FRESHWATER CONSERVATION WORKS IN
SETIU WETLANDS, TERENGGGANU
Established as a national conservation trust on 13 January 1972.

Early work - focused on scientific research of wildlife and important natural habitats. Later, this work expanded to the management of protected areas.

Nowadays, WWF-Malaysia’s work covers the broader issues of the natural environment, incorporating such aspects as policy work, environmental education, public awareness and campaigns.

WWF-Malaysia HQ is in Petaling Jaya, Kota Kinabalu dan Kuching.

Site offices are in Fraser’s Hill, Malacca, Ma’ Daerah and Setiu in Terengganu.
WWF-MALAYSIA’S CONSERVATION EFFORTS

Ecosystem health monitoring (water quality, land use & hydrological changes, indicator species)

Advocate protection

Advocate threat minimization

Collaboration with research bodies & experts

Empower local community

Community outreach, engagement, awareness & capacity building

Wetlands ecosystems & catchment area

Areas of high conservation value

Engagement & partnership with key agencies

Environmental stewardship

WWF - MALAYSIA'S CONSERVATION EFFORTS
OVERVIEW

**Setiu Wetlands**
(Setiu, Terengganu)

- **WWF-Malaysia’s priority site for freshwater/wetlands conservation within the PM landscape.**
- **Economic development agenda for the district to generate higher revenue.**
- **Setiu district ranked 3rd highest in Terengganu in terms of poverty level.**
- **Population of 63,900 people* who depend on / benefit from the wetlands directly & indirectly.**
- **About 17% of the Setiu catchment area comprise wetlands (including lagoons and rivers).**
- **The Setiu catchment area (i.e. river basin) totals 102,500ha and covers 79% of the Setiu district.**
- **Largest and most intact coastal wetland complex on the east coast of Peninsular Malaysia.**
- **4 main rivers:**
  1. Setiu
  2. Chalok
  3. Bari
  4. Merang

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@ECER (2009) #Zahari et al. (2014) *UPEN (2016)
SETIU WETLANDS, TERENGGANU

SOUTH CHINA SEA

Legend
- Town
- Village
- Painted terrain nesting beach
- Green turtle nesting beach
- River
- Road
- Forest Reserve
- Wetlands

Location
- Setiu and Lagoon
- Ban River
- Chaluk River
- Menang River

1) Road and river are based on the National Physical Planning, Department of Town and Country Planning Malaysia (2000)
2) The wetlands are based on the satellite imagery classification SPOT 2.5 m, 2011
<table>
<thead>
<tr>
<th></th>
<th><strong>ECOLOGICAL FUNCTIONS &amp; SERVICES OF THE SETIU WETLANDS</strong></th>
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<tbody>
<tr>
<td>1</td>
<td>Main <strong>spawning ground</strong> for <strong>grouper species</strong> and <strong>bivalves</strong> (specifically cockles) in the nation</td>
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<td>2</td>
<td><strong>Coastline protection</strong>, <strong>natural flood control</strong>, safeguard <strong>water resources</strong>, sustain <strong>fisheries resources</strong> (as spawning and nursery ground)</td>
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<td>3</td>
<td>Provides <strong>direct and indirect economic benefits</strong> to the local community (fisheries, charcoal production, honey extraction and handicrafts)</td>
</tr>
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<td>4</td>
<td><strong>Supplementary income</strong> for local resorts and operators as well as local community from <strong>nature awareness and ecotourism activities</strong> (e.g. mangrove replanting, boating, firefly watching)</td>
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FLAGSHIP SPECIES OF SETIU WETLANDS

Juvenile Painted Terrapin / Tuntung Laut
(*Batagur borneoensis*)
Critically Endangered

© WWF-Malaysia / Muhammad Zaid Nasir

River Terrapin/ Tuntung Sungai
(*Batagur affinis*)
Critically Endangered

© WWF-Malaysia / Balu Perumal

Green Turtle / Penyu Agar
(*Chelonia mydas*)
Endangered

© WWF-Malaysia
BIODIVERSITY & NATURAL RESOURCES
1) Merang Jetty

- Traditionally, Merang is a fishing village.
- Gateway to islands of the east coast (Redang Island, Perhentian Island and Lang Tengah Island).
- Merang managed to retain much of its originality - provides the tranquil beauty for tourists to experience the beauty of the islands as well as experiencing local cultures (attractionmalaysia.com)

