

© 2003, 2005, 2008 WIDECAST: Wider Caribbean Sea Turtle Conservation Network

USER'S GUIDE

VERSION 4.0

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**WIDECAST Regional Marine Turtle Database
User's Guide, Version 4.0 © WIDECAST 2008**

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Preface and Intent



WIDECAST

Wider Caribbean Sea Turtle Conservation Network

For more than two decades the WIDECAST network, with Country Coordinators in more than 40 Caribbean States and territories, has linked scientists, conservationists, resource managers, resource users, policy-makers, industry groups, educators, and others together in a collective effort to develop a unified management framework, and to promote a regional capacity to design and implement science-based sea turtle management programs.

Today WIDECAST embraces the largest regional network of sea turtle projects in the world and is uniquely designed to address research and management priorities at national and regional levels, both for sea turtles and the habitats upon which they depend.

We focus on bringing the best available science to bear on sea turtle management and conservation, empowering stakeholders to make effective use of that science in the policy process, and providing an operational mechanism and a framework for cooperation at all levels, both within and among nations.

As a Partner Organization of the Caribbean Environment Programme of UNEP (United Nations Environment Programme), the network also provides an essential link between grassroots concerns and expertise and international decision-making, specifically with regard to the CEP's Regional Programme concerning Specially Protected Areas and Wildlife (SPAW) (<http://www.cep.unep.org/>).

WIDECAST is all about partnerships - building bridges to the future that facilitate and strengthen conservation action, encourage inclusive management planning, and help to ensure that utilization practices, whether consumptive or non-consumptive, do not undermine sea turtle survival over the long term. To this end, WIDECAST partners throughout the region work collaboratively to develop and distribute the tools necessary to build genuine capacity within the nations of the Caribbean Sea to manage shared sea turtle resources.

Among these tools is this database management software package, which is part of a larger initiative to maintain a regional Marine Turtle Tagging Centre (MTTC), operated by the Barbados Sea Turtle Project at the University of the West Indies (<http://www.barbadosseaturtles.org/>).

A bilingual (English, Spanish) "manual of recommended practices" for sea turtle tagging by Karen Eckert (WIDECAST) and Jennifer Beggs (Barbados Sea Turtle Project) is also available from the MTTC and online at <http://www.widecast.org>.

WIDECAST Marine Turtle Tagging Centre



The overall goal of the WIDECAST Marine Turtle Tagging Centre (MTTC) is to enhance the survival of Caribbean sea turtles by promoting and facilitating population monitoring, studies of range State distribution, and reliable communication among range States, especially as regards tagging methods, modern technologies, and data collection, archival, and analysis tools.

Specific objectives include promoting best practices with regard to sea turtle tagging and record-keeping region-wide; developing tools (including this database management software package) that build capacity among range States to archive and analyze sea turtle sightings and, especially, tag-based datasets; facilitating regional networking to enable collaboration among range States with regard to sharing field-collected data, documenting international movements, and assessing population status; and strengthening and networking dozens of otherwise isolated small-scale tagging projects (providing training, eliminating the use of overlapping tag series, etc.).

Since its establishment in 2001, the Centre has distributed tags to research projects in more than 20 Caribbean States and territories. Many more have indicated their desire for training, advice, and information on best practices, as well as for tags and tagging equipment. The Centre archives tag fate data for all participating projects and provides a central clearinghouse for information on international movements.

The MTTC story begins in 1996 when, by unanimous vote, it was a decision of the WIDECAST Annual General Meeting (26-27 February 1996, Hilton Head Island, South Carolina) that WIDECAST "establish or sponsor a centralized tagging database in the Caribbean Region." The Meeting was attended by members of the Wider Caribbean Sea Turtle Conservation Network from 18 Caribbean States and territories, as well as Observers from Africa, India, Europe, Australia, IUCN, and IOCARIBE.

The Meeting agreed that there was a need for standardization in tagging methodology and record-keeping, as well as a need to compile data on a regional basis, and that the WIDECAST Executive Director should explore all options and identify a suitable host institution for a regional tagging centre. The meeting further agreed that a training workshop should be convened, and that standard data forms and record-keeping tools be developed for range State use.

Consultations were initiated with a number of Caribbean organizations that had professional database management capacity and that had indicated an interest in hosting such a centre. The Barbados Sea

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Turtle Project (BSTP), based at the University of the West Indies-Cave Hill Campus, was selected for reasons that included a long-term tagging commitment at the national level, project experience with both at-sea and on-beach tagging, and access to a university network of computers and technical expertise.

The offer by BSTP to host the MTTC was accepted at the 1997 WIDECAST Annual General Meeting (3-4 March 1997, Orlando, Florida) and a project proposal was later developed based on recommendations made by a Tagging Centre Working Group (Rafe Boulon, Chair and WIDECAST Country Coordinator in the US Virgin Islands) comprised of WIDECAST Country Coordinators and other experts. The proposal was funded by the United Nations Development Programme [Barbados] and the National Fish and Wildlife Foundation [USA], with follow-up actions supported by a grant from the US National Marine Fisheries Service (see "Acknowledgments").

The MTTC provides a unique service to participating Government and non-governmental field projects throughout the Caribbean Sea, and is credited with developing and distributing a variety of foundational tools and information documents to further its objectives. The MTTC contributes meaningfully to the implementation of recommendations from intergovernmental and scientific meetings that specific tools be developed and supported that facilitate standardized database management at the national level and the sharing, across national borders, of electronically compatible data relevant to population trend and status.

Your input on this project and its outputs, including the software package, is welcome (see "Contact Us"). For more information on the sponsoring organizations, please visit www.widecast.org and www.barbadosseaturtles.org.

Acknowledgments

This database management software package is just one of many tools available to Caribbean sea turtle projects from WIDECAST's Marine Turtle Tagging Centre (MTTC) located at the University of the West Indies in Barbados (see "Contact Us"). We are very grateful to the Barbados Sea Turtle Project (BSTP), founded in 1987 and an active member of the WIDECAST network since 1991, for hosting the MTTC, and indebted to the University of the West Indies (UWI) for giving the MTTC an institutional home.

We would also like to acknowledge the donors and contributors who have made this product possible. First, the United Nations Development Programme (UNDP) GEF Small Grants Programme [Barbados] and the National Fish and Wildlife Foundation [USA] provided grants in 2001 that enabled us to establish the MTTC, purchase an inventory of 30,000 Monel and Inconel tags (and associated equipment) for use by sea turtle projects throughout the region, develop and beta-test the first version of the database management software package, draft a User's Manual and other essential documents, convene an international training workshop on the campus of UWI-Barbados, and support a software beta-testing phase.

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We are grateful to partners who agreed to beta-test the software for a year using national databases. These partners include: Nature Seekers in Trinidad; The National Trust and the Department of Fisheries and Marine Resources in Anguilla; the Barbados Sea Turtle Project; the Conservation and Fisheries Department in the British Virgin Islands; Ocean Spirits and the YWF-Kido Foundation (Carriacou) in Grenada; the Nature Foundation of Sint Maarten and the St. Eustatius National Parks Foundation in The Netherlands Antilles; the Department of Fisheries in Nevis; and the Forestry Department with their community partner, Desbarras Turtle Watch Group, in St. Lucia; the Tobago Cays Marine Park in St. Vincent; and WWF in the Guianas. Their comments were instrumental in finalizing the software, in particular the Reports Modules.

A follow-up grant by the NOAA National Marine Fisheries Service (Office of Protected Resources) in 2003 enabled WIDECAST, as part of its 2004-2005 workplan, to finalize, package and distribute the database management software package, User's Manual and related resources, including standardized data collection forms, and application and reporting criteria associated with participation in the MTTC. A grant from the British High Commission (Barbados) supported the design and printing of a poster encouraging fishers and others to return tags from captured animals.

Finally, and most importantly, this product could not have been produced without the expertise of several extraordinarily talented database programmers. First, Alvaro Collazos, then Manager of Information Systems at The Environmental Trust in California, and later Anil Ramnanan at the University of the West Indies, Trinidad, wrote most of the programming. Dennis Sammy, manager of Nature Seekers and WIDECAST Country Coordinator in Trinidad, in partnership with Scott Eckert, WIDECAST Director of Science, created the database structure, provided the conceptual design, and are responsible for much of its "look and feel".

The unique complexities of tracking tagged animals (including maintaining their identity in the data-base long after their original tags have been lost), has consumed thousands of hours of programming and been frustrated by a seemingly infinite suite of confounding variables. The excellence of the final product is a great tribute to those who have worked, largely as a labor of love, on it for the last four years, revising, testing, revising, and re-testing it until the program met the standards of both the programmers and the users who beta-tested it along the way. Notwithstanding, "bugs" and inconsistencies are sure to be found and we look forward to your feedback, and to working with you to create future versions.

Soon we hope to adapt the program for use on PDA platforms, as well as offer upgrades downloadable from the Internet. We are working to ensure Spanish and French versions of the software, as well as all associated tools (e.g., User's Guide, tagging manual, standardized data collection forms). Enjoy!

*~ Karen L. Eckert
Executive Director
WIDECAST*

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SPECIAL INSTRUCTIONS

WIDECAST Regional Sea Turtle Database Version 4.0 Installation

Upgrading From a Previous Version

If you are upgrading from version 3.0 of this database, it is extremely important to follow these instructions to prevent data loss. **Do not use the setup.exe program found on the CD.**

- 1) Back-up your data by copying the file "Turtle Data File.mbd" to a safe location. This file can usually be found under C:\Program Files\WIDECAST SEA TURTLE DATABASE\Turtle Data File.mbd. Back-up can mean that you simply copy the file to a disk or CD, or that you copy it to another folder and rename the file to "Turtle Data File backup.mbd".
- 2) Copy the file from this CD named "Sea Turtle Database.mde" and paste it to the folder C:\Program Files\WIDECAST SEA TURTLE DATABASE\. You will be asked if you wish to overwrite the file with the same name in the folder - answer yes.
- 3) You have now successfully upgraded from version 3 to version 4.

New Installation

If you are installing the WIDECAST regional sea turtle database for the first time:

- 1) Run the Setup.exe file found on the CD. Installation is automatic and will install the program in the folder C:\Program Files\WIDECAST SEA TURTLE DATABASE\.

Chapter 1 Introduction

Documentation Conventions

The User's Guide uses shorthand terms for several actions involving the mouse and the program:

Click	Press and release mouse button 1 (usually the left mouse button).
Double-Click	Press and release mouse button 1 twice in rapid succession.
Right Click	Press and click mouse button 2 (usually the right button).
Choose	Point to an item (usually on a menu or list of objects) and click mouse button 1.
Fields	Areas within forms where information (data) is entered.
Tab	Use to move forward between some Fields.
Shift-Tab	Use to move backward between some Fields.
Space	Can be used to move forward within a Field when there is an input mask; i.e. to indicate an unused digit (e.g. the "Date" 14/03/2002 is equivalent to the "Date" 14/_3/2002). Can also be used to place a check in a Check Box when the cursor is on the Check Box (i.e. when you have used a Tab to reach it)

Action Buttons



Button is used to start a new data form.



Button is used to close an entry form and move back one step in the menu.



Button is used to clear a data record ("delete button").



Button is used to print on-screen form (print screen).

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This bar is used to move from record to record and is usually located at bottom of a data form.

Description of the Database

The WIDECAST Regional Marine Turtle Database was developed using Microsoft Access™, since Access™ is most widely available to users in the region. However, it does not require the user to be proficient in Access™ or in database programming and use. The program includes data analysis modules that will generate summary reports of information contained in the database. Modules to allow export of the data into a variety of other analysis forms (e.g. spreadsheets and statistical programs) are also included.

Those comfortable with using Access™ will find that they can develop their own data queries within the database and we encourage that those users share these scripts with the WIDECAST Marine Turtle Tagging Centre (MTTC). As the database program is updated, those scripts will be incorporated into newer versions of the program.

To prevent a host of problems associated with database corruption, we have secured the structure of the database. What this means in practice is that users can create queries and reports for the database but will not have access to the database structure to, for example, add variables or data tables. However, we will work with you to include more data tables as we update the program.

Minimum Requirements

This program has been successfully tested on computers running Windows 98, 2000, ME and XP operating systems. Microsoft Access™ 2002 or later must be installed. Hardware requirements are minimal, but the computer should have at least 100 megabytes of free space on its hard drive and 128 megabytes of RAM. We've optimized the program for a screen resolution of 1024 x 768. If your screen resolution is lower, you may find that some of the data forms "run off the screen". In some cases it will require scrolling the screen to see all the information. Please let us know if this is a problem for you, and we'll provide a lower resolution version.

