefore different values would need to be taken into account for different regions, the information is only available for a single region and we have had to assume the estimated values are generally applicable on a global scale. The only published study on growth and age for Olive Ridleys (Zug et al. 2006) indicates a mean age at sexual maturity for North-central Pacific Ridley sea turtles of around 13 years (range of 10-18 years). We calculated the time it would take for a cohort of breeders to reach 50% of its original size from $S_n = 50\%$, where $n$ is years since age at first reproduction, and $S$ is annual survival. Solving for $n$, $n = \ln(0.5)/\ln(S)$. As extensive estimates of annual survival rates for female nesters are only available from the better studied sister taxon, Lepidochelys kempii, (TEWG 2000) we used these, which have a range of 85-92% per year. Thus, $n_{50\%} = 4-9$ yrs and our derived average age of female Olive Ridley parents is 17-22 years. We additionally assumed that this value would be the same for male parents. For simplicity, we have used a value of 20 yrs for the species’ generation length in this assessment.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)
Habitats
Like most other sea turtles, Olive Ridleys display a complex life cycle, which requires a range of geographically separated localities and multiple habitats (Márquez 1990). Females lay their nests on coastal sandy beaches from which neonates emerge and enter the marine environment to continue their development. They remain in a pelagic phase, drifting passively with major currents that disperse far from their natal sites, with juveniles sharing some of the adults’ habitats (Kopitsky et al. 2000) until sexual maturity is reached (Musick and Limpus 1997). Reproductively active males and females migrate toward coastal zones and concentrate near nesting beaches. However, some males appear to remain in oceanic waters and mate with females en route to their nesting beaches (Plotkin et al. 1996, Kopitsky et al. 2000). Their post-breeding migrations are complex, with pathways varying annually (Plotkin 1994) and with no apparent migratory corridors, swimming hundreds or thousands of kilometers over large ocean expanses (Morreale et al. 2007), commonly within the 20°C isotherms (Márquez 1990). In the East Pacific, they are present from 30°N to 15°S and often seen within 1,200 nautical miles from shore although they have been sighted as far as 140°W (IATTC 2004). Western Atlantic Olive Ridleys appear to remain in neritic waters after breeding (Pritchard 1976, Reichart 1993).

Demographic features / Reproduction
The species displays three modes of reproduction: arribada, dispersed nesting, and mixed strategy (Bernardo and Plotkin 2007). The first mode represents a synchronous, mass nesting behaviour that may include hundreds to thousands of females over a period of days and occurs in fewer than a dozen places worldwide. The more common form of nesting is dispersed or “solitary” with no apparent synchronicity between individual events. At some localities, a mixture of these two forms of nesting can also occur. In general, individual Olive Ridleys may nest one, two or three times per season, with approximately
100–110 eggs per clutch (Pritchard and Plotkin 1995). For this assessment we have used an average number of 2.5 nests/female/season and 105 eggs/nest. In contrast to other sea turtle species, the reproductive cycle is nearly annual (over 60% of turtles nest every year; Márquez 1990). Solitary nesters oviposit on 14 day cycles whereas arribada nesters approximately every 28 days (Pritchard 1969, Kalb and Owens 1994, Kalb 1999). Kalb (1999) found that within a nesting season solitary nesters use multiple beaches for oviposition but arribada nesters display nest site fidelity. There are extreme variations in hatching rates between nesting beaches, however, in general they are much higher in solitary nesting beaches where around 80% is common and sometimes even higher (Gaos et al. 2006). It is widely recognized that survivorship is extremely low on high-density arribada nesting beaches because of density-dependent mortality (Cornelius et al. 1991) leading to hatching rates as low as 1 to 8% (Cornelius et al. 1991). Moreover, turtles return approximately every month during a discrete nesting season (three to six months) and nests that remained intact during the previous month are again at risk when new waves of turtles crawl ashore. On solitary nesting beaches, where density-dependent mortality is not a factor, hatching rates are significantly higher (Castro 1986, Gaos et al. 2006). Post-hatching survivorship is unknown and there is no information available on recruitment rates. Presumably, like other sea turtles, Olive Ridleys experience high mortality in their early life stages. Juveniles are believed to occur in similar habitats as the adults (i.e., pelagic waters) where they forage on gelatinous prey such as jellyfish, salps and tunicates (Kopitsky et al. 2004).

