



WWF

REPORT

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TAKING ACTION

Introduction to climate-smart marine turtle conservation and the ACT Adaptation Toolkit

Introduction

This guide introduces the basic steps involved in making your work climate smart. This is not a step-by-step instruction manual but rather an introduction to the process and is designed to be used alongside the [WWF Adaptation to Climate Change Toolkit for coasts](#). It provides a brief guide to the steps involved as well as links to additional resources that can be used at each stage. Throughout the guide you will find boxes indicating where to find additional information and resources. All of the resources can be found online at: <http://www.panda.org/lac/marineturtles/act>

What is adaptation?

There are essentially two responses to climate-related threats to species, ecosystems and communities: mitigation and adaptation. Mitigation is taking action to reduce greenhouse gas emissions to minimize the extent to which global temperatures will rise and the climate will change. Adaptation is adjusting to changes in the environment caused by climate change. Both are needed. Without mitigation it will be increasingly difficult to adapt to the accelerated and profound changes driven by climate. However, because of the lag between emissions and temperature increases, the climate will continue to change to some extent over the next century even if we stop emitting greenhouse gases entirely. Adaptation is still necessary to accommodate this change.

In relation to conservation, climate change adaptation usually refers to planned actions that reduce the vulnerability of a species, ecosystem or other conservation target to direct, indirect and synergistic impacts of climate change.



Who should be involved?

Any adaptation planning and action will need support from a variety of different stakeholders. For coastal and marine systems, some possible stakeholders include:

- Natural resource managers, land-use planners, MPA managers
- Local and regional NGOs
- Developers and landowners
- Resource users (fishers, tourism development and recreation, aquaculture, shipping and port operations, foresters, agriculturalists)
- Local businesses
- Research/scientific/educational institutions

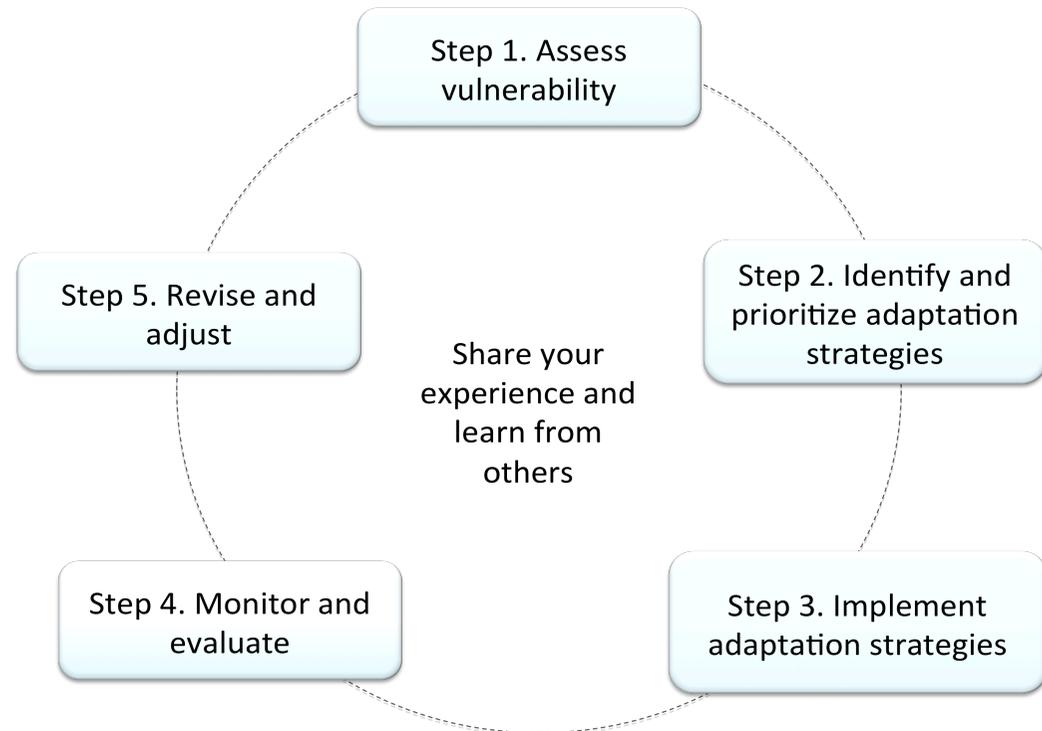
It is useful at the outset to identify the key people/groups/institutions and their potential involvement in the project.