Installation

<IMPORTANT: If upgrading from previous version, see page vi prior to installation!>

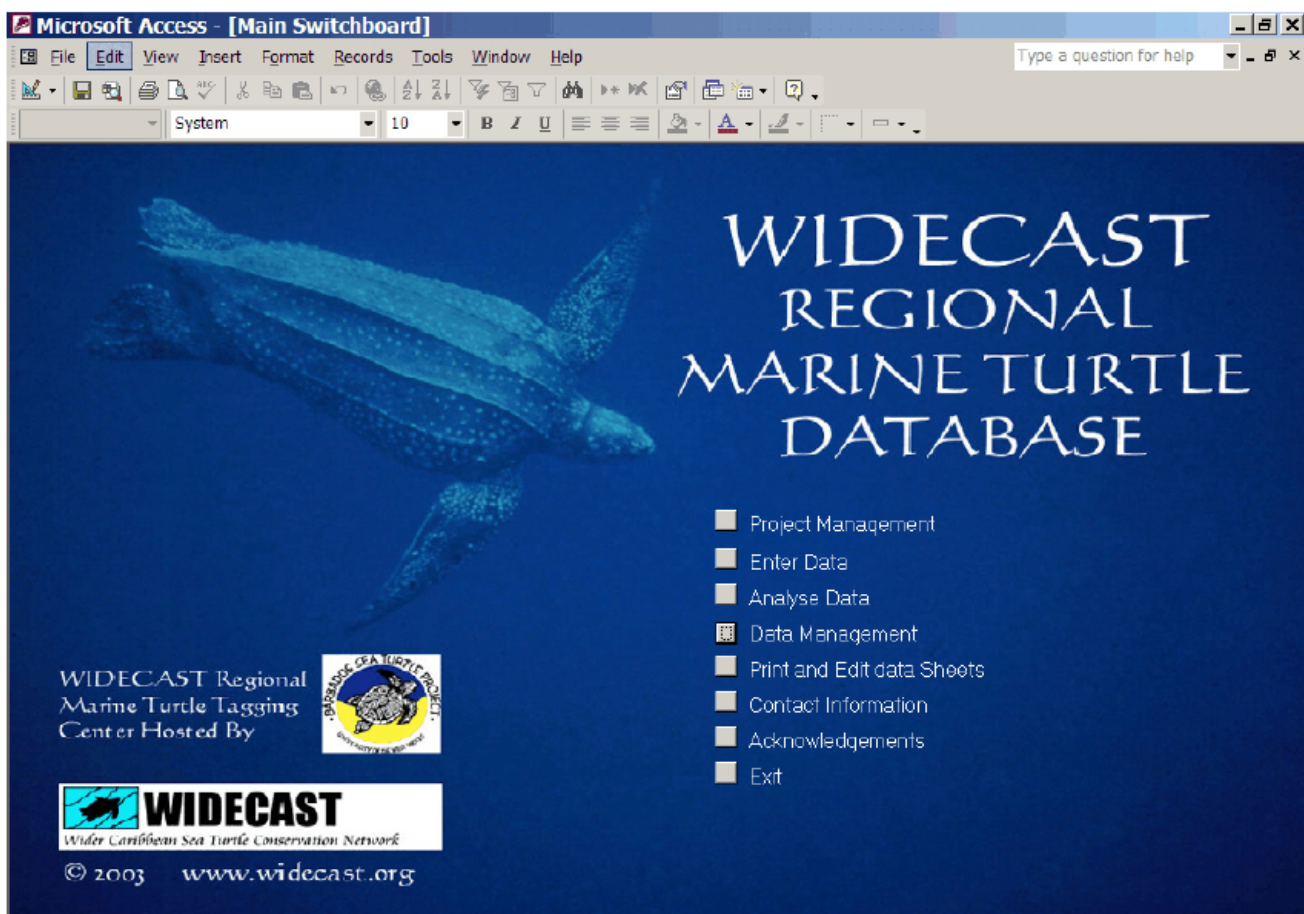
Insert the program CD into the CD drive on your computer. System installation should begin as the CD is read; however, if this does not occur, click on **start**, click on **run**, click on **browse**, select the CD, select Setup.exe, and click on **OK**.

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Installation will begin by searching for the installed location of Microsoft Access™ on your computer. If you know where Access resides you can select that location, rather than waiting for the setup program to find it. Once completed, the program will remember this location and open Access™ each time the database program is initiated.

Starting the Database

On Startup, the program will load and update all data table links. The opening screen will provide buttons that activate various program modules which are described in detail in this User's Manual.



Chapter 2 Project Management

At the beginning of each project, it is important that you provide some background information to the database about the project. The following will be prompted: tag types and unique tag numbers to be used by the project, project name, point of contact (usually the Project Director, or Principal Investigator), names and contact information of project personnel, geographic landmarks associated with the project (e.g. landmarks on a nesting beach or locations on a reef).

We call this **Project Management** and we have provided a button on the opening screen to access entry to the proper data forms. Project Management data can be edited (or added to) at any time after the start of a project.



he menu for **Project Management** includes:

- Tag Management*
- Add / Edit Project Data*
- Add / Edit Observer Data*
- Add / Edit Country, Location, Zone and Land Mark Data*
- Add / Edit Other Supporting Data*

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Tag Management

The screenshot shows a web-based form titled "Tag Management". At the top, there are several buttons: "Find Tag", "Show All Tags", "Show Tags 'In Stock'", "Show Tags 'On Turtle'", "Show Tags 'Lost'", "Show Tags 'Destroyed'", and "Show All 'Other' Tags". Below these buttons are input fields for "Tag Number", "Status", "Tag Type", "Return Address", "Date Issued", "ProjectName", and "Note". At the bottom of the form, there are fields for "Tag Prefix", "From", "To", "Suffix", "Date Issued", "ProjectName", and "Tag Type", along with "Return Address" and "Note" fields. A "Generate Tags" button is located below the bottom fields. The bottom of the form shows a record count "Record: 1 of 1" and "Form View".

Tag Management provides a means to inventory all tags that are to be used in your project.

Enter all of tag numbers and relevant information (e.g. tag type, tag return address) immediately upon receiving your tags either from the manufacturer or from the WIDECAST Marine Turtle Tagging Center (MTTC). You can use this inventory to track the fate of all tags used in your project. By entering tag information into the database at project initiation, you can avoid certain types of errors in data entry because the tag numbers will be available from a pull-down list on each data entry form. If tag numbers are entered incorrectly on data input forms and are not already registered in the database, the user will be informed and the program will request corrective action.

Tag numbers may be entered into the database in two ways: individual tag numbers and tag descriptions may be entered in the data entry boxes provided on the form, or a consecutive series of tag numbers may be entered using the **Generate Tags** function at the bottom of the form. To use the latter feature, enter the tag prefix and/or suffix (many tags use an alpha-numeric system, such as WC3456 or 234567891A), the first and last number of the tag series, the date the tags were received (or issued to a project), the project responsible for the tags, the tag type, and the tag's return address. Press the **Generate Tags** button to add this tag series to the database.

Author's Note: For guidance on the tagging of sea turtles, see "Marine Turtle Tagging: A Manual of Recommended Practices" by Karen Eckert and Jennifer Beggs (WIDECAST Technical Report No. 2, 2006 revised edition) or visit www.widecast.org.

Add / Edit Project Data

The screenshot shows a web-based form titled "Project Information". At the top left, there is a button with a plus sign and the text "Create New Project". At the top right, there is a button with a minus sign and the text "Delete Project". Below these buttons, there is a "Select Project" dropdown menu. The form contains the following fields: "Project Name", "Project ID", "Hill", "Address", "City", "State", "Country", "Mail Code", "Phone Number1", "Phone Number2", "Phone Number3", and "Email". At the bottom of the form, there is a "Record" navigation bar with "1 of 1" and a "Form View" button.

Each project should have a unique identity (**Project ID**). We recommend that the Project ID be an acronym for the name of the project (e.g. "BSTP" for the Barbados Sea Turtle Project, or BSTP# - BSTP1,2,3,...n) if a larger program has a series of individual projects under its administration.

Project Name can be used for the complete descriptive name of the project (e.g. "Barbados Sea Turtle Project 1 - North Coast Foraging Study").

Point of Contact (POC) refers to the person responsible for the project, who can be contacted if needed.

Address information should refer either to the POC or to the project's office address.

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Add / Edit Observer Data

Observers

Jump to Observer

Observer's Name Check if Active Phone Number 1

Organization Phone Number 2

Address Phone Number 3

City Email

State

Country Mail Code

Refresh

Record: 1 of 1
Form View NUM

Observers are those individuals who report or record information about sea turtle encounters. They can be patrol staff employed by or volunteering with a nesting beach project, or an individual calling to report a sighting or stranding event. The purpose of this form is to provide a record of the observer so that they can be contacted at a later date, if needed.

While completing this form is self-explanatory, one feature and its purpose needs description. The “Active” checkbox is provided to denote observers who may be actively involved in ongoing observations or data collection, such as a Field Director or other permanent staff member. If this box is checked, the name will appear in a pull-down list on each data entry form to facilitate easier data entry. If the box is unchecked, the name will not appear on the pull-down list.

We recommend that this box only be checked for individuals who are expected to be observers or reporters on a regular basis. The check box feature is designed to prevent the pull-down list on the data forms from becoming overly long for each project.

Add / Edit Country, Location, Zone and Landmark Data

The screenshot displays a web-based data entry form titled "Location, Zone, and Landmark Entry Form". The form is organized into several sections:

- Country Section:** Includes a button "Add a Country / Region or State", a text field for "Country / Region / State Name", a dropdown menu for "Jump to Country / Region / State", and a text field for "Country ID (initials)".
- Location Data Section:** Features a button "Add Location", a text field for "Location Name", and a table with columns "Longitude" and "Latitude". Navigation buttons "Previous Location" and "Next Location" are present. A record indicator shows "Record: 1".
- Zone Data Section:** Contains text fields for "Zone Name", "Zone Length (m)", and "Zone Width (m)", with "Zone Width (m)" set to "0". It includes a table with "Longitude" and "Latitude" columns and an "Add Zone" button. Navigation buttons "Previous Zone" and "Next Zone" are also present.
- Landmark Data Section:** Includes a table with columns "Landmark Name", "Latitude", and "Longitude".

At the bottom of the form, there are "Refresh" and "Save" buttons, and a status bar indicating "Form View" and "NUM".

Most sea turtle projects need to record the **location** of a sea turtle “event” (i.e. nesting, sighting, capture, or stranding). In some cases that location can be exact (e.g. documented by a differential equipped GPS); in other cases, it may require triangulation to known landmarks, or some other delineation within a known zone. This data form allows the user to enter the name of a location, and the exact location of any landmark or zone. Whenever possible, it is useful to enter the location and name of each landmark or zone into the database at the initiation of a project. However, if this is not possible, such information can be entered at any time after the project has begun.

Location data is hierarchical in the database. This means that Landmarks are subsections of (or markers within) Zones, Zones are subsections of Location Names and Location Names are subsections of Country/Region. In this way we avoid problems if the same subcategory name is found in more than one location. For example, a common practice on nesting beaches is to number beach zones. If your database contains information from more than one beach, and each beach has a similar number system (e.g. stakes placed 20 m apart and numbered sequentially 1,2,3 ...n), the hierarchical structure of the location will prevent confusion, because each beach will have a unique name. When entering location information on a data form, the pull-down lists for each location subsection will be limited only to its superior location.

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The broadest location category is Country/Region. Location Name is a subsection of Country/ Region and can be a reef or a sandy beach. Location Name can be delineated by more than one set of latitude / longitude points, if needed. For example, if the Location Name was a particular reef, a series of points can be denoted to outline the perimeter of the reef to define its location.

Latitude and Longitude should be entered as *degrees° minutes and tenths of minutes* (e.g 121° 23.215), not degrees° minutes and seconds. Most Geographic Information Systems (GIS) and Global Positioning System (GPS) receivers use deg° / minutes / tenths.

Add / Edit Other Supporting Data

Supporting data includes the following subcategories:

Add / Edit Tag Status Data

Add / Edit Tag Type Data

Add / Edit Weather Data


Tag Status

 **Warning:** Changes to the terms on this list will change all data entries that use these terms and can have unexpected consequences! It is recommended that you use this list primarily to add new terms, not to change existing terms.

Status


<input type="text" value="In Stock"/>
<input type="text" value="On Turtle"/>
<input type="text" value="Lost"/>
<input type="text" value="Destroyed"/>
<input type="text" value="Other"/>
<input type="text"/>

ADD or EDIT Tag Type

 **Warning:** Changes to the terms on this list will change all data entries that use these terms and can have unexpected consequences! It is recommended that you use this list primarily to add new terms, not to change existing terms.

