



# ShellBank

Global Marine Turtle Traceability Toolkit

## BACKGROUND

Six of seven marine turtle species assessed for their risk of extinction are listed as Vulnerable to Critically Endangered. Many factors contribute to this decline, but a significant concern is the ongoing legal and illegal unsustainable take, catch and trade. Over the last 30 years more than 1.1 million marine turtles have been illegally exploited (Senko et al., 2022). However, it remains unclear where this exploitation is occurring, where it is most prevalent today, and which populations are being targeted.

## SHELLBANK IS A GAMECHANGER

Launched in late 2022, ShellBank is the world's first traceability toolkit & global database of marine turtle DNA. At its core, ShellBank is a marine turtle genetics traceability tool that aids effective conservation research, management and protection. Initially conceived in 2018 to help fight against the illegal turtle trade, ShellBank has evolved to serve as an invaluable tool for addressing other threats, such as by-catch.



© Veronica Joseph / WWF-Australia

The toolkit and database enable *tracking* and *tracing* of turtle populations globally. Specifically, it identifies genetically distinct turtle populations (or “genetic stocks”), how they are interconnected, and which populations are most at-risk, such as those being poached or incidentally caught in fisheries.

ShellBank uses DNA. Its ‘banks’ of data are a rapidly evolving global repository for marine turtle DNA. Comprising three main databases (Rookery, In-Water and Confiscation), ShellBank stores and uses data from many international partnerships to enable effective traceability. Bolstering accessibility to users around the world, it is constantly being updated and contributed to by many collaborators. Data is primarily mined from published material, is verified by the ShellBank team and stored in the database. It is open source for the reference database (Rookery and In-Water), and privacy-protected for the confiscation database. ShellBank's intent and purpose has been refined over time, and it has a clear vision for growth.



# ShellBank

Global Marine Turtle Traceability Toolkit

ShellBank consists of a raft of tools. It offers:

- An open-source global database of marine turtle DNA
- In-country capacity building and training, technical advice and support
- Provision of material and resources such as collection and laboratory guidelines, and genetic kits
- Continued scientific development to expand novel techniques and technologies

## How does ShellBank work?



### Confiscation database

DNA is extracted from seized or surrendered turtle parts or products.



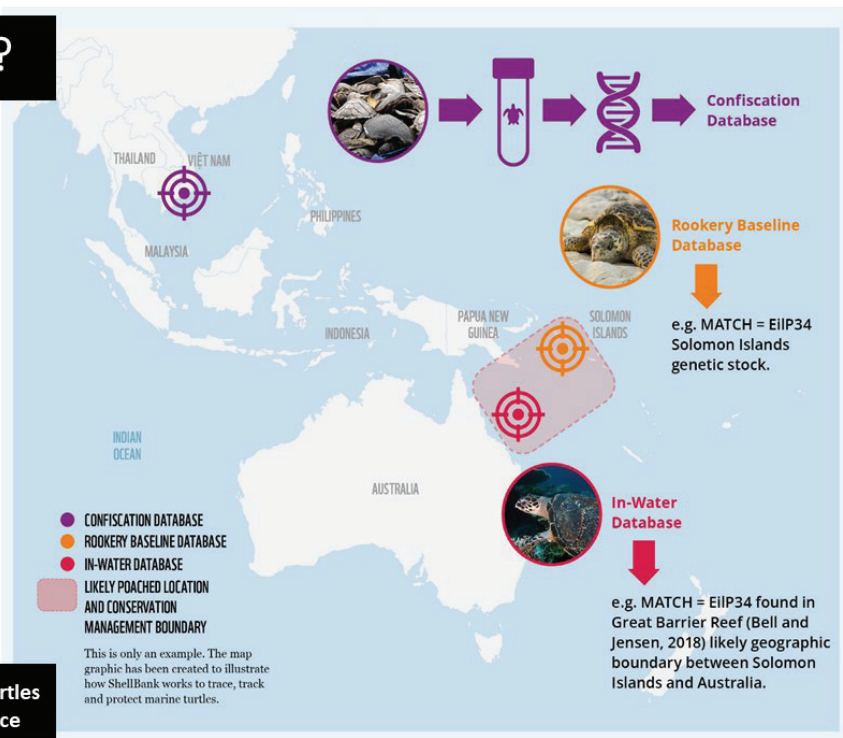
### Rookery database

From samples collected from wild nesting turtles, hatchlings or embryos/eggs used to assign genetic stock (nesting) origin.



### In-water database

From samples collected in-water from wild turtles, including all size classes.



Use of all three databases allows tracking of marine turtles for conservation, research, investigation & intelligence

## TRACKING TURTLES FOR CONSERVATION

ShellBank provides a vital resource for effective conservation and management of these threatened species by equipping researchers and conservationists with the data and knowledge to safeguard at-risk marine turtle populations and their habitats.

It can be used by researchers and conservation managers to identify and *track* a turtle's population origin, its connectivity and geographic (transmigratory) boundary.



© iStockphoto.com / La Salle



# ShellBank

Global Marine Turtle Traceability Toolkit

## TRACING TURTLES TO AID LAW ENFORCEMENT AND DECISION MAKERS

ShellBank was built to help *trace* confiscated turtles, parts and products and to aid law enforcers in illegal turtle use and trade investigations. ShellBank can be used for robust species identification for prosecution purposes, however, its value also lies in building robust intelligence to help pinpoint where targeted efforts are needed. Decision makers

can also use ShellBank to help *trace* and identify illegally harvested or bycaught turtles. Providing these agencies with up-to-date population origin references allows for the detection and mapping of overexploited populations, poaching hotspots and to pinpoint critical areas for better monitoring, surveillance and protection (e.g. marine protected or local marine managed areas).



© Keith Arnold / WWF-US

## COLLABORATORS AND PARTNERSHIPS

ShellBank is a collaborative effort that thrives on the collective expertise and support of a diverse array of stakeholders. Our partnerships include government agencies, conservation organizations, research institutions, universities, and local communities.



© Jurgen Freund / WWF

ShellBank is being led by the World WideFund for Nature (WWF) in partnership with the Australian Museum - Australian Centre for Wildlife Genomics, NOAA - Southwest Fisheries Science Center, and TRACE Wildlife Forensics Network.





# ShellBank

Global Marine Turtle Traceability Toolkit

## SCALING SHELLBANK

ShellBank can address critical population declines, aid in **understanding transboundary migration** and **identify what populations and areas require protection** while tackling the overexploitation of marine turtles. With an initial focus on hawksbill turtles, one of the most **Critically Endangered marine turtle**



© naturepl.com / Graham Eaton / WWF

species on the planet, ShellBank has already expanded to other marine turtle species (e.g. green turtles) and is set to help law enforcement and conservation managers reverse the trajectory of many marine turtle populations struggling to recover.

To achieve this major goal we need to work closely together. Strengthening the reference databases and ensuring effective project roll-out are critical steps that hinge on our ShellBank team supporting local researchers and governments through hands-on sample collection training and analysis. By bolstering local research and government capabilities, we not only fill existing data gaps but also lay the foundation for sustainable, local leadership in marine turtle conservation and action.

We are **URGENTLY** seeking \$1.5M USD by 2024 to support ShellBank's crucial leap from pilot into practice over the next 2 years. From 2026 we aim to secure \$15M USD.

Help us to **Build ShellBank. Save Turtles.**



ShellBank is hosted externally and can be accessed at: [www.shellbankproject.org](http://www.shellbankproject.org)

You can find out more by emailing: [shellbank@wwfint.org](mailto:shellbank@wwfint.org)