How to involve them?

Different stakeholders will be involved in different ways, for example gathering and providing information, consultation, dialogue, working together. Workshops, presentations, focus groups, community meetings, written invitation, one-on-one meetings etc. can all be used to engage different groups.

Where do I start? Developing an adaptation plan

A quick internet search will turn up many adaptation tools, guides and other resources. So where do you begin? Most frameworks for adaptation planning include some version of the same steps:



Each of these steps is described in the following sections.

Assessing vulnerability

How is climate change likely to affect coastal and marine ecosystems and marine turtles? What physical changes are expected? Which locations are more vulnerable?

Before you can start taking action to address the impacts of climate change, you need to understand how your conservation target is vulnerable. For marine turtles, your target of interest may be the nesting beach that you work on, the nesting population, a marine protected area, etc.



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What is vulnerability?

Vulnerability is the potential to be harmed and is a result of exposure to threats, sensitivity to those threats and the ability to adapt to changing conditions created by those threats. In a climate change context:

- Exposure is the degree to which a species, ecosystem or human community is exposed to climate changes (e.g. increasing temperature) and resulting physical changes (e.g. increases in storm surge or salinity).
- Sensitivity depends on characteristics of the system or species that make it more or less likely to be affected by expected climate impacts.
- Adaptive capacity is the ability of the systems or species to adjust to actual or expected changes.

Greater exposure and sensitivity increase vulnerability, while greater adaptive capacity decreases vulnerability.

A vulnerability assessment (VA) is useful to examine *how* your conservation target is vulnerable to climate change and which locations are most vulnerable. In this way a VA can help in setting management priorities and in developing appropriate responses to help reduce vulnerability.

There are many ways of conducting a VA and there are numerous tools and examples available to help you. Most will involve:

- Reviewing existing documents about observed and projected climate trends and talking to experts
- Examining vulnerability to current climate extremes
- Examining climate scenarios for your area by reviewing a range of climate models
- Examining possible future climate impacts on your conservation target and considering how climate effects interact with existing non-climate stressors
- Examining how your conservation target might respond (migrate, reduce reproduction, etc.)
- Sharing the assessment
- Using the results to plan management responses

Things to consider

- What is your goal? Do you want to understand how a conservation target is particularly vulnerable? Or to determine which species or locations are most vulnerable?
- Scale. Spatial scale could be anything from an individual beach to a national or regional assessment.
- End-users. Who will use the vulnerability assessment? Involve them from the beginning so that the results and the way they are presented are clear and useful for the audience's purposes.
- Data availability. What is needed and at what quality?

In the Toolkit

- [Regional Climate Projections report](#) – presents temperature and precipitation scenarios for the Wider Caribbean
- [Understanding the impacts of climate change on marine turtles](#) / Marine Turtles and Climate Change – these reports review the current and potential impacts of climate change on marine turtles.

Science

- Regularly updated list of publications relevant to climate impacts on coastal/marine ecosystems and marine turtles specifically.

Resources

- Relevant tools are listed under [Assessing Vulnerability](#).

- Time, skill and resources available to do the VA
- Direct and indirect threats
- Availability of financial resources to support the VA

A vulnerability assessment is not a stand-alone activity conducted only once. Assessing vulnerability is a continuous process and as new information becomes available it will be useful to revisit the assessment.



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Which adaptation measures should we use? Identifying and prioritizing adaptation measures

The next step in the process is to determine what you can do, or might already be doing, to reduce the vulnerability of your conservation targets to climate impacts. Conservation Management Standards define these targets as, “specific species, ecological systems/habitats, or ecological processes that are chosen to represent and encompass the full suite of biodiversity in the project area for place-based conservation or the focus of a thematic program.” Adaptation actions might fall into a number of different categories such as habitat protection and management, direct species management, monitoring to fill important data gaps, reduction of non-climate stressors to temporarily build resilience or building adaptive capacity.