TagTypeD	TagType
<input type="text" value="1"/>	<input type="text" value="Flipper"/>
<input type="text" value="2"/>	<input type="text" value="FIT"/>
<input type="text" value="3"/>	<input type="text" value="Other"/>
<input type="text" value="(AutoNumber)"/>	<input type="text"/>

Add and Edit Weather

 **Warning:** Changes to the terms on this list will change all data entries that use these terms and can have unexpected consequences! It is recommended that you use this list primarily to add new terms, not to change existing terms.

Weather	Description
<input type="text" value="Bleak"/>	<input type="text"/>
<input type="text" value="Overcast"/>	<input type="text"/>
<input type="text" value="Rain"/>	<input type="text"/>
<input type="text" value="Stormy/Strong Wind"/>	<input type="text"/>
<input type="text" value="Broken Clouds"/>	<input type="text"/>
<input type="text" value="Unknown"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Each of these subcategories opens a form which allows you to add new descriptors to the pull-down list available on the data forms. For example, if you wished to add a new tag type, such as a plastic flipper tag to the tag types, this form will facilitate that addition.

However, *heed the warning on each form*. If you delete a descriptor or change the order of the descriptors, there could have dire consequences! The database considers the order of each descriptor important so, if the order is changed, all data will be corrupted!

Chapter 3 Data Entry

The mechanism for data entry is an **on screen data form**. These forms can be accessed with the **Enter Data** button on the opening screen. To simplify data entry by the database manager, entry forms have been divided into five (5) **Event Types: Nesting, Sighting** (typically an opportunistic sighting on land or at sea), **Capture at Sea, Stranding** (typically a turtle that has washed ashore, alive or dead), and **Hatching**. We have tried to reduce data entry errors, typically the largest source of error in any database, by providing “pop-up” lists with entry choices when choices are limited.

To begin data entry, click the **Enter Data** button on the opening screen. If the information to be entered is not a hatching event, the database will always begin by determining if the turtle (assuming it's been tagged) is already in the database. It is important to enter all available (up to three) tag numbers, then click **Add Event**.

ENTER TAG NUMBERS CAREFULLY!

Hint: Entering multiple tag numbers is one way to minimize error. While you may enter one tag number incorrectly, you are unlikely to enter them all incorrectly. If the tag set doesn't “match up” with information already on file, the program will request corrective action.

If there are no tags associated with the sea turtle, click Use 99999 as the tag number. All turtles of unknown origin will use this tag number.

Tag Search

Enter a Tag Number

Clear Search

Add Event

Hatching Event

⏏

Data Entry Forms

Nesting Event

Used to enter information about an encounter with a gravid (=egg-bearing) female on a nesting beach, typically associated with data collected during organized nesting beach conservation and/or research programs.

Stranding Event

Used to enter information on a “stranding”, which refers to a turtle washing ashore unintentionally. The turtle might be alive, dead, or comatose (e.g. cold-stunned or very ill). This form is not designed for documenting a nesting event.

Capture Event

Used to enter information available from the intentional or unintentional capture of a turtle at sea. The module can be selected to record data collected during a project designed to capture sea turtles for research purposes, or to record information on a turtle captured or entangled during fishing and later reported to the database manager or other authority.

Sighting Event

Used to enter information on a sea turtle sighting. Most such reports are opportunistic and data are often limited. The sighting could be at-sea (e.g. at the surface as reported by a ferry captain, or underwater as reported by a SCUBA diver) or on land (e.g. a turtle observed and reported by a member of the general public). If the sighting is a nesting event or a capture event, it could be recorded in either this module or on the nesting or capture modules. Most often, this form will be used for opportunistic (unplanned) observations of a turtle.

Hatching Event

Used to enter information on a “hatching”, which refers to any evidence that a turtle nest has produced live young. It can also be used to record depredation or other damage, nest loss (e.g. to erosion), or other nest fate prior to hatching.

Select the event type.



The image shows a dialog box titled "Select Event" with a light blue background. Inside the dialog, the text "Select Event Type" is centered. Below this text are four buttons arranged in a 2x2 grid: "Nesting Event" (top-left), "Stranding Event" (top-right), "Capture Event" (bottom-left), and "Sighting Event" (bottom-right). A "Cancel" button is positioned centrally below the 2x2 grid.

If the tag has been reported from a turtle already in the database, this will be confirmed.



The image shows a Microsoft Access dialog box with a title bar that reads "Microsoft Access" and a close button (X). The main text of the dialog says "Tags are on Turtles". At the bottom center of the dialog is an "OK" button.

Click **OK** and a data form with the Turtle ID, species, and gender already completed will appear. If the turtle is not in the database, a blank data form will appear.

If this is a hatching event, do not enter a tag number. Click the "Hatching Event" button. A Hatching Event Data Entry Form will appear. See "Hatching Data Entry Form" for instructions on data entry.

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Nesting Event Data Entry Form

The Nesting Event Data Entry Form is used to enter information about an encounter with a gravid (=egg-bearing) female on a nesting beach, typically associated with data collected during organized nesting beach conservation and/or research programs.

The screenshot shows a web-based data entry form titled "Nesting Event Data Entry Form" within a browser window. The form is organized into several sections:

- Header:** Includes fields for Turtle ID (with an "Auto" button), Species, and Project.
- Observation Data:** Fields for Date, Time, Weather, # of Observers, Observers, Tag Numbers, NewTag, and Page#.
- LOCATION:** Fields for Country, Location Name, Zone, Event Latitude, Event Longitude, Landmark Name, and Dist. from Landmark (m). Includes a "Distance in (m) from" label and a "Vegetation" field. A "High Water Mark" field is also present.
- PHYSICAL DESCRIPTION:** Fields for CCLNN, CCLNT, CCW, SCLNN, SCLNT, and SCW. Includes a "Weight (Kg)" field and a "Carapace Intact?" checkbox with a "No" option. A diagram shows two turtle carapaces labeled "NN" and "NT".
- Diagnostic Injuries:** A large text area for recording injuries.
- RESULTS:** Fields for Nesting_Activity, Nesting_Outcome, Number of Yolked Eggs, and Number of Yolkless Eggs.
- NEST RELOCATION DATA:** Fields for Relocation Date, Time Excavated, Time Reburied, Location Name, Relocation_Zone, Latitude, and Longitude. Includes a "Distance in (m) from" label and "Vegetation" and "High Water Mark" fields.
- Parasites and Ectobiota:** A text area for recording parasites and ectoparasites, with a "Tag Scar Location" dropdown menu.
- Notes:** A large text area for additional notes.

At the bottom of the form, there are "Refresh" and "Save" buttons, and a status bar showing "Record: 1 of 1".

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Turtle ID

This field is filled in automatically by the database program.

Species

If species has not been automatically entered, it may be selected from a pull-down menu of choices: green turtle, hawksbill, Kemp's ridley, leatherback, loggerhead, olive ridley.

Project

Each project has a unique identification name or acronym. This name should appear on the pull-down menu. If it does not, it should be entered in the Project Management module.

Date

Date is entered either as dd/mm/yyyy or mm/dd/yyyy, depending on whether your computer uses American (mm/dd/yyyy) or European standard date format (dd/mm/yyyy).

It is important to remember that for projects involving all-night coverage of a nesting beach, events that take place before midnight occur on a different date than those that take place after midnight. Always record the date and time at which the nesting event was first observed; that is, when the turtle is first encountered, irrespective of the fact that she may remain on the beach for several hours.

Time

Time is entered in 12-hour format, with the designator AM or PM (e.g. 11:30 PM).

Weather

Weather is selected from a pull-down menu, including:

- Clear*
- Overcast*
- Rain*
- Stormy/Strong Wind*
- Broken Clouds*
- Unknown*

of Observers

This value represents the number of observers near the turtle during its observation. The value should include the data recorder and project personnel, as well as any non-project personnel (e.g. tourists or visitors).

Observer

The observer is the person who is reporting the sea turtle event. Click the 'down arrow' on the right side of the entry box. Select the observer's name or initials from the list. If the observer's name is not among those in the pull-down menu, add it using the "Add New Observer" button. Once the new observer has been added to the database (be sure to check the "active" box on

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the entry form), click on the “R” button to refresh the list of choices on the pull-down menu and then select the observer.

Tag Numbers

Pre-entered tag numbers can be selected from the pull-down menu, which is activated using the arrow at the left side of the entry field. If the tag number has not been entered into the database, you will be asked if you would like to add the number at this time. If so, an entry form will open to facilitate the entry.

If the turtle is tagged during nesting and the tag number is being used for the first time, click on the “New” checkbox directly beside the tag number. The status of the tag in the database will be changed from “in stock” to “on turtle” and will also allow a calculation of tag retention rates.

There is a tag error button included on the form. This is used to note that there is some type of discrepancy in the tag record that needs correction. Often during data entry the data manager will find possible errors, such as a tag number that appears on the data form (i.e. the original paper copy) to be unreadable or the data manager has reason to believe that the tag was read and recorded incorrectly. By checking this box it “bookmarks” the tag number for later review and correction.

Page Number

Paper data sheets used by project personnel should always be numbered consecutively prior to the entry of information into the database. This simplifies error-checking and correction, should there be a need to refer back to the original (paper) data sheet. It also facilitates reviewing miscellaneous notes or illustrations that may be on the original data sheet but not documented in the database (e.g. sketches of beach erosion, turtle injuries, or ectobiota).

NOTE: ALWAYS duplicate and archive two sets (in separate, secure locations) of all paper data sheets. The database archives information, NOT data sheets. A three-ring notebook or other record-keeping device should store all data sheets indefinitely. All data sheets should be sequentially numbered because Page Number is the most direct link between the data sheet and the information provided by that data sheet to the electronic database. The paper data sheets represent original information collected in the field and will often include notes, drawings, and other useful information not entered into the electronic database. If they are lost or discarded, they can never be replaced. Treat them with respect.

Location

The location of the event, and specifically of the nest cavity, is entered in this section.

Country

We have chosen to use Country as the broadest location category because some programs may support multiple projects in a number of different countries. We strongly recommend this

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always be completed, as it is useful to the MTTC in maintaining accurate tag information, as projects in different countries may have the same location names (e.g. Grande Anse Beach, Grenada and Grande Anse Beach, St. Lucia).

Location Name

Click the 'down arrow' on the right side of the entry box. Select the Location Name from the list and click on it using the left mouse button. If the Location Name is not among those in the pull-down menu, add it using a left mouse click on the "New" button. Location Name is required if Zone (see below) will be used to further identify the event location.

The name used for "Location" should reflect the best supporting documentation, such as that indicated on an up-to-date navigational chart or national map. Local common names for beaches can change, creating confusion as future project personnel attempt to interpret the information. Each location should eventually be identified by latitude and longitude. (An unlimited number of Location Names can be entered for each Country.)

Zone

Zones represent geographic subsets of the Location Names. For example, a nesting beach might be divided into distinct named or numbered sections: we refer to these as Zones of that beach. This feature will not activate on the data form unless a Location Name has been assigned to the event.

Hint: If your Location is only subdivided into one series of sections (e.g. a beach subdivided into 20 m sections along its entire length), then it is best to establish a single Zone for this location. Each section along this Zone can, in turn, be delineated with Landmarks (see below).

Event Latitude

Enter Latitude as degrees (°) minutes and decimal minutes (e.g. 13° 22.5672). Four decimal places are available. For latitudes less than 10°, a zero or blank must lead the value (e.g. 08° or _8°). This format represents a compromise between traditional representations of Longitude (deg, min, sec) and that used in most GIS and mapping applications (decimal degrees).

Event Longitude

Enter Longitude as degrees (°) minutes and decimal minutes (e.g. 102° 59.4549). Four decimal places are available. For longitudes less than 100°, a zero or blank must lead the value (e.g. 095° or _95°).

Landmark Name

Landmarks are subservient to Zone. Click the 'down arrow' on the right side of the entry box. Select the name of the landmark and click on it using the left mouse button.

Hint. Landmark names can be numbers if, for example, the beach is subdivided into numbered sections along its length.

Distance to Landmark

Measuring from two permanent Landmarks to the center of the nest or body pit (referred to as “triangulation”) is the most accurate means to determine the exact location of a nest. Accuracy can be within a few centimeters, depending on the quality of the Landmark. This can be important if project personnel will want to find the nest later, such as for the purpose of monitoring hatching activity.

Distance from vegetation line

Enter the distance (in meters) between either the center of the body pit or the nesting cavity if its location has been verified, and the line of permanent vegetation.

Distance from the high water

Enter the distance (in meters) between the center of the body pit or the nest cavity if its location has been verified, and the most recent high tide, or high water, line on the beach.

