



# Seventh SPC Regional Technical Meeting on Coastal Fisheries and Aquaculture

19–22 November 2024



Original: English

Information paper 9

## Pacific regional assessment of climate change implications for fisheries and aquaculture – 10-year update

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## Summary

1. The Pacific regional assessment of climate change implications for fisheries and aquaculture – 10-year update – has been underway since 2022 and is nearing completion.
2. A progress update is provided on the Australian Department of Foreign Affairs and Trade and New Zealand Ministry of Foreign Affairs and Trade funded “Assessment of climate change implications for fisheries and aquaculture in the Pacific Islands region”. This initiative commenced in mid-2022 with contributions from over 50 scientists and practitioners, and is due to be completed in early 2025. The content includes technical chapters on Pacific fisheries (coastal, oceanic, freshwater), aquaculture, livelihoods and economies, food security, and blue food systems. There are also summaries of results for each of the 22 Pacific Island countries and territories (PICT), with recommended adaptations. These outputs are being developed with input and consultation from national agencies and other regional organisations and stakeholders to ensure their outcomes are useful and meet the needs of SPC’s members.

## *Progress Update*

3. The Australian and New Zealand Governments are supporting the update to the 2011 assessment of climate change vulnerability of Pacific Ocean resources, particularly fisheries and aquaculture and the livelihoods, economies, food security, and blue food systems they support.
4. The update includes four sections that cover a range of topics (see Annex 1), including:
  - a. Projected climate variability and change in the Pacific region;
  - b. Implications for coastal, oceanic and freshwater fisheries, and aquaculture;
  - c. Implications for livelihoods, economies, food security, and blue food production systems; and
  - d. Recommended adaptations to inform national policy, planning and investment.
5. The publication will provide recommended adaptations and management measures to minimise climate change impacts and maximise opportunities. For example, the role that oceanic fisheries bycatch, freshwater fisheries and aquaculture can play in addressing climate change challenges for food security. The technical re-analyses are complete and draft technical chapters are in the final stages of independent review and revision. The update includes summaries of the assessment findings for each of the 22 PICTs and targeted adaptations for each member state, which are in development.
6. The results of this project have contributed to the climate rationale included in the Funding Proposal for the Green Climate Fund regional tuna programme.
7. The project has been led by Dr Johanna Johnson, as science manager and editor for SPC FAME Division. The editor has coordinated all the technical science analysis components, including the Technical Working Group that has met five times during the project, guiding and leading the science methods and writing with all authors, the independent reviews, and the design and publication process with the FAME Fisheries Information and Knowledge Section.
8. Resourcing for publication and extension of results includes design and layout of the book (as an e-book and printed), infographics, policy briefs and fact sheets, videos, and a web tool. The

dissemination of the project results aims to reach a diverse audience and is outlined in a Communication Strategy developed by the SPC FAME Communications Officer. The dissemination of results is an important deliverable of the initiative, and input from member states will be key to ensuring effective communication.

9. Project completion is expected by March 2025, with an official launch in Q2 of 2025, potentially at the 17<sup>th</sup> Heads of Fisheries meeting (HoF17).
10. This initiative has aimed to follow a “bottom-up” process so that outcomes and outputs best support member needs. To facilitate this dialogue, senior staff member within each national fisheries agency have been consulted as focal points to seek input on the project. Discussions at HoF15 and HoF16 meetings have also informed the communication and publication processes.