Finding solutions

- 1) Review the literature. There are many reports focused on different ecosystems and species that list potential adaptation measures.
- 2) Read case studies. Many groups are carrying out adaptation projects from which it is possible to learn and generate ideas.
- 3) Get creative! Climate adaptation is new to everyone and we have to learn by doing. If you have an idea that works, consider sharing your experiences on one of the many climate change adaptation knowledge portals.

Prioritizing adaptation measures

There are many theoretically possible adaptation options but some of these measures may not be feasible or desirable for your project objectives or in your area. Some critical questions to ask are:

- 1) Will this be **effective**? How effective would this measure be in achieving the overall aim of reducing vulnerability to climate change?
- 2) Is this **technically feasible**? Does the technology and/or expertise exist to carry out this measure? Could this measure be implemented at a local or, in some cases, national scale?
- 3) Is this **financially and logistically feasible**? Are there sufficient resources available to carry out this measure? How much would it cost to implement this measure and who would pay? Do you have enough staff to complete the work?
- 4) Are there any **risks** associated with this option? Could there be any detrimental impacts on sea turtles, the ecosystem, local communities etc.? Might the results of implementing this measure be unacceptable?
- 5) Considering all the previous criteria, is this a **practical** option to put into place now and would you recommend it? Who might be opposed to your measure and how could you get them to buy-in?

Although subjective, this is a quick way of determining what the feasible options are at the moment.

A simple way of prioritizing options is to use a screening matrix (see example below). Involve partners and anyone who would be involved in implementation in reviewing the possible options.

There are many other ways of prioritizing among options. Some approaches, such as Cost-Benefit Analysis and Multi-Criteria Analysis consider the costs and benefits of a range of adaptation measures under different climate scenarios.

In the Toolkit

- [Adaptation Options for Marine Turtles](#) - summarizes some of the main options for managing climate impacts on marine turtles and the results of a screening process in the Caribbean to find the most recommended options.

Resources

- Includes links to additional literature on coastal/marine adaptation options

Implementing adaptation measures

Once you have decided which adaptation measures are feasible for your project, the next step is to implement these actions. Planning prior to implementation is essential. For each activity, workplans and budgets need to be created that consider:

- how the work will fit into existing activities
- who is accountable for the success of the project
- who is responsible for what aspects of the plan
- who needs to be consulted during and after the project
- resource availability
- timeframe
- partnerships

Monitoring and evaluating results

A vital part of the entire process is to evaluate the success or failure of any management actions, and to use lessons learned



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during the planning and implementation phases of your project to refine your own activities and also contribute to the wider adaptation knowledge base. Monitoring and evaluation of adaptation measures is also essential to ensure that interventions are effective, cost-efficient, achieve the desired results and are ecologically sensitive. Adaptation planning is not a one-off activity and as more information about climate change scenarios and impacts becomes available, plans may need to change.

Monitoring the implementation process can provide answers to key questions, such as:

- What was done?
- What were the challenges?
- What worked? How and why did it work?
- What didn't work and why?
- What would you do differently if you had the chance to do it again?

In the Toolkit

- **Monitoring FAQs** - a list of the most frequently asked questions about monitoring the impacts of climate change on marine turtles and their habitats.

Resources

- Links to literature on approaches for **Monitoring and Evaluation**

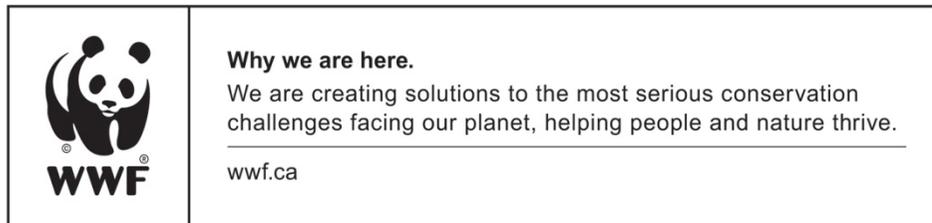
Share your experience and learn from others

As more and more conservation projects incorporate climate change adaptation into their work, there is a growing wealth of knowledge available. Much of climate change adaptation is 'learning by doing,' so it is essential that you share your lessons learned (from both successes and failures) with a wider audience.

References

Adaptation to Climate Change Toolkit: Coasts

<http://www.panda.org/lac/marineturtles/act>



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