Physical Description

Information concerning the physical description of the turtle is entered in this section. For guidance on “Measuring Sea Turtles” and other field protocols, please refer to the IUCN/ SSC Marine Turtle Specialist Group’s “Research and Management Techniques for the Conservation of Sea Turtles” (Eckert et al. 1999; <http://www.iucn-mts.org/publications/>).

Size

Enter the measurement (metric units) in the appropriate box, as follows:

<i>CCLNN</i>	<i>Curved carapace length (“notch to notch”, see diagram)</i>
<i>CCLNT</i>	<i>Curved carapace length (“notch to tip”, see diagram)</i>
<i>CCW</i>	<i>Curved carapace width</i>
<i>SCLNN</i>	<i>Straight-line carapace length, NN [measured with calipers]</i>
<i>SCLNT</i>	<i>Straight-line carapace length, NT [measured with calipers]</i>
<i>SCW</i>	<i>Straight-line carapace width [measured with calipers]</i>

Does carapace damage affect measurement?

Check [] if yes. The entry field is used to indicate that the measurement may have been affected (usually shortened) by a damaged carapace. Such measurements will corrupt population level evaluations of turtle size and should be excluded from any analyses.

Weight

If the turtle was weighed, enter that information here (in kilograms).

Injuries and Diagnostic Characters

Enter notes describing injuries or other diagnostic characteristics of the turtle.

Parasites and Ectobiota

Enter notes associated with parasites or ectobiota (e.g. barnacles) found on the turtle.

Notes: A text box is available to enter information not included elsewhere on the data form.

Tag Scar Location

A pull-down menu can be used to identify where a possible tag scar is located on the turtle. Tag scars are the residual scars left in the flipper once a tag has been removed or has fallen out. Evaluating tag scars is difficult. Be sure that the observer has been properly trained to detect tag scars before relying on this variable. In the case of leatherback turtles, it is even more difficult to differentiate a tag scar from other types of flipper damage. Interpret such information with caution.

Results of the Nesting Attempt

Information concerning the outcome of the nesting event, including whether or not eggs were successfully laid (and, if so, how many eggs were laid) is entered in this section.

Nesting Activity

Click the 'down arrow' on the right side of the entry box. Select (using the left mouse button) the activity the turtle was engaged in when first encountered, from among these choices:

Emerging from surf - *Turtle is in the surf zone when encountered.*

Approaching - *Turtle is moving up the beach prior to first body-pit attempt.*

Body-pitting - *Turtle is constructing a body-pit (prior to egg-laying).*

Digging - *Turtle is digging a nest cavity with her hind flippers only.*

Laying - *Turtle is laying eggs.*

Covering - *Turtle is filling the nest cavity with sand, or packing/tamping sand.*

Camouflaging - *Turtle is disguising the nest area by sweeping front and rear flippers.*

Leaving - *Turtle is moving down the beach toward the water.*

Entering the sea - *Turtle is entering the surf or surf zone.*

Gone - *Turtle was not observed.*

Nesting Outcome

Click the 'down arrow' on the right side of the entry box. Select the most accurate outcome, and click on it using the left mouse button. The following choices are provided:

False Crawl Without Body Pit - *no evidence of body-pitting or nest preparation, only a track emerging from and returning to the sea.*

Confirmed False Crawl with Body Pit - *in this case the turtle was observed to create a body pit, but did not lay eggs.*

Body Pit - *body pit(s) present, otherwise the outcome is unconfirmed.*

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Confirmed nest with eggs - eggs *OBSERVED* and confirmed in a nest chamber.

Estimated nest with eggs - eggs *NOT OBSERVED*, but the event is classified as a nest with eggs using other lines of evidence.

Unknown - there is no reliable information on the outcome of the event.

Number of Yolked Eggs

Verified number of potentially viable eggs in the nest. As a general rule, all eggs of “normal” size are considered to be viable; only leatherback turtles routinely deposit significant numbers of smaller, often misshapen eggs that lack a yolk and will not produce young (see “Number of Yolkless Eggs”).

Number of Yolkless Eggs

Number of yolk deficient, non-viable eggs in the nest. This parameter typically applies to leatherback turtles, and on rare occasions to other species.

Nest Relocation Data

This section is designed to document the destination of any clutch of eggs moved from their original nest site to an alternate location, referred to as the “relocation” site.

Relocation Date

Record the date that the nest was excavated and moved to its new location.

Time Excavated

Record the time that the nest was excavated and moved to its new location.

Time Reburied

Record the time that the nest was actually reburied at its new location. This can be important because correlations might be found, for example, between hatch success and the time that elapses between the act of excavation and the act of reburial.

Location Name

Click the ‘down arrow’ on the right side of the entry box. Select the Location Name from the list and click on it using the left mouse button. If the Location Name is not among those in the pull-down menu, add it using a left mouse click on the “New” button. Location Name is required if Zone (see below) will be used to further identify the event location.

The name used for “Location” should reflect the best supporting documentation, such as that indicated on an up-to-date navigational chart or national map. Local common names for beaches can change, creating confusion as future project personnel attempt to interpret the information. Each location should eventually be identified by latitude and longitude. (An unlimited number of Location Names can be entered for each Country.)

Relocation Zone

Zones represent geographic subsets of the Location Names. For example, a nesting beach might be divided into distinct named or numbered sections: we refer to these as Zones of that beach. This feature will not activate on the data form unless a Location Name has been assigned to the event.

Hint: If your Location is only subdivided into one series of sections (e.g. a beach subdivided into 20 m sections along its entire length), then it is best to establish a single Zone for this location. Each section along this Zone can, in turn, be delineated with Landmarks (see below).

Latitude

Enter Latitude as degrees (°) minutes and decimal minutes (e.g. 13° 22.5672). Four decimal places are available. For latitudes less than 10°, a zero or blank must lead the value (e.g. 08° or _8°). This format represents a compromise between traditional representations of Longitude (deg, min, sec) and that used in most GIS and mapping applications (decimal degrees).

Longitude

Enter Longitude as degrees (°) minutes and decimal minutes (e.g. 102° 59.4549). Four decimal places are available. For longitudes less than 100°, a zero or blank must lead the value (e.g. 095° or _95°).

Landmark

Landmarks are subservient to Relocated Zone. Click the 'down arrow' on the right side of the entry box. Select the name of the Landmark and click on it using the left mouse button.

Distance to Landmark

Measuring from two permanent Landmarks to the center of the relocated nest (referred to as "triangulation") is the most accurate means to determine its exact location. Accuracy is usually within a few centimeters, depending on the quality of the Landmark. This can be important if project personnel will want to find the nest later, such as for the purpose of monitoring hatching activity.

Distance to HWM

Enter the distance (in meters) between the center of the new nest cavity and the line of the High Water Mark (HWM).

Distance to Vegetation

Enter the distance (in meters) between the center of the new nest cavity and the line of permanent vegetation.

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Stranding Event Data Entry Form

The Stranding Event Data Entry Form is used to enter information on a “stranding”, which refers to a turtle washing ashore unintentionally. The turtle might be alive, dead, or comatose (e.g. cold-stunned or very ill). This form is not designed for documenting a nesting event.

The screenshot shows a web browser window displaying the "Stranding Event Data Entry Form". The browser's address bar and menu bar are visible at the top. The form itself is a light blue page with various input fields and sections. At the top of the form, there are dropdown menus for "Turtle ID" (with "(AutoNumber)" in parentheses), "Species", "Gender", and "Project". Below these are fields for "Date", "Time", "Weather" (with a dropdown), "# of Observers", "Observers" (with a dropdown and a "R" button), "Tag Numbers", "New Tag?" (with a checkbox), and "Page#" (with a dropdown). There are two red buttons: "Add Observers" and "Tag Error Report".

The "LOCATION" section includes a red button "Add New Location/Zone/Landmark", a "Country" dropdown, "Location Name" and "Zone" dropdowns, "Event Latitude" and "Event Longitude" text boxes, a "Landmark Name" dropdown, and a "Dist. from Landmark (m)" text box with a small input field. The "PHYSICAL DESCRIPTION" section has fields for "CCLNN", "SCLNN", "CCLNT", "SCLNT", "CCW", and "SCW", each with a text box. Below these are "Weight (Kg)" and "Carapace Intact?" (with a checkbox and "No" text). To the right are two diagrams of turtle carapaces labeled "NN" and "NT". The "Diagnostic Injuries" section has a large empty text box. The "Necropsy Report" section has a large empty text box with a scrollbar. The "Parasites and Ectobiota" section has a large empty text box and a "Tag Scar Location" dropdown. The "Notes" section has a large empty text box. At the bottom right, there are three buttons: a refresh button, a "Refresh" button, and a print button.

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Species

If species has not been automatically entered, it may be selected from a pull-down menu of choices: green turtle, hawksbill, Kemp's ridley, leatherback, loggerhead, olive ridley.

Gender

If gender has not been automatically completed, it may be selected from a pull-down menu.

Project

Each project has a unique identification name or acronym. This name should appear on the pull-down menu. If it does not, it should be entered in the Project Management module.

Date

Date is entered either as dd/mm/yyyy or mm/dd/yyyy, depending on whether your computer uses American standard date format (mm/dd/yyyy) or European standard date format (dd/mm/yyyy). Always record the date and time when the stranded animal was found, not the date and time when you think the animal may have washed ashore (that information, if available, can be entered in "Notes").

Time

Time is entered in 12 hour format, with the designator AM or PM (e.g. 11:30 PM).

Weather

Weather is selected from a pull-down menu, including:

- Clear*
- Overcast*
- Rain*
- Stormy/Strong Wind*
- Broken Clouds*
- Unknown*

of Observers

This value represents the number of observers near the turtle during its observation. The value should include the data recorder and project personnel, as well as any non-project personnel (e.g. tourists or visitors).

Observer

The observer is the person who is reporting the sea turtle event. Click the 'down arrow' on the right side of the entry box. Select the observer's name or initials from the list. If the observer's name is not among those in the pull-down menu, add it using the "Add New Observer" button. Once the new observer has been added to the database (be sure to check the "active" box on the entry form), click on the "R" button to refresh the list of choices on the pull-down menu and then select the observer.

Tag Numbers

Pre-entered tag numbers can be selected from the pull-down menu, which is activated using the arrow at the left side of the entry field. If the tag number has not been entered into the database, you will be asked if you would like to add the number at this time. If so, an entry form will open to facilitate the entry.

Obviously you would not place a new tag on a dead turtle, but if the turtle strands alive and is later released, tagging it would be useful. If the turtle is tagged as a result of the stranding and the tag number is being used for the first time, click the "New" checkbox directly beside the tag number. The status of the tag in the database will be changed from "in stock" to "on turtle" and will also allow a calculation of tag retention rates.

There is a tag error button included on the form. This is used to note that there is some type of discrepancy in the tag record that needs correction. Often during data entry the data manager will find possible errors, such as a tag number that appears on the data form (i.e. the original paper copy) to be unreadable or the data manager has reason to believe that the tag was read and recorded incorrectly. By checking this box it "bookmarks" the tag number for later review and correction.

Page Number

Paper data sheets used by project personnel should always be numbered consecutively prior to the entry of information into the database. This simplifies error-checking and correction, should there be a need to refer back to the original (paper) data sheet. It also facilitates reviewing miscellaneous notes or illustrations that may be on the original data sheet but not documented in the database (e.g. sketches of beach erosion, turtle injuries, or ectobiota).

NOTE: ALWAYS duplicate and archive two sets (in separate, secure locations) of all paper data sheets. The database archives information, NOT data sheets. A three-ring notebook or other record-keeping device should store all data sheets indefinitely. All data sheets should be sequentially numbered because Page Number is the most direct link between the data sheet and the information provided by that data sheet to the electronic database. The paper data sheets represent original information collected in the field and will often include notes, drawings, and other useful information not entered into the electronic database. If they are lost or discarded, they can never be replaced. Treat them with respect.

Location

The location of the stranding event (i.e. the location where the turtle washed ashore) is entered in this section.

Country

We have chosen to use Country as the broadest location category because some programs may support multiple projects in a number of different countries. We strongly recommend this

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always be completed, as it is useful to the MTTC in maintaining accurate tag information, as projects in different countries may have the same location names (e.g. Grande Anse Beach, Grenada and Grande Anse Beach, St. Lucia).

Location Name

Click the 'down arrow' on the right side of the entry box. Select the location name from the list and click on it using the left mouse button. If the Location Name is not among those in the pull-down menu, add it using a left mouse click on the "New" button. Location Name is *required* if Zone (see below) will be used to further identify the event location.

The name used for "Location" should reflect the best supporting documentation, such as that indicated on an up-to-date navigational chart or national map. Local common names for beaches can change, creating confusion as future project personnel attempt to interpret the information. Each location should eventually be identified by latitude and longitude. (An unlimited number of Location Names can be entered for each Country.)