**Systems:** Terrestrial, Marine

**Threats (see Appendix for additional information)**

Like other long-lived species, Olive Ridleys are prone to population declines because of slow intrinsic growth rate in combination with anthropogenic impacts. These can accumulate over a protracted development through various life stages, multiple habitats (nesting beaches, migratory routes and pelagic foraging zones) and vast geographic expanses.

**Targeted exploitation**

Egg harvest. Olive Ridleys and their eggs have been harvested, mostly unsustainably, worldwide. However, the current impact is difficult to evaluate because of other simultaneous factors such as incidental take in commercial fisheries. Nonetheless, there is documentation of recent egg use causing declines (Cornelius et al. 2007). From México to Colombia, Olive Ridley eggs have been and still are used for personal and commercial use (Lagueux 1989, Arauz 2000, Campbell 2007, Cornelius et al. 2007). Laws regulating turtle egg use vary among countries, and even where laws prohibit egg use, illegal use of Olive Ridley eggs is believed to be widespread because enforcement is either non-existent or insufficient. On unprotected solitary nesting beaches (most are unprotected), egg extraction often approaches 100%. Human use of turtle eggs for consumption and domestic animal consumption historically was widespread in the Indian Ocean and continues today largely wherever Ridleys nest (Cornelius et al. 2007). Egg use has been reported in India, Bangladesh, Myanmar, Sri Lanka, Andaman Islands, Pakistan and Malaysia and is believed to have caused the decline of Olive Ridleys in these countries (Cornelius et al. 2007). Even at monitored beaches a proportion of the eggs are still lost to poaching.

Directed take of adults. In the East Pacific, although Olive Ridley turtle fisheries are now closed, illegal take of adult turtles still occurs widely with an unknown level of impact. There is evidence that thousands of Olive Ridleys are still taken each year along the Pacific coast of México (Frazier et al. 2007).
In the West Atlantic, the direct take of adults has diminished over time to negligible levels (Cornelius et al. 2007). In the Indian Ocean, the use of adult Olive Ridleys and their eggs for personal use has been and continues to be widespread (Frazier 1982, Frazier et al. 2007), and market-driven harvesting of eggs and females from nesting beaches are considered the greatest threat (Cornelius et al. 2007). Personal, subsistence use of adult Olive Ridley turtles is widespread worldwide (Cornelius et al. 2007, Frazier et al. 2007). Olive Ridleys and/or their eggs are used along the entire coast of West Africa (including Macaronesia) and sold in local and regional markets (Fretey 2001).

**Bycatch in fisheries**

The incidental capture of Olive Ridleys occurs worldwide in trawl fisheries, longline fisheries, purse seine, gill net and other net fisheries and hook and line fisheries (Frazier et al. 2007). The impact of the incidental capture of Olive Ridleys in fisheries has been well documented for some regions but not for others. In some locations where by-catch statistics are unavailable from fisheries, cause and effect has been used to implicate a fishery in the decline of Olive Ridleys. The incidental capture of Olive Ridleys in the shrimp trawl fishery in the western Atlantic, is believed to be the main cause of the significant population decline observed there since the 1970s and currently the number of Olive Ridleys by caught in trawl fisheries off the coasts of Surinam and French Guiana is believed to be approximately a couple of thousand turtles annually (Godfrey and Chevalier 2004, Frazier et al. 2007). Gillnets and other fishing methods in this region also capture Olive Ridleys incidentally but to a lesser extent than shrimp trawl fishery (Frazier et al. 2007). Bycatch in trawl fisheries off Sergipe State in Brazil is considered the most pressing threat to that population (Thomé et al. 2003). In the eastern Atlantic, the incidental capture of Olive Ridleys by commercial fisheries is thought to be a significant threat but very little systematic data is available (Frazier et al. 2007). Incidental mortality of Olive Ridleys is worst along the coast of Orissa, India with arribada Olive Ridleys gathering to nest were fishing effort is high. Every year since the early 1980s, thousands or tens of thousands of Olive Ridleys have stranded dead on the Orissa beaches, presumably as a result of incidental capture in shrimp trawls (Pandav 2000). A gill net fishery also operates in the region and contributes to the ridley mortality along this coastline. Incidental capture in fisheries is also believed to be a serious threat in the eastern Pacific (Frazier et al. 2007) where Olive Ridleys aggregate in large numbers off shore from nesting beaches (Kalb et al. 1995, Kalb 1999), but the information available is incomplete (Pritchard and Plotkin 1995, NMFS/USFWS 1998). Incidental capture of Olive Ridleys in this region has been documented in shrimp trawl fisheries, longline fisheries, purse seine fishery and gill net fisheries (Frazier et al. 2007). Incidental capture of sea turtles in shrimp trawls is a serious threat along the coast of Central America, with an estimated annual capture for all species of marine turtle exceeding 60,000 turtles, most of which are Olive Ridleys (Arauz 1996). Recent growth in the longline fisheries of this region are also a serious and growing threat to Olive Ridleys and have the potential to capture hundreds of thousands of Ridleys annually (Frazier et al., 2007). Bycatch of Olive Ridleys is high in Indonesian tuna long-lines and shrimp trawls although mortality appears to be low (WWF Indonesia, unpublished data).

