

Introduction

The Republic of Singapore, situated off the southern tip of the Malay Peninsula, consists of one main island and about sixty small islands. The main island, Singapore Island, is bordered on the north by the Johore Strait, which separates it from Malaysia, on the east by the South China Sea, on the south by the Singapore Strait which separates it from Indonesia's Riau Archipelago, and on the west by the Malacca Strait.

The country's 193 km of coastline consists largely of sandy beaches and mudflats with intertidal zones rich in resources for wildlife. The Sungei Buloh Wetland Reserve, on the Johore Strait, has mangroves, mudflats and ponds which host a variety of wildlife, including smooth-coated otter, saltwater crocodile, and both resident and migratory waterbirds. The Reserve, which is part of the East Asian Australasian Shorebird Site Network, is also an ASEAN Heritage Park. Coney Island Park, a reclaimed island on the eastern side of Johore Strait, also hosts migratory birds and resident smooth-coated otters. Pulau Ubin and Chek Jawa Wetlands near the mouth of the Johor River have a variety of birds in addition to hawksbill turtles, Asian small-clawed otters, and, in nearshore waters, Indo-Pacific humpback dolphin and dugong.

The Singapore Strait is an important shipping channel connecting the South China Sea and the Malacca Strait. Singapore has both the world's second-busiest port and the third largest oil refining centre in the world. With the large number of vessels arriving in Singapore and transiting through the Straits of Singapore, the risk of vessel collisions and grounding resulting in major oil spills is high, particularly in the Phillips Channel of the Singapore Strait, which is only 2.4 km wide at its narrowest point.

At Risk Wildlife

In this section, some individual wildlife species are mentioned followed by a letter in parentheses. These are species included in the IUCN Red List of Threatened Species within the top three categories of risk - Vulnerable to extinction (V), Endangered (E) or Critically Endangered (CR).

Avian species – Singapore is situated within the East Asian Flyway, one of three major migratory paths for birds. From September to March large flocks of shorebirds and waders are found resting and feeding on mudflats, sandy beaches and intertidal areas with ducks, geese and grebes found nearshore or on intertidal waters. A variety of terns and gulls are found along the coast and offshore. Species of special concern include the Christmas frigatebird (CR), Far Eastern curlew (E), great knot (E), spotted greenshank (E), lesser adjutant (V), Chinese egret (V), and Aleutian tern (V).

Marine mammals – regular visitors and resident species of marine mammals include the dugong (V), Indo-Pacific finless porpoise (V), Indo-Pacific humpback dolphin (V), Irrawaddy dolphin (E), Indo-Pacific bottlenose dolphin and false killer whale, all of which inhabit nearshore waters. Larger whales and offshore dolphin species may be seen in the Strait of Singapore and South China Sea waters occasionally. While not technically marine mammals, both the smooth-coated (V) and Asian small-clawed (V) otter forage in intertidal zones.

Marine reptiles – two species of sea turtle, hawksbill (CR) and green (E), are regularly sighted near the Southern Island and they occasionally nest on Singapore's beaches. There have been documented cases of successful turtle hatchings on East Coast Park beaches. Other species, such as leatherback (V) and loggerhead (V) are found in the region and may be occasional visitors. Saltwater crocodiles and a number of sea snakes are also found in Singapore's waters.

Regional Seas

East Asian Sea

Past experience

Singapore has experienced a number of major oil spills, including the MONEMVASIA (1983), STOLT AVANCE (1987), EI HANI (1987), CENTURY DAWN (1988) and EVOIKOS (1997), which was the largest spill (28,500 tons) experienced in Singapore and where mangroves were oiled. In 2000, the NATUNA SEA ran aground spilling 7,000 tonnes of crude oil which washed up on beaches of Sentosa, St. John's Island and Palau Sekjiang.

In 2010, a collision between the MT BUNGA KELANA 3 and the MV WALLY resulted in a spill of 2,500 tonnes of crude oil near Changi. The slick from this spill reached the Chek Jawa Wetlands and Changi Beach. While bird, reptile and mammal impacts were not reported, crustaceans and starfish were affected. Three separate ship collisions; the LIME GALAXY/FEIHE collision near Jurong, the NYK THERMIS/AZ FUZHOU collision and the HAMMONIA THRACIUM/ZOEY collision; in 2014 resulted in a total of 760 tonnes of fuel oil being spilled. While no wildlife impacts were reported, fish farms suffered damages. In 2017 a collision in the Johor Strait between two container ships, the WAN HAI 310 and the APL DENVER, resulted in a spill of 300 tonnes of bunker fuel, with no reports of oiled wildlife.