Zone

Zones represent geographic subsets of the Location Names. For example, the coastline might be divided into distinct named or numbered sections: we refer to these as Zones. This feature will not activate on the data form unless a Location Name has been assigned to the event.

Hint: If your Location is only subdivided into one series of sections (e.g. a beach subdivided into 20 m sections along its entire length), then it is best to establish a single Zone for this location. Each section along this Zone can, in turn, be delineated with Landmarks (see below).

Event Latitude

Enter Latitude as degrees (°) minutes and decimal minutes (e.g. 13° 22.5672). Four decimal places are available. For latitudes less than 10°, a zero or blank must lead the value (e.g. 08° or _8°). This format represents a compromise between traditional representations of Longitude (deg, min, sec) and that used in most GIS and mapping applications (decimal degrees).

Event Longitude

Enter Longitude as degrees (°) minutes and decimal minutes (e.g. 102° 59.4549). Four decimal places are available. For longitudes less than 100°, a zero or blank must lead the value (e.g. 095° or _95°).

Landmark Name

Landmarks are subservient to Zone. Click the 'down arrow' on the right side of the entry box. Select the name of the Landmark and click on it using the left mouse button.

Hint: Landmark names can be numbers if, for example, the beach is subdivided into numbered sections along its length.

Distance to Landmark

Measuring from two permanent landmarks to the location of the stranding (referred to as “triangulation”) is the most accurate means to determine its exact location. Accuracy can be within a few centimeters, depending on the quality of the Landmark. This can be important if project personnel want to analyze the spatial pattern of strandings along the coastline.

Physical Description

Information concerning the physical description of the turtle is entered in this section. For guidance on “Measuring Sea Turtles” and other field protocols, please refer to the IUCN/ SSC Marine Turtle Specialist Group’s “Research and Management Techniques for the Conservation of Sea Turtles” (Eckert et al. 1999; <http://www.iucn-mtsg.org/publications/>).

Size

Enter the measurement (metric units) in the appropriate box, as follows:

<i>CCLNN</i>	<i>Curved carapace length (“notch to notch”, see diagram)</i>
<i>CCLNT</i>	<i>Curved carapace length (“notch to tip”, see diagram)</i>
<i>CCW</i>	<i>Curved carapace width</i>
<i>SCLNN</i>	<i>Straight-line carapace length, NN [measured with calipers]</i>
<i>SCLNT</i>	<i>Straight-line carapace length, NT [measured with calipers]</i>
<i>SCW</i>	<i>Straight-line carapace width [measured with calipers]</i>

Does carapace damage affect measurement?

Check [] if yes. The entry field is used to indicate that the measurement may have been affected (usually shortened) by a damaged carapace. Such measurements will corrupt population-level evaluations of turtle size and should be excluded from any analyses.

Weight

If the turtle was weighed, enter that information here (in kilograms).

Injuries and Diagnostic Characters

Enter notes describing injuries or other diagnostic characteristics of the turtle.

Parasites and Ectobiota

Enter notes associated with parasites or ectobiota (e.g. barnacles) found on the turtle.

Tag Scar Location

A pull-down menu can be used to identify where a possible tag scar is located on the turtle. Tag scars are the residual scars left in the flipper once a tag has been removed or has fallen out. Evaluating tag scars is difficult. Be sure that the observer has been properly trained to detect tag scars before relying on this variable. In the case of leatherback turtles, it is even more

difficult to differentiate a tag scar from other types of flipper damage. Interpret such information with caution, especially in the case of a stranded animal which may have sustained any number of small bites and other injuries to the carcass.

Turtle Condition

The condition of the stranded turtle may be selected from a pull-down menu:

Alive
Fresh Dead
Moderately Decomposed
Very Decomposed
Unknown

Necropsy Report

This section is used to document a necropsy, the animal equivalent of an autopsy. You may paste the text of the report into this section, or use the field to enter a description of where a more detailed report can be located (e.g. the file name, contact person, or other archive information or storage location). For guidance on how to conduct a necropsy, please visit <http://www.nwhc.usgs.gov/hfs/Documents/turtleml.pdf>.

Notes

A text box is available to enter other information not included elsewhere on the data form.

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Capture Event Data Entry Form

The Capture Event Data Entry Form is used to enter information available from the intentional or unintentional capture of a turtle at sea. The module can be selected to record data collected during a project designed to capture sea turtles for research purposes, or to record information on a turtle captured or entangled during fishing and later reported to the database manager or other authority.

The screenshot shows a software application window titled "Capture Event Data Entry Form". The interface includes a menu bar (File, Edit, View, Insert, Format, Records, Tools, Window, Help) and a toolbar with various icons. The main form area is light blue and contains several sections:

- Header Fields:** TurtleID: [toNumber], Species: [dropdown], Gender: [dropdown], Project: [dropdown].
- Event Details:** Date, Time, Weather: [dropdown], # of Observers: [input].
- Observers:** [dropdown] with an "Add Observers" button.
- Tagging:** Tag Numbers: [input], NewTag?: [checkbox], Page#: [input], and a "Tag Error Report" button.
- LOCATION:** "Add New Location/Zone/Landmark" button, Country: [dropdown], Location Name: [input], Zone: [dropdown], Event Latitude: [input], Event Longitude: [input], Landmark Name: [input], Dist. from Landmark (m): [input].
- PHYSICAL DESCRIPTION:** CCLNN, CCLNT, CCW, SCLNN, SCLNT, SCW: [input] fields. Weight (Kg): [input], Carapace Intact?: [checkbox] No. Includes diagrams for "NN" and "NT" tag types.
- Diagnostic Injuries:** A large text area for notes.
- Parasites and Ectobiota:** A text area and a "Tag Scar Location": [dropdown].
- Water Data:** Water Depth (m): [input], Water Temperature (c): [input].
- Notes:** A large text area.

At the bottom right, there are "Refresh" and "Save" buttons. The status bar at the bottom shows "Record: 1 of 1".

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Turtle ID

This field is filled in automatically by the database program.

Species

If species has not been automatically entered, it may be selected from a pull-down menu of choices: green turtle, hawksbill, Kemp's ridley, leatherback, loggerhead, olive ridley.

Gender

If gender has not been automatically completed, it may be selected from a pull-down menu.

Project

Each project has a unique identification name or acronym. This name should appear on the pull-down menu. If it does not, it should be entered in the Project Management module.

Date

Date of capture is entered either as dd/mm/yyyy or mm/dd/yyyy, depending on whether your computer uses American standard date format (mm/dd/yyyy) or European standard date format (dd/mm/yyyy).

Time

Time of capture is entered in 12 hour format, with the designator AM or PM (e.g. 11:30 PM).

Weather

Weather is selected from a pull-down menu, including:

Clear

Overcast

Rain

Stormy/Strong Wind

Broken Clouds

Unknown

of Observers

This value represents the number of observers present at the capture. The value should include the fisherman, data recorder and/or project personnel, as well as any non-project personnel (e.g. tourists or visitors).

Observer

The observer is the person who is reporting the sea turtle event. Click the 'down arrow' on the right side of the entry box. Select the observer's name or initials from the list. If the observer's name is not among those in the pull-down menu, add it using the "Add New Observer" button. Once the new observer has been added to the database (be sure to check the "active" box on the entry form), click on the "R" button to refresh the list of choices on the pull-down menu and then select the observer.

Tag Numbers

Pre-entered tag numbers can be selected from the pull-down menu, which is activated using the arrow at the left side of the entry field. If the tag number has not been entered into the database, you will be asked if you would like to add the number at this time. If so, an entry form will open to facilitate the entry. If the turtle is tagged as a result of the capture and the tag number is being used for the first time, click on the “New” checkbox directly beside the tag number. The status of the tag in the database will be changed from “in stock” to “on turtle” and will also allow a calculation of tag retention rates.

There is a tag error button included on the form. This is used to note that there is some type of discrepancy in the tag record that needs correction. Often during data entry the data manager will find possible errors, such as a tag number that appears on the data form (i.e. the original paper copy) to be unreadable or the data manager has reason to believe that the tag was read and recorded incorrectly. By checking this box it “bookmarks” the tag number for later review and correction.

Page Number

Paper data sheets used by project personnel should always be numbered consecutively prior to the entry of information into the database. This simplifies error-checking and correction, should there be a need to refer back to the original (paper) data sheet. It also facilitates reviewing miscellaneous notes or illustrations that may be on the original data sheet but not documented in the database (e.g. sketches of beach erosion, turtle injuries, or ectobiota).

NOTE: ALWAYS duplicate and archive two sets (in separate, secure locations) of all paper data sheets. The database archives information, NOT data sheets. A three-ring notebook or other record-keeping device should store all data sheets indefinitely. All data sheets should be sequentially numbered because Page Number is the most direct link between the data sheet and the information provided by that data sheet to the electronic database. The paper data sheets represent original information collected in the field and will often include notes, drawings, and other useful information not entered into the electronic database. If they are lost or discarded, they can never be replaced. Treat them with respect.

Location

The location of the capture is entered in this section.

Country

We have chosen to use Country as the broadest location category because some programs may support multiple projects in a number of different countries. We strongly recommend this always be completed, as it is useful to the MTTC in maintaining accurate tag information, as projects in different countries may have the same location names (e.g. Grande Anse Beach, Grenada and Grande Anse Beach, St. Lucia).

Location Name

Click the 'down arrow' on the right side of the entry box. Select the location name from the list and click on it using the left mouse button. If the Location Name is not among those in the pull-down menu, add it using a left mouse click on the "New" button. Location Name is required if Z one (see below) will be used to further identify the event location.

The name used for "Location" should reflect the best supporting documentation, such as that indicated on an up-to-date navigational chart or national map. Local common names for beaches can change, creating confusion as future project personnel attempt to interpret the information. Each location should eventually be identified by latitude and longitude. (An unlimited number of Location Names can be entered for each Country.)

Zone

Zones represent geographic subsets of the Location Names. For example, a fringing reef or marine protected area might be divided into distinct named or numbered areas or sections: we refer to these as Zones. This feature will not activate on the data form unless a Location Name has been assigned to the event.

Hint: If your Location is only subdivided into one series of sections (e.g. a reef divided into permanent research quadrants), then it is best to establish a single Zone for this location. Each quadrant can, in turn, be delineated with Landmarks (see below).

Event Latitude

Enter Latitude as degrees (°) minutes and decimal minutes (e.g. 13° 22.5672). Four decimal places are available. For latitudes less than 10°, a zero or blank must lead the value (e.g. 08° or _8°). This format represents a compromise between traditional representations of Longitude (deg, min, sec) and that used in most GIS and mapping applications (decimal degrees).

Event Longitude

Enter Longitude as degrees (°) minutes and decimal minutes (e.g. 102° 59.4549). Four decimal places are available. For longitudes less than 100°, a zero or blank must lead the value (e.g. 095° or _95°).

Landmark Name

Landmarks are subservient to Zone. Click the 'down arrow' on the right side of the entry box. Select the name of the landmark and click on it using the left mouse button.

Distance to Landmark

Measuring from two permanent Landmarks to the site of capture (referred to as "triangulation") is the most accurate means to determine its exact location.

Water Depth

Water depth (at the point of capture, if at sea) must be recorded in meters (m).

Water Temperature

Water temperature (at the point of capture, if at sea) must be entered in degrees Centigrade (° C).

Physical Description

Information concerning the physical description of the turtle is entered in this section. For guidance on "Measuring Sea Turtles" and other field protocols, please refer to the IUCN/ SSC Marine Turtle Specialist Group's "Research and Management Techniques for the Conservation of Sea Turtles" (Eckert et al. 1999; <http://www.iucn-mtsg.org/publications/>).

Size

Enter the measurement (metric units) in the appropriate box, as follows:

<i>CCLNN</i>	<i>Curved carapace length ("notch to notch", see diagram)</i>
<i>CCLNT</i>	<i>Curved carapace length ("notch to tip", see diagram)</i>
<i>CCW</i>	<i>Curved carapace width</i>
<i>SCLNN</i>	<i>Straight-line carapace length, NN [measured with calipers]</i>
<i>SCLNT</i>	<i>Straight-line carapace length, NT [measured with calipers]</i>
<i>SCW</i>	<i>Straight-line carapace width [measured with calipers]</i>

Does carapace damage affect measurement?

Check [] if yes. The entry field is used to indicate that the measurement may have been affected (usually shortened) by a damaged carapace. Such measurements will corrupt population-level evaluations of turtle size and should be excluded from any analyses.

Weight

If the turtle was weighed, enter that information here (in kilograms).

Injuries and Diagnostic Characters

Enter notes describing injuries or other diagnostic characteristics of the turtle.