2) Telaga Papan 1 and Telaga Papan 2

- Nesting beaches for green turtle (*Chelonia mydas*)
- IUCN Red List – Endangered species
- WWF-MY (Marine Programme) manages the conservation work for green turtle in Setiu
- Beach patrolling is carried out between March to September/October every year to collect eggs from these beaches with the help from turtle rangers
3) Turtle and painted terrapin hatchery
- Intended to hatching the green turtle and painted terrapin eggs in order to increase the rate of hatching and hatchlings
- Release back to ocean and river when hatched
- Hatchery rangers help to manage the hatchery, incubate the eggs, and release the hatchlings
- Awareness program, hatchlings release program and WWF-MY’s visitors and donors to Setiu Wetlands

4) Pink House
- Persatuan Wanita Kampung Mangkok Setiu (PEWANIS)
- CBO involved in entrepreneurship and conservation-related activities in Setiu Wetlands (2007)
- More than a decade – a coffee table book to appreciate their formation, achievements, challenges, hopes & dreams
5) Replanting site
• Located at Jalan Penarik-Mangkok after the Terrapuri Heritage Village, Penarik
• Site for mangrove replanting and beach clean up for both PEWANIS and WWF-MY
• Recent work involved with mangrove replanting and measuring – to measure the growth rate of mangrove in this area

6) Kuala Baharu Selatan and Kuala Baharu Utara
• Nesting site for painted terrapin
• IUCN Red List – Critically Endangered Species
• KBU – 5 km long
• KBS – 2 km long
• Night beach patrolling between June – September every year to collect eggs
• 4 painted terrapin rangers
<table>
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<tr>
<th>7) KPW Center/Kercut</th>
<th>8) Fish Culture in Ponds at Kg Fikri (DOF, DID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Kumpulan Perkembangan Wanita, Kg Beris Tok Ku – established in 2012</td>
<td>• 1985 - 28 ponds at Fikri were constructed by the Department of Fisheries for 7 families to operate for sea bass (siakap)</td>
</tr>
<tr>
<td>• Women association produces handicraft made of Lepironia articulate (Kercut)</td>
<td>• Previously opened for paddy field but failed to operate due to acidity soil</td>
</tr>
<tr>
<td>• Involves in development planning process, conservation and entrepreneurship</td>
<td>• Land owned by local villagers but now became abandoned areas</td>
</tr>
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© WWF-Malaysia/Chik Maslinda Omar

© Google Maps/Kg Fikri
9) **Boardwalk Setiu**
- Launched in February 2018 and about 500 m long
- Built across the mangrove forest till the Setiu Wetlands lagoon
- Mangrove replanting site for Sahabat Alam Sekitar Setiu (Sahabat Setiu) together with WWF-MY

10) **Craft and marine product stalls**
- Local communities sell their handicraft products at this stalls (Lekar made of nypa broomstick, Budu made of fish, mud clam, Tampi made of pandanus leave, honey, shrimp paste, Nira/palm wine/tuak– taken from nipah’s sap)
THREAT AND CHALLENGES

- Artificial River Mouth
- Shrimp Aquaculture
- Shrimp Nursery for Aquaculture
- Silica sand mining
- Oil Palm Plantations
- Wet Paddy Scheme
- Sheep farming
WWF-MALAYSIA’S VISION FOR SETIU WETLANDS

• **Wetlands ecosystems** that remain **healthy, ecologically functioning and biologically diverse**
• **Improved protection and sound management** of the Setiu Wetlands and its surrounding catchment
• **Reduced threats and impacts** on the ecosystems in Setiu Wetlands to enable continued provision of ecosystem goods and services
• **Empowerment of local community** to support and participate in conservation efforts (e.g. ecosystem health monitoring; planning processes for development and protection of Setiu Wetlands)
LAGOON
WETLANDS PRODUCTS

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Thank You

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