Response: the role of the authorities

The Maritime and Port Authority (MPA) is responsible for controlling and regulating spill response operations. Under the Oil Spill Contingency Plan developed by the MPA as part of the Marine Emergency Action Procedure (MEAP), the Ministry of Sustainability and Environment would oversee shoreline clean-up.

In the event of a spill incident in Straits of Malacca and Singapore, Indonesia and Malaysia would be involved, and during larger incidents, the ASEAN Regional Oil Spill Contingency Plan would be brought into play.

The National Parks Board (NParks) coordinates response to oiled wildlife. The Animal and Veterinary Service within NParks is the main touch-point for animal and veterinary matters and the First Responder for all animal-related feedback including wildlife issues.

Oiled wildlife responseFormal guidelines?

Although there are procedures in place to respond to oiled wildlife, there does not appear to be a plan specific to oiled wildlife response.

Response objectives and strategy

Wildlife response objectives and strategy information is not readily available.

Euthanasia or rehabilitation?

Rehabilitation is allowed in Singapore and it is likely that euthanasia may be employed on welfare grounds.

Impact assessment

The NParks Animal and Plant Health Centre (APHC)/Centre for Animal and Veterinary Sciences (CAVS) would likely be involved in impact assessment with potential assistance from NGOs such as Nature Society Singapore, OtterWatch and the Otter Working Group.

Corpses collected would be brought to the Lee Kong Chian Natural History Museum (formerly Raffles Museum of Biodiversity Research) at the National University of Singapore.

Notification and early response

NParks notifies all appropriate wildlife response entities. Working groups on otters and marine turtles, as well as the Friends of Marine Parks are brought in as necessary.

Wildlife responders

While there are no experienced oiled wildlife responders in Singapore, there are a number of groups that would be able to provide some level of wildlife rescue and rehabilitation expertise.

Animal Concerns Research and Education Society (ACRES) has experience rescuing many species, including entangled cetaceans, has facilities for marine wildlife and would be able to mobilise veterinarians and volunteers. The Avian team of the Jurong Bird Park may also be involved in avian response.

The Bird Group and Marine Conservation Group of Nature Society Singapore may be able to provide knowledge on local seabirds and marine ecology and able supervise volunteers during a wildlife response.

CAVS has extensive diagnostic capabilities, specialises in aquatic animal health, and routinely performs aquatic animal post-mortem examinations.

OtterWatch and the Otter Working Group would be able to assist as needed should otters be impacted. The Singapore Environment Council has a volunteer arm known as Earth Helpers, which may be able to assist with some aspects of wildlife response.

Cooperation between stakeholders

NParks works closely with wildlife and environmental NGOs, in addition to the other government entities involved in spill response.

There is a Standard Operating Procedure for Joint Oil Spill Combat in the Straits of Malacca and Singapore which details cooperation between Singapore, Indonesia and Malaysia. Singapore is also party to the ASEAN Regional Oil Spill Contingency Plan (ROSCP) with Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Thailand and Viet Nam.

Permanent facilities

There are no permanent facilities dedicated to oiled wildlife response, however ACRES has a Wildlife Rescue Centre with a capacity of approximately 400 animals with some marine wildlife capability. Although Jurong Bird Park has a dedicated breeding and research centre (BRC) with aviaries and nurseries, restrictions based on protection of the endangered species being reared there may prevent them opening the facility to oiled wildlife.

Current processes

MPA holds regular oil spill exercises.

Documentation and references

General references

ITOPF Country Profile (2009)

GI-SEA Country Information

Birdlife International Country Profile

Sea Alarm East Asia Regional Response Profile v.7 2020

Terms and Conditions

These Country Wildlife Profiles are provided in good faith as a guide only and are based on information obtained from a variety of sources over a period of time. This information is subject to change and should, in each case, be independently verified before reliance is placed on it. Country Wildlife Profiles may have been issued solely to incorporate additional or revised information under one heading only. Each Profile has therefore not necessarily been completely verified or updated as at the stated Date of Issue.

Sea Alarm hereby excludes, to the fullest extent permitted by applicable law, any and all liability to any person, corporation or other entity for any loss, damage or expense resulting from reliance or use of these Country Wildlife Profiles.

© Sea Alarm Foundation, 2020

These Country Wildlife Profiles may be reproduced by any means for noncommercial distribution without addition, deletion or amendment, provided an acknowledgment of the source is given and these Terms & Conditions are reproduced in full.

These Country Wildlife Profiles may not be reproduced without the prior written permission of Sea Alarm Foundation either for commercial distribution or with addition, deletion or amendment.