**Habitat impacts**

Degradation, transformation and destruction of natural conditions at nesting beaches from coastal developments continue to threaten the long-term survival of many Olive Ridley rookeries. Transformation of nesting habitat comes from the construction of new aquaculture ponds, fishing harbours and tourist facilities, as well as growth of existing coastal villages which are increasing in many parts of the world within the range of the Olive Ridley, particularly along the east coast of India (Pandav and Choudhury 1999) and in some zones in coastal México to Central America (Cornelius et al. 2007).
These impacts contribute stress directly through the loss of nesting habitat or indirectly through changes in the thermal profiles of the beach, increased light pollution (Witherington 1992) and sewage effluents.

Global warming has the potential to impact the habitats and ecosystems of Olive Ridley populations worldwide (Hays et al. 2003, Weishampal 2004) but the specific impacts are purely speculative at this time. Most accounts have focused on the impact of global warming on incubation temperatures of eggs, which influence the sex ratio of the embryos (Hays et al. 2003).

Diseases and predation
Extremely little is known about diseases and their effects on Olive Ridley abundance. The only disease identified in the literature for Olive Ridleys is fibropapilloma, a herpes-virus found in sea turtles nearly worldwide (Herbst 1994). The incidence of fibropapilloma is not believed to be high in Olive Ridleys but has been observed in Olive Ridleys nesting in Costa Rica (Herbst 1994) and in México (Vasconcelos et al. 2000). At some individual rookeries, the predation by wild pigs and/or feral dogs can be substantial (e.g., in the Andaman Islands; Andrews et al. 2001). Infestation of developing eggs by fly and beetle larvae can cause significant mortality of embryos. In an extremely worrying case, the beetle larvae (*Omorgus suberosus fabricius*) has become a plague in the world’s largest arribada rookery in Escobilla, México where it is provoking steep drops in the hatching efficiency of the clutches laid, from a typical 30% for this colony (Márquez 1990) to less than 5% in some areas (López-Reyes and Harfush 2000). When combined with the relatively low hatching rates of high-density arribada beaches and the destruction of eggs laid by previous nesters, this problem could provoke the rookery’s decline.

Conservation Actions (see Appendix for additional information)
Most of the conservation actions on behalf of the Olive Ridley at national and international levels have been based on the species’ listing under the Endangered category in the IUCN Red List. As an Appendix I species under CITES (Convention on International Trade in Endangered Species) the international trade of skins from the species, which fuelled the large scale commercial exploitation of the Olive Ridley from the 1960s into the 1980s was effectively halted. Other relevant international instruments that list the Olive Ridley as threatened and hence obligate its conservation by member states include: the Convention on Migratory Species (CMS) and the Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC). CMS-promoted Memoranda of Understanding for the conservation and management of marine turtles and their habitats have been signed by the Olive Ridley’s range states in the Indian Ocean and South East Asia (known as IOSEA) as well as in other regions such as the Atlantic Coast of Africa under the Memorandum of Understanding concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa where 21 out of 26 range states participate.

On the basis of the species’ classification in the IUCN Red List or in national endangered species lists, local legislatures of range states confer protection to the Olive Ridley. Although this sanctions law-enforcement, the implementation remains patchy at the global scale because of paucity in enforcement capabilities. Successful conservation has usually relied on well-coordinated national programs in combination with local and non-governmental organizations incorporating public outreach. Statutory use and enforcement of the Turtle Excluder Devices in the shrimp trawlers has also proven critical in some areas with high levels of interaction with this fishery.