### Annex 1. Structure of the Pacific regional climate change assessment publication

Section/Chapter	Summary of content	Authors (*lead author)
<b>SECTION 1: INTRODUCTION</b>		
1. Introduction to the tropical Pacific Islands region and the implications of climate change for fisheries and aquaculture	Overview of the Pacific Islands region (social, ecological, cultural and economic context), what has changed since 2011 and knowledge gaps, assessment framework and approach to conducting the climate change assessment. Alignment with the SPC Strategic Plan 2022–2031.	Johanna Johnson*, Colette Wabnitz, Michelle Tigchelaar, Peter Gehrke, David Welch, Julie-Anne Kerandel
2. Observed and projected changes in atmospheric and ocean climate of the tropical Pacific Islands region	Latest climate change projections for the Pacific Islands region in 2050 based on IPCC AR6, the IPCC Oceans and Cryosphere data and downscaled NextGen outputs.	Leanne Webb*, Savin Chand, Geoff Gooley
<b>SECTION 2: SUMMARY FOR PACIFIC ISLAND COUNTRIES &amp; TERRITORIES</b>		
American Samoa	Individual country and territory summaries: <ul style="list-style-type: none"> <li>- Key features (demography, geography, memberships and management);</li> <li>- Atmospheric &amp; ocean climate;</li> <li>- Coastal fisheries;</li> <li>- Oceanic fisheries;</li> <li>- Freshwater fisheries;</li> <li>- Aquaculture;</li> <li>- Social and economic implications (livelihoods, economies, food security, blue food systems);</li> <li>- Adaptations and suggested policies.</li> </ul>	Contributions from TWG from each chapter content; synthesis and collation by Science Editors
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Wallis & Futuna		
<b>SECTION 3: CLIMATE CHANGE IMPLICATIONS FOR FISHERIES AND AQUACULTURE</b>		
3. Implications of climate change for coastal fisheries in the tropical Pacific Islands region	Technical analyses and detailed results for the Pacific Islands region in assessing the vulnerability of coastal fisheries to regional climate change.	David Welch*, Johanna Johnson, Elizabeth Fulton, Julia Blanchard, Bradley Moore, Denisse Fierro Arcos, Jessica Zamborain-Mason, Katie Sambrook, Andrew Halford, Bianca Molinari, Dieter Tracey
4. Implications of climate change for oceanic fisheries in the tropical Pacific Islands region	Technical analyses and detailed results for the Pacific Islands region in assessing the vulnerability of oceanic fisheries to regional climate change.	Patrick Lehodey*, Inna Senina, Simon Nicol, Johann Bell, Beatriz Calmettes, Romain Forestier, Thomas Gorgues, Christophe



		Menkes, John Hampton, Mathieu Lengaigne, Alex Sen Gupta, Peter Williams
5. Implications of climate change for freshwater and estuarine fisheries in the Pacific Islands region	Technical analyses and detailed results for the Pacific Islands region in assessing the vulnerability of freshwater fisheries to regional climate change.	Peter Gehrke*, Lina Pandihau, Lekima Copeland, Boga S. Figa, Marcus J. Sheaves
6. Implications of climate change for aquaculture in the Pacific Islands region	Technical analyses and detailed results for the Pacific Islands region in assessing the vulnerability of aquaculture to regional climate change.	Ruth Garcia Gomez*, Jamie Whitford, Jeff Kinch, Cathy Hair, Chinthaka Hewavitharane, Antoine Teitelbaum, Pranesh Kishore, Tim Pickering
<b>SECTION 4: CLIMATE CHANGE INFORMATION TO SUPPORT MANAGEMENT AND POLICY</b>		
7. Implications of climate change for livelihoods and economies based on fisheries and aquaculture in Pacific Islands region	Evidence synthesis of how the documented current and predicted impacts of climate change on Pacific fisheries and aquaculture is likely to impact livelihoods, economic revenue, and the contributions by oceanic and coastal fisheries and aquaculture to community income and jobs.	Julie-Anne Kerandel*, Marina Abas, Rodney Beard, Peter Gehrke, Ruth Garcia Gomez
8. Implications of climate change for food security in the Pacific Islands region	Evidence synthesis of how the documented current and predicted impacts of climate change on Pacific fisheries and aquaculture is likely to impact food security.	Kerrie Youngs,* Britt Basel, Johanna Johnson
9. Implications of climate change for blue food <sup>1</sup> production systems in the Pacific Islands region	Evidence synthesis of how the documented current and predicted impacts of climate change on Pacific fisheries and aquaculture, livelihoods and economies is likely to impact blue food systems.	Michelle Tigchelaar*, Colette Wabnitz, William Cheung, David Welch, Peter Gehrke, Inna Senina
10. Adaptations and supporting policies to manage the impacts of climate change on fisheries and aquaculture in the Pacific Islands region	Synthesis of the potential adaptations and supporting policies that have been implemented since 2011, their success in minimising climate change impacts, and recommendations for future actions.	Johanna Johnson* with input from TWG

<sup>1</sup> Blue foods