Parasites and Ectobiota

Enter notes associated with parasites or ectobiota (e.g. barnacles) found on the turtle.

Tag Scar Location

A pull-down menu can be used to identify where a possible tag scar is located on the turtle. Tag scars are the residual scars left in the flipper once a tag has been removed or has fallen out. Evaluating tag scars is difficult. Be sure that the observer has been properly trained to detect

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tag scars before relying on this variable. In the case of leatherback turtles, it is even more difficult to differentiate a tag scar from other types of flipper damage. Interpret such information with caution.

Notes

A text box is available to enter other information not included elsewhere on the data form.

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Sighting Event Data Entry Form

The Sighting Event Data Entry Form is used to enter information on a sea turtle sighting. Most such reports are opportunistic and data are often limited. The sighting could be at-sea (e.g. at the surface as reported by a ferry captain, or underwater as reported by a SCUBA diver) or on land (e.g. a turtle observed and reported by a member of the general public). If the sighting is a nesting event or a capture event, it could be recorded in either this module or on the nesting or capture modules. Most often, this form will be used for opportunistic (unplanned) observations of a turtle.

The screenshot shows a web browser window displaying the 'Sighting Event Data Entry Form'. The browser's address bar shows 'MS Sans Serif' and the page title is 'Sighting Event Data Entry Form'. The form is organized into several sections:

- Header Fields:** Turtle ID (with an 'AutoNumber' button), Species, Gender, and Project.
- Event Details:** Date, Time, Weather, # of Observers, Observers, Log Number, New Log, and Page#.
- LOCATION:** Includes a dropdown for 'Country', a text field for 'Location Name', a dropdown for 'Zone', text fields for 'Event Latitude' and 'Event Longitude', a dropdown for 'Landmark Name', and a text field for 'Dist. from Landmark (m)'. There is a red button 'Add New Location/Zone/Landmark'.
- PHYSICAL DESCRIPTION:** Contains text fields for 'I11 NN', 'CCLNT', 'I1W', 'SCLNN', 'SCLNT', and 'SCW.'. There are also checkboxes for 'Weight (Kg)' and 'Carapace Injured?' (with 'No' selected). To the right are two diagrams of turtle carapaces labeled 'NN' and 'NT'.
- Diagnostic Injuries:** A large empty text area for recording injuries.
- Parasites and Ectobiota:** A large empty text area for recording parasites and ectobiota.
- Water Data:** Text fields for 'Water Depth (m)' and 'Water Temperature (c)'.
- Notes:** A large empty text area for additional notes.
- Buttons:** 'Add Observers' (red), 'Tag First Report' (red), 'Refresh', and a save button.

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Turtle ID

This field is filled in automatically by the database program.

Species

If species has not been automatically entered, it may be selected from a pull-down menu of choices: green turtle, hawksbill, Kemp's ridley, leatherback, loggerhead, olive ridley.

Gender

If gender has not been automatically completed, it may be selected from a pull-down menu.

Project

Each project has a unique identification name or acronym. This name should appear on the pull-down menu. If it does not, it should be entered in the Project Management module.

Date

Date of the sighting is entered either as dd/mm/yyyy or mm/dd/yyyy, depending on whether your computer uses American standard date format (mm/dd/yyyy) or European standard date format (dd/mm/yyyy).

Time

Time of sighting is entered in 12 hr format, with the designator AM or PM (e.g. 11:30 PM).

Weather

Weather is selected from a pull-down menu, including:

Clear
Overcast
Rain
Stormy/Strong Wind
Broken Clouds
Unknown

of Observers

This value represents the number of observers present for the sighting. The value should include the fisherman, data recorder and/or project personnel, as well as any non-project personnel (e.g. tourists or visitors).

Observer

The observer is the person who is reporting the sea turtle event. Click the 'down arrow' on the right side of the entry box. Select the observer's name or initials from the list. If the observer's name is not among those in the pull-down menu, add it using the "Add New Observer" button. Once the new observer has been added to the database (be sure to check the "active" box on the entry form), click on the "R" button to refresh the list of choices on the pull-down menu and then select the observer.

Tag Numbers

Pre-entered tag numbers can be selected from the pull-down menu, which is activated using the arrow at the left side of the entry field. If the tag number has not been entered into the database, you will be asked if you would like to add the number at this time. If so, an entry form will open to facilitate the entry. If the turtle is tagged as a result of the sighting and the tag number is being used for the first time, click on the "New" checkbox directly beside the tag number. The status of the tag in the database will be changed from "in stock" to "on turtle" and will also allow a calculation of tag retention rates.

There is a tag error button included on the form. This is used to note that there is some type of discrepancy in the tag record that needs correction. Often during data entry the data manager will find possible errors, such as a tag number that appears on the data form (i.e. the original paper copy) to be unreadable or the data manager has reason to believe that the tag was read and recorded incorrectly. By checking this box it "bookmarks" the tag number for later review and correction.

Page Number

Paper data sheets used by project personnel should always be numbered consecutively prior to the entry of information into the database. This simplifies error-checking and correction, should there be a need to refer back to the original (paper) data sheet. It also facilitates reviewing miscellaneous notes or illustrations that may be on the original data sheet but not documented in the database (e.g. sketches of beach erosion, turtle injuries, or ectobiota).

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Location

The location of the sighting is entered in this section.

Country

We have chosen to use Country as the broadest location category because some programs may support multiple projects in a number of different countries. We strongly recommend this always be completed, as it is useful to the MTTC in maintaining accurate tag information, as projects in different countries may have the same location names (e.g. Grande Anse Beach, Grenada and Grande Anse Beach, St. Lucia).

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Location Name

Click the 'down arrow' on the right side of the entry box. Select the Location Name from the list and click on it using the left mouse button.

If the Location Name is not among those in the pull-down menu, add it using a left mouse click on the "New" button. Location Name is required if Zone (see below) will be used to further identify the event location.

The name used for "Location" should reflect the best supporting documentation, such as that indicated on an up-to-date navigational chart or national map. Local common names for beaches can change, creating confusion as future project personnel attempt to interpret the information. Each location should eventually be identified by latitude and longitude. (An unlimited number of Location Names can be entered for each Country.)

Zone

Zones represent geographic subsets of the Location Names. For example, a nesting beach, an offshore reef, or a marine protected area might be divided into distinct named or numbered areas or sections: we refer to these as Zones. This feature will not activate on the data form unless a Location Name has been assigned to the event.

Hint: If your Location is only subdivided into one series of sections (e.g. a nesting beach might be divided into distinct named or numbered sections, or a reef into permanent research quadrants), then it is best to establish a single Zone for this location. Each quadrant can, in turn, be delineated with Landmarks (see below).

Event Latitude

Enter Latitude as degrees (°) minutes and decimal minutes (e.g. 13° 22.5672). Four decimal places are available. For latitudes less than 10°, a zero or blank must lead the value (e.g. 08° or _8°). This format represents a compromise between traditional representations of Longitude (deg, min, sec) and that used in most GIS and mapping applications (decimal degrees).

Event Longitude

Enter Longitude as degrees (°) minutes and decimal minutes (e.g. 102° 59.4549). Four decimal places are available. For longitudes less than 100°, a zero or blank must lead the value (e.g. 095° or _95°).

Landmark Name

Landmarks are subservient to Zone. Click the 'down arrow' on the right side of the entry box. Select the name of the landmark and click on it using the left mouse button.

Distance to Landmark

Measuring from two permanent Landmarks to the location of the sighting (referred to as "trian-

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gulation”) is the most accurate means to determine its exact location. This information can be very useful in an analysis of the spatial distribution of sea turtle sightings.

Water Depth

Water depth (at the location of the sighting, if at sea) must be recorded in meters (m).

Water Temperature

Water temperature (at the location of the sighting, if at sea) must be entered in degrees Centigrade (°C).

Physical Description

Information concerning the physical description of the turtle is entered in this section. For guidance on “Measuring Sea Turtles” and other field protocols, please refer to the IUCN/ SSC Marine Turtle Specialist Group’s “Research and Management Techniques for the Conservation of Sea Turtles” (Eckert et al. 1999; <http://www.iucn-mts.org/publications/>).

Size

Enter the measurement (metric units) in the appropriate box, as follows:

<i>CCLNN</i>	<i>Curved carapace length (“notch to notch”, see diagram)</i>
<i>CCLNT</i>	<i>Curved carapace length (“notch to tip”, see diagram)</i>
<i>CCW</i>	<i>Curved carapace width</i>
<i>SCLNN</i>	<i>Straight-line carapace length, NN [measured with calipers]</i>
<i>SCLNT</i>	<i>Straight-line carapace length, NT [measured with calipers]</i>
<i>SCW</i>	<i>Straight-line carapace width [measured with calipers]</i>

Does carapace damage affect measurement?

Check [✓] if yes. The entry field is used to indicate that the measurement may have been affected (usually shortened) by a damaged carapace. Such measurements will corrupt population-level evaluations of turtle size and should be excluded from any analyses.

Weight

If the turtle was weighed, enter that information here (in kilograms).

Injuries and Diagnostic Characters

Enter notes describing injuries or other diagnostic characteristics of the turtle.

Parasites and Ectobiota

Enter notes associated with parasites or ectobiota (e.g. barnacles) found on the turtle.

Tag Scar Location

A pull-down menu can be used to identify where a possible tag scar is located on the turtle. Tag scars are the residual scars left in the flipper once a tag has been removed or has fallen out. Evaluating tag scars is difficult. Be sure that the observer has been properly trained to detect tag scars before relying on this variable. In the case of leatherback turtles, it is even more difficult to differentiate a tag scar from other types of flipper damage. Interpret such information with caution.

Notes

A text box is available to enter other information not included elsewhere on the data form.

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Hatching Event Data Entry Form

The Hatching Event Data Entry Form is used to enter information on a “hatching”, which refers to any evidence that a turtle nest has produced live young. It can also be used to record depredation or other damage, nest loss (e.g. to erosion), or other nest fate prior to hatching.

The screenshot shows the 'Hatching Event Data Entry Form' interface. At the top, there is a menu bar (File, Edit, View, Insert, Format, Records, Tools, Window, Help) and a toolbar. The form itself is titled 'Hatching Event Data Entry Form' and includes an 'Add Record' button. The form is divided into several sections:

- General Information:** Hatch Nest ID (with a dropdown menu), Species (dropdown), Project (dropdown), Page Number (text field).
- Timing:** Date Emerged, Date Observed, Date Excavated, Total # of Observers, Observers, Time Emerged, Time Observed, Time Excavated, Weather (dropdown), and an 'Add Observer' button.
- Hatch Location:** Country (dropdown), Location Name (dropdown), Zone (dropdown), Event Latitude (text field), Event Longitude (text field).
- Distance from (m):** Vegetation (text field), High Watermark (text field), Landmark Name (dropdown), Distance from Landmark (text field).
- Hatching Result:** Live Hatchlings out of nest (text field), Check if counted, blank if estimated (checkbox), Dead Hatchlings out of nest (text field), Depredated Hatchlings (text field), Depredated Eggs (text field).
- Hatching Release:** Hatching Release Date (text field), Hatching Release Time (text field), Hatching Release Qty (text field), Hatching Release Zone (dropdown).
- Associated Female:** Associated Turtle ID (text field), Associated Tag (text field), Date Laid (text field).
- Nest Contents:** Dead Hatchlings in Nest, Live Hatchlings in Nest, Full-Term Pipped Dead, Full-Term Pipped Alive, Full-Term Unpipped Dead, Full-Term Unpipped Alive, Embryos, Twins, Albino / White, Other Deformed Embryos, Undeveloped, Rotten Eggs, Egg Shells, Yolkless Eggs.
- Notes:** A large text area for entering notes.

At the bottom of the form, there are navigation buttons (left and right arrows) and a status bar showing 'Record: 1 of 1'.

Nest Hatch ID

This field is filled in automatically by the database program.

Species

If species has not been automatically entered, it may be selected from a pull-down menu of choices: green turtle, hawksbill, Kemp's ridley, leatherback, loggerhead, olive ridley.

Project

Each project has a unique identification name or acronym. This name should appear on the pull-down menu. If it does not, it should be entered in the Project Management module.

Page Number

Paper data sheets used by project personnel should always be numbered consecutively prior to the entry of information into the database. This simplifies error-checking and correction, should there be a need to refer back to the original (paper) data sheet. It also facilitates reviewing miscellaneous notes or illustrations that may be on the original data sheet but not documented in the database (e.g. sketches of beach erosion, turtle injuries, or ectobiota).