Despite the legislative efforts to protect the Olive Ridley, human impacts continue to be significant. In
some areas (such as West Africa and South East Asia), extensive monitoring needs to be implemented to identify regions and stressors requiring priority actions. Bycatch and illegal take particularly from the coastal, artisanal fisheries need to be evaluated through adequate on-board observer programs and properly addressed. The beetle infestation of the Escobilla rookery must be adequately evaluated and acceptable measures of biological control of the insect need to be implemented. The impact from the increasing development of much of the range state’s coastline has to be evaluated and suitable mitigation measures implemented.

**Credits**

**Assessor(s):** Abreu-Grobois, A & Plotkin, P. (IUCN SSC Marine Turtle Specialist Group)

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Press, Hyderabad, India.


**Citation**


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Appendix

Habitats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

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<th>Season</th>
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Use and Trade
(http://www.iucnredlist.org/technical-documents/classification-schemes)

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<thead>
<tr>
<th>Threat</th>
<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Residential &amp; commercial development -&gt; 1.1. Housing &amp; urban areas</td>
<td>Ongoing</td>
<td>Minority (50%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1. Residential &amp; commercial development -&gt; 1.2. Commercial &amp; industrial areas</td>
<td>Ongoing</td>
<td>Minority (50%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1. Residential &amp; commercial development -&gt; 1.3. Tourism &amp; recreation areas</td>
<td>Ongoing</td>
<td>Minority (50%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. Agriculture &amp; aquaculture -&gt; 2.4. Marine &amp; freshwater aquaculture -&gt; 2.4.1. Subsistence/artisinal aquaculture</td>
<td>Ongoing</td>
<td>Minority (50%)</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>2. Agriculture &amp; aquaculture -&gt; 2.4. Marine &amp; freshwater aquaculture -&gt; 2.4.2. Industrial aquaculture</td>
<td>Ongoing</td>
<td>Minority (50%)</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>5. Biological resource use -&gt; 5.1. Hunting &amp; trapping terrestrial animals -&gt; 5.1.1. Intentional use (species is the target)</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. Biological resource use -&gt; 5.4. Fishing &amp; harvesting aquatic resources -&gt; 5.4.1. Intentional use: (subsistence/small scale)</td>
<td>Ongoing</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T11534A3292503.en
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.3. Unintentional effects: (subsistence/small scale)  
Ongoing Minority (50%) Unknown Unknown

5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.4. Unintentional effects: (large scale)  
Ongoing Minority (50%) Unknown Unknown

6. Human intrusions & disturbance -> 6.1. Recreational activities  
Ongoing Minority (50%) No decline Low impact: 4

6. Human intrusions & disturbance -> 6.3. Work & other activities  
Ongoing Minority (50%) Unknown Unknown

8. Invasive & other problematic species & genes -> 8.2. Problematic native species  
Ongoing Minority (50%) Unknown Unknown

Ongoing Minority (50%) - -

Ongoing - - -

Ongoing Minority (50%) - -

11. Climate change & severe weather -> 11.3. Temperature extremes  
Future Whole (>90%) Unknown Unknown

Conservation Actions in Place
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: Yes

In-Place Land/Water Protection and Management
Occur in at least one PA: Yes
Area based regional management plan: Yes

In-Place Species Management
Harvest management plan: Yes

In-Place Education
Subject to recent education and awareness programmes: Yes
Included in international legislation: Yes
Subject to any international management/trade controls: Yes

Conservation Actions Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)
**Conservation Actions Needed**

1. Land/water protection -> 1.1. Site/area protection
2. Land/water management -> 2.1. Site/area management
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.1. International level
6. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
7. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. Sub-national level

**Research Needed**

- Research -> 1.5. Threats
- Monitoring -> 3.1. Population trends
- Monitoring -> 3.2. Harvest level trends
- Monitoring -> 3.3. Trade trends
- Monitoring -> 3.4. Habitat trends

**Additional Data Fields**

**Habitats and Ecology**

- Movement patterns: Full Migrant
- Congregatory: Congregatory (and dispersive)
The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership. The IUCN Red List Partners are: BirdLife International; Botanic Gardens Conservation International; Conservation International; Microsoft; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; Wildscreen; and Zoological Society of London.