NOTE: ALWAYS duplicate and archive two sets (in separate, secure locations) of all paper data sheets. The database archives information, NOT data sheets. A three-ring notebook or other record-keeping device should store all data sheets indefinitely. All data sheets should be sequentially numbered because Page Number is the most direct link between the data sheet and the information provided by that data sheet to the electronic database. The paper data sheets represent original information collected in the field and will often include notes, drawings, and other useful information not entered into the electronic database. If they are lost or discarded, they can never be replaced. Treat them with respect.

Date Emerged

The date of hatchling emergence is entered either as dd/mm/yyyy or mm/dd/yyyy, depending on whether your computer uses American standard date format (mm/dd/yyyy) or European standard date format (dd/mm/yyyy). When hatching takes place over several days (nights), it is recommended that the date be the first day of emergence, if known.

Time Emerged

Time is entered in 12 hour format, with the designator AM or PM (e.g. 11:30 PM) and should reflect the time when hatchlings begin to leave the nest, if known.

Date Observed

Date Observed is often different from Date Emerged, and reflects when the hatched nest was first discovered.

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Time Observed

Time Observed is often different from Time Emerged, and reflects when the hatched nest was first discovered.

Date Excavated

Date Excavated is often different from Date Emerged (or Date Observed), since nests are usually excavated a number of days after the hatchlings have left the nest. For guidance on nest excavation ("Determining Clutch Size & Hatch Success"), please refer to the IUCN/ SSC Marine Turtle Specialist Group's "Research and Management Techniques for the Conservation of Sea Turtles" (Eckert et al. 1999; <http://www.iucn-mts.org/publications/>).

Time Excavated

Time Excavated is often different from Time Emerged (or Time Observed), since nests are usually excavated a number of days after the hatchlings have left the nest.

of Observers

This value represents the number of observers near the turtle during its observation. The value should include the data recorder and project personnel, as well as any non-project personnel (e.g. tourists or visitors).

Observer

The observer is the person who is reporting the sea turtle event. Click the 'down arrow' on the right side of the entry box. Select the observer's name or initials from the list. If the observer's name is not among those in the pull-down menu, add it using the "Add New Observer" button. Once the new observer has been added to the database (be sure to check the "active" box on the entry form), click on the "R" button to refresh the list of choices on the pull-down menu and then select the observer.

Weather

Weather is selected from a pull-down menu, including:

Clear
Overcast
Rain
Stormy/Strong Wind
Broken Clouds
Unknown

Hatch Location

The location of the event, and specifically the location of the hatch (the nest emergence), is entered in this section.

Country

We have chosen to use Country as the broadest location category because some programs

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may support multiple projects in a number of different countries. We strongly recommend this always be completed, as it is useful to the MTTC in maintaining accurate tag information, as projects in different countries may have the same location names (e.g. Grande Anse Beach, Grenada and Grande Anse Beach, St. Lucia).

Location Name

Click the 'down arrow' on the right side of the entry box. Select the Location Name from the list and click on it using the left mouse button. If the Location Name is not among those in the pull-down menu, add it using a left mouse click on the "New" button. Location Name is *required* if Zone (see below) will be used to further identify the event location.

The name used for "Location" should reflect the best supporting documentation, such as that indicated on an up-to-date navigational chart or national map. Local common names for beaches can change, creating confusion as future project personnel attempt to interpret the information. Each location should eventually be identified by latitude and longitude. (An unlimited number of Location Names can be entered for each Country.)

Zone

Zones represent geographic subsets of the Location Names. For example, a nesting beach might be divided into distinct named or numbered sections: we refer to these as Zones of that beach. This feature will not activate on the data form unless a Location Name has been assigned to the event.

Hint: If your Location is only subdivided into one series of sections (e.g. a beach subdivided into 20 m sections along its entire length), then it is best to establish a single Zone for this location. Each section along this Zone can, in turn, be delineated with Landmarks (see below).

Event Latitude

Enter Latitude as degrees (°) minutes and decimal minutes (e.g. 13° 22.5672). Four decimal places are available. For latitudes less than 10°, a zero or blank must lead the value (e.g. 08° or _8°). This format represents a compromise between traditional representations of Longitude (deg, min, sec) and that used in most GIS and mapping applications (decimal degrees).

Event Longitude

Enter Longitude as degrees (°) minutes and decimal minutes (e.g. 102° 59.4549). Four decimal places are available. For longitudes less than 100°, a zero or blank must lead the value (e.g. 095° or _95°).

Distance from vegetation line

Enter the distance (meters) between the hatched nest and the line of permanent vegetation.

Distance from the high water

Enter the distance (meters) between the hatched nest and the most recent high tide, or high water, line on the beach.

Landmark Name

Landmarks are subservient to Zone. Click the 'down arrow' on the right side of the entry box. Select the name of the landmark and click on it using the left mouse button.

Hint: Landmark names can be numbers if, for example, the beach is subdivided into numbered sections along its length.

Distance to Landmark

Measuring from two permanent Landmarks to the hatched nest (referred to as "triangulation") is the most accurate means to determine the exact location of the nest. Accuracy can be within a few centimeters, depending on the quality of the Landmark.

Hatching Result

This section reports nest/hatching data obtained without nest excavation. It can also document the loss of eggs to predators prior to, during, or after the nest hatches.

Live Hatchlings out of nest

This field records the number of live hatchlings that emerged from the nest.

Check box: confirm hatchling count

Check this box if the number of live hatchlings that emerged from the nest was counted directly by the observer. Leave it blank if the number was estimated by, for example, counting hatchling tracks on the beach.

Dead Hatchlings out of nest

This field records the number of hatchlings that emerged from the nest, but did not successfully enter the sea. Hatchlings will occasionally die for unknown reasons on the surface of the nest, or during the crawl to the sea. These hatchlings appear intact to the observer, with no evidence of predator attack.

Depredated Hatchlings

This field records the number of depredated hatchlings, i.e. hatchlings killed by predators before the hatchling successfully enters the sea. Sometimes the event is witnessed by the observer; alternatively, a partially consumed hatchling might be found on the beach.

Depredated Eggs

When a turtle nest is attacked by a predator, it is sometimes possible to estimate the number of eggs that were lost by, for example, counting egg shells

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Hint: Eggs (or entire nests) can also be lost to erosion, poaching, or other factors. Such information can be recorded in "Notes", see below.

Hatchling Release

This section reports data on hatchling release, including date, time and location.

Hatchling Release Date

Under rare circumstances, hatchlings are not released on the same date they emerge from the nest. Date is entered either as dd/mm/yyyy or mm/dd/yyyy, depending on whether your computer uses American (mm/dd/yyyy) or European standard date format (dd/mm/yyyy).

Hatchling Release Time

Under rare circumstances, hatchlings are not released at the same time they emerge from the nest. Time is entered in 12 hour format, with the designator AM or PM (e.g. 11:30 PM) and, in this case, it should reflect the time of hatchling release.

Hatchling Release Qty

Enter the number of hatchlings released at the date and time reported.

Hatchling Release Zone

Enter the Zone where the hatchling release took place at the date and time reported.

Nest Contents

A report of nest contents, as obtained by excavating the nest after hatchling emergence.

Nest Contents

Document nest contents, as follows [enter a number in each field, as appropriate]:

Dead hatchlings in nest	Total number of dead hatchlings found in the nest cavity. <u>Note:</u> these are hatched turtles, free from the egg, not full-term embryos.
Live hatchlings in nest	Total number of live hatchlings found in the nest cavity, and released.
Full-term pipped dead	Total number of fully developed dead embryos that pipped through the eggshell, but died prior to fully emerging from the egg.
Full term pipped alive	Total number of fully developed hatchlings that pipped through the eggshell, but had not fully emerged from the egg.

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Full-term unpipped dead	Total number of fully developed dead embryos that neither pipped nor emerged from the eggshell.
Full-term unpipped alive	Total number of fully developed live hatch-lings, still in the egg (i.e. not yet pipped when the nest is excavated).
Mid-term	Total number of mid-term dead embryos, within the egg.
Twins	Total number of paired twins within the egg.
Albino / White	Total number of pigment-deficient turtles, not necessarily true albinos, within the egg.
Other deformed embryos	Total number of dead hatchlings or embryos with obvious deformities, within the egg.
Undeveloped	Eggs that show little or no development, but neither do they show signs of decomposition (e.g. solidifying of yolk, mold or bacteria, liquefied contents).
Rotten eggs	Eggs so decomposed as to make it impossible to determine whether an embryo began to develop, or not.
Egg Shells	Total number of egg shells remaining in the nest. <u>Note:</u> This count should represent <i>whole shell numbers</i> as a means to estimate the total number of eggs laid; in some cases it may necessary to combine shell fragments to estimate an entire shell.
Yolkless eggs	Total number of yolkless eggs remaining in the nest. These eggs are typically small, mis-shapen and desiccated; in the absence of a yolk there is no embryo development.

Notes

A text box is available to enter other information not included elsewhere on the data form.

Associated Female

This section allows the user to link the hatching event to a nesting event. If you know, or can determine either the Turtle ID number, a tag number or the date when this nest was laid you can place that information here.

Author's Note: Caribbean field projects spend too little time documenting the results of the reproductive season. It may have been a "good year" for egg-laying, but now many of the nests produced live hatchlings? What were the primary threats to the nests? Are there management options available to address these threats? The systematic monitoring of nests for hatching, the post-hatch excavation of nests, and the documentation of nest contents is important. This data entry form provides guidance on what data are most commonly collected, but it is very likely to evolve as more projects become involved in post-hatch analysis. Your feedback is very welcome concerning the entry fields, the nature of automated hatch-related reports and queries, etc.

Chapter 4 Data Analysis



The data analysis module enables information in the database to be exported or summarized. Since not all users are facile at writing queries or reports in Microsoft Access™, we provide capacity to export data to other formats, such as Microsoft Excel™, or as a Text File for importation into statistical analysis software. For each subroutine the user can select the date range to extract.

This is a screenshot of a dialog box titled "Enter Parameter Value". It has a close button (X) in the top right corner. The text "From Date" is displayed above a text input field. Below the input field are two buttons: "OK" and "Cancel".

This is a screenshot of a dialog box titled "Enter Parameter Value". It has a close button (X) in the top right corner. The text "To Date" is displayed above a text input field. Below the input field are two buttons: "OK" and "Cancel".

Reports and Queries

The program provides a series of prepackaged data summarizing reports, including:



Nesting Events

Summary Information: Nesting Events - Provides the total number of nesting events separated into years, species, project name, and nesting outcome.

Nesting Outcome Summary - Provides the number of nesting outcomes of each type, by species and by project. The report is date selected (the user can limit the analysis by date).

Capture Events

Summary Information: Capture Events - Summarizes all capture events by species, project and year.

Stranding Events

Summary Information: Stranding Events - Summarizes all stranding events by species, project and year

Sighting Events

Summary Information: Sighting Events - Summarizes all sighting events by species, project and year.

Hatching Events

There is no automated capacity in Version 3.0 for summary analysis of hatching data.

General Event Summaries

Number of Events by Year - Summarizes all events by event type, year, species and project.

Turtle Size - Calculates mean, standard deviation, minimum size, maximum size, sample size (carapace measurements) for each species and project. The report is date range selected by the user. Statistics are calculated based on all measurements; the program does not automatically delete outliers or incorrect measurements.

Turtle Weight - Calculates the mean, standard deviation, minimum, maximum and sample size for turtle weights. The analysis is user selected for date range and species.

Number of Turtles Tagged - Determines the total number of turtles tagged by species, event type per year, and by project.

Chapter 5 Data Management



The data management module is a very powerful feature of the WIDECAST database. This module allows the user to search the database by tag number, date, event ID number, and/or Turtle ID number. It allows editing of any record in the database by enabling the recall of any data form. It allows the user to delete any record or turtle in the database. And, finally, it allows the user to merge two record together under one Turtle ID number.

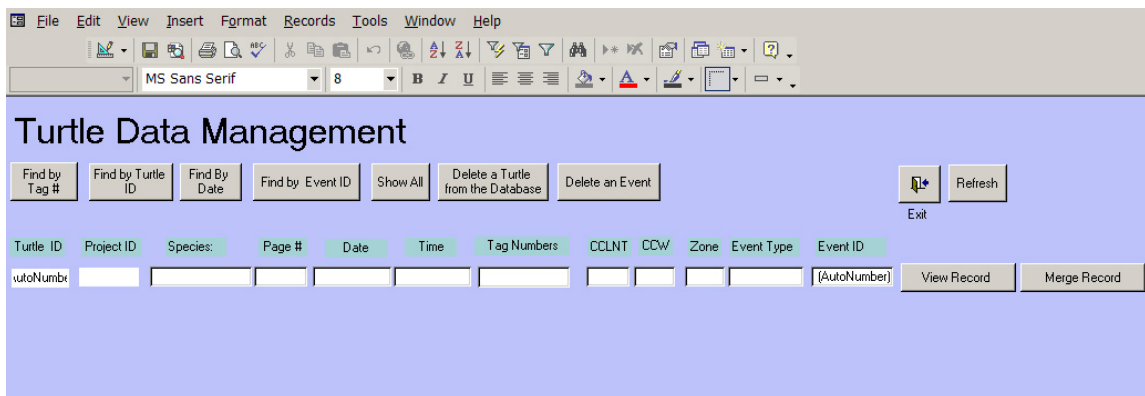
WIDECAST Regional Marine Turtle Database User's Guide, Version 4.0 © WIDECAST 2008

Data Management for Turtle Events

The Data Management for Turtle Events subroutine allows the user to search for individual tag numbers by selecting the “Find by Tag #” button. All records matching that tag number will be shown. If you wish to find out, for example, how many times a particular turtle has been observed, and the Turtle ID is not known, you can first search on a tag number (use only the tag *number*, not the lettered prefix), then search for Turtle ID. All records for that individual will be posted.

If you wish to delete a record from the database, highlight that record by selecting any of the fields in the record, and then select the “Delete an Event” button. Similarly, an individual turtle can be deleted from the database. **Caution should be exercised in using these functions as the data will be permanently deleted from the database.**

If you wish to review, edit or add data to any individual data form, select a field in that event record and click the “View Record” button. The original data form will be shown and can be edited as needed.



Merge different event records to another turtle.

2770
Your Search Results

Turtle Event ID

Turtle Event Type

Turtle Event Date

Turtle Event Time

Project_Name

TurtleEventPage#

TagNumbers
▶

Record: of 1

Locked from Editing

TurtleID

Change this turtle ID to the Turtle you want this record to be merge with. The turtle ID can be found in the Data Management Form

Record: of 1
Find the specific record or event you wish to change using the nagivation bar above

Refresh

The Merge Record button is a special feature of the WIDECAST database that allows you to merge two data records with different Turtle ID numbers under a single Turtle ID number. This is useful if a “new” turtle has been observed and entered in the database, and then later you discover that the turtle had *already* been entered in the database. For example, a turtle is observed nesting with no flipper tags and a PIT tag was not detected due to a malfunctioning PIT tag scanner (a sadly common experience). The turtle receives a new PIT tag, and two new flipper tags ... and is then dutifully recorded in the database as a “new” turtle. However, later in the season the turtle is encountered again and the discovery is made that she is now carrying two PIT tags, one which was issued earlier in the nesting season (or in a previous year) and is associated with an existing Turtle ID number. The “Merge Record” button allows you to fix this discrepancy by re-assigning her Turtle ID number. All records for this turtle will be then corrected in the database and her second (now redundant) ID will be permanently discarded.

Hatching Data Management

The Hatching Data Management subroutine facilitates searching the nest hatching records to match turtles (using either a tag number or a Turtle ID number) to their nest(s). It also enables searching particular dates to review nests that hatched on those dates. Finally, it allows editing of the hatching records through the "Delete Hatching Nest Record" and the "View Record" buttons.

The screenshot shows a web interface titled "Hatching Data Management" on a light blue background. At the top, there are several buttons: "Find Associated Tag #", "Find By Date", "Show All", "Delete Hatching Nest Record", and a small icon button. Below these buttons is a search form with the following fields: "Hatch NestID: Number", "Species:", "Project:", "EventDate:", "EventTime:", "Page#:", "AssociatedTag:", "Associated Date:", "Location", and "Zone:". A "View Record" button is located to the right of the "Zone" field.

Chapter 6 Data Forms



The Print Data Sheets module provides **printable data sheets** that contain the same information as those displayed by the database program, making it easier for the database manager to enter the data from the original (paper) data form into the database. These data forms (see Appendix I) are not meant to be all-inclusive because of the variety of projects that will use them over time. However, we have tried to include the most common and the most important variables typically gathered by sea turtle field projects or archived from sightings reported by the public.

If you wish to collect more information than these forms currently accommodate, we suggest that you add a second page to the data form. That way the ease of data entry from the standardized forms is preserved, and additional data can be gathered as desired. As the database program evolves, we will try to develop customizable data forms that can be integrated into the database. We welcome your suggestions on which variables you would like to see added in future upgrades.

Hint: The program uses the default printer settings of your computer to output these data forms. If you wish to print to another printer, or to change printer settings, use the “Setup” button on the toolbar. Under the page tab you can change to “specific printer”, instead of your default printer.

**APPENDIX I
FIELD DATA ENTRY FORMS**

**WIDECAST Regional Marine Turtle Database
User's Guide, Version 4.0 © WIDECAST 2008**

Nesting Event Data Sheet

Species

Weather	Activity	Outcomes
Broken Clouds	Approaching	BP Body Pit Only - Outcome Unknown
Clear	BodyPitting	CL Confirmed Lay
Overcast	Camouflaging	EL Estimated Lay
Rain	Covering	FC False Crawl without body Pit
Stormy/Strong Win	Digging	FCB Confirmed False Crawl with Body Pit
Unknown	Gone	UNK Unknown Outcome
	Laying	
	Leaving	
	Unknown	

Date Time Project ID Weather # Tourist Page #

<u>Location</u>		<u>Observers</u>	<u>Tag Number</u>	New
Location Name	<input type="text"/>	<input type="text"/>	Flipper	<input type="checkbox"/>
Zone Name	<input type="text"/>	<input type="text"/>	Flipper	<input type="checkbox"/>
Longitude	<input type="text"/>	<input type="text"/>	Flipper	<input type="checkbox"/>
Latitude	<input type="text"/>	<input type="text"/>	Flipper	<input type="checkbox"/>
Dist. from vegetation line	<input type="text"/>		Flipper	<input type="checkbox"/>
Dist. from high water	<input type="text"/>		PIT	<input type="checkbox"/>
			PIT	<input type="checkbox"/>

	<u>Landmark Name / Number</u>	<u>Dist. from Landmark</u>
A	<input type="text"/>	<input type="text"/>
B	<input type="text"/>	<input type="text"/>
C	<input type="text"/>	<input type="text"/>

Physical Description

	NT	NN
CCL (cm)	<input type="text"/>	<input type="text"/>
SCL (cm)	<input type="text"/>	<input type="text"/>
CCW (cm)	<input type="text"/>	<input type="text"/>
SCW (cm)	<input type="text"/>	<input type="text"/>

Results

Activity

Event Outcome

Yolked eggs

Yolkless eggs

Nest Marked?

Does carapace damage affect measurement ?

Weight (kg):

Injuries or Diagnostic Markings

Relocated To:

Relocation Date

Time Collected

Time Reburied

Location Name

Zone Name

Longitude

Latitude

Dist. from vegetation line

Dist. from high water

Parasites/Ectobiota

Tag Scars

- Left Front
- Right Front
- Left Rear
- Right Rear

	<u>Landmark Name / Number</u>	<u>Dist. from Landmark</u>
A	<input type="text"/>	<input type="text"/>
B	<input type="text"/>	<input type="text"/>
C	<input type="text"/>	<input type="text"/>

Notes



Sighting Event Data Sheet

<u>Weather</u>
Broken Clouds
Clear
Overcast
Rain
Stormy/Strong Wind
Unknown

Species Gender Project

Date Time Project ID Weather Page #

Location
 Location Name
 Zone Name
 Longitude
 Latitude

Observers

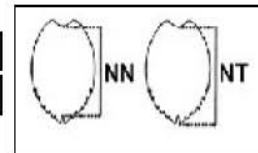
Tag Number

Flipper	<input type="text"/>	<input type="checkbox"/>
Flipper	<input type="text"/>	<input type="checkbox"/>
Flipper	<input type="text"/>	<input type="checkbox"/>
Flipper	<input type="text"/>	<input type="checkbox"/>
Flipper	<input type="text"/>	<input type="checkbox"/>
PIT	<input type="text"/>	<input type="checkbox"/>
PIT	<input type="text"/>	<input type="checkbox"/>

	Landmark Name / Number	Dist. from Landmark
A	<input type="text"/>	<input type="text"/>
B	<input type="text"/>	<input type="text"/>
C	<input type="text"/>	<input type="text"/>

Physical Description

	NT	NN
CCL (cm)	<input type="text"/>	<input type="text"/>
SCL (cm)	<input type="text"/>	<input type="text"/>
CCW (cm)	<input type="text"/>	<input type="text"/>
SCW (cm)	<input type="text"/>	<input type="text"/>



Does carapace damage affect measurement ?

Weight (kg):

Diagnostic Injuries

Parasites and Ectobiota

Tag Scars

- Left Front
- Right Front
- Left Rear
- Right Rear

Notes



Stranding Event Data Sheet

TurtleCondition	Weather
Alive	Broken Clouds
Fresh Dead	Clear
Moderately Decompo	Overcast
Unknown	Rain
Very Decomposed	Stormy/Strong Wind
	Unknown

Species Gender Project

Date Time Project ID Weather Page #

Location **Observers** **Tag Number**

Location Name Flipper New

Zone Name Flipper

Longitude Flipper

Latitude Flipper

Flipper

PIT

PIT

Landmark Name / Number Dist. from Landmark

A

B

C


Turtle Condition

Necropsy Report

Notes

Physical Description

NT NN

CCL (cm) 

SCL (cm)

CCW (cm)

SCW (cm)

Does carapace damage affect measurement?

Weight (kg):

Diagnostic Injuries

Parasites and Ectobiota

Tag Scars

- Left Front
- Right Front
- Left Rear
- Right Rear



Capture Event Data Sheet

Weather
Broken Clouds
Clear
Overcast
Rain
Stormy/Strong Win
Unknown

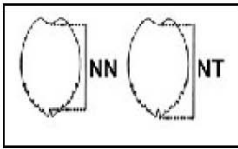
Species	Gender	Project	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Date	Time	Project ID	Weather
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
			Page #
			<input type="text"/>

Location	Observers	Flipper	<input type="text"/>	<input type="checkbox"/>	New
Location Name	<input type="text"/>	Flipper	<input type="text"/>	<input type="checkbox"/>	
Zone Name	<input type="text"/>	Flipper	<input type="text"/>	<input type="checkbox"/>	
Longitude	<input type="text"/>	Flipper	<input type="text"/>	<input type="checkbox"/>	
Latitude	<input type="text"/>	Flipper	<input type="text"/>	<input type="checkbox"/>	
		PIT	<input type="text"/>	<input type="checkbox"/>	
		PIT	<input type="text"/>	<input type="checkbox"/>	

Landmark Name / Number	Dist. from Landmark
A <input type="text"/>	<input type="text"/>
B <input type="text"/>	<input type="text"/>
C <input type="text"/>	<input type="text"/>

Physical Description

	NT	NN
CCL (cm)	<input type="text"/>	<input type="text"/>
SCL (cm)	<input type="text"/>	<input type="text"/>
CCW (cm)	<input type="text"/>	
SCW (cm)	<input type="text"/>	



Does carapace damage affect measurement ?

Weight (kg):

Water Depth (m)

Water Temperature (C)

Notes

Diagnostic Injuries

Parasites and Ectobiota	Tag Scars
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<input type="checkbox"/> Left Front <input type="checkbox"/> Right Front <input type="checkbox"/> Left Rear <input type="checkbox"/> Right Rear



Hatching Event Data Sheet

Species: Project: Page #

Date Emerged: Date Observed: Date Excavated:

Time Emerged: Time Observed: Time Excavated:

Hatch Results

Live Hatchlings out of nest
 Check if counted, blank if estimated
 Dead Hatchlings out of nest
 Predated Hatchlings:
 Predated Eggs:

Observer:

Tourist
 Weather
 Associated Turtle ID
 Associated Tag #
 Date Laid

Nest Contents

Dead Hatchlings in Nest
 Live Hatchlings in Nest
 Full-Term Pipped Dead
 Full-Term Pipped Alive
 Full-Term Unpipped Dead
 Full-Term Unpipped Alive
 Mid-Term Embryos
 Twins
 Albino / White
 Other Deformed Hatchlings
 Undeveloped
 Rotten Eggs
 Egg Shells
 Yokless Eggs

Hatch Location

Country
 Location_Name
 Zone
 EventLongitude
 EventLatitude

Distance from (m)

Vegetation
 High Watermark

Landmark Name / Number

Dist. from Landmark

	Landmark Name / Number	Dist. from Landmark
A	<input type="text"/>	<input type="text"/>
B	<input type="text"/>	<input type="text"/>
C	<input type="text"/>	<input type="text"/>

Hatchling Release

Hatchling Release Date
 Hatchling Release Time
 Hatchling Release Qty
 Location Name
 Zone Name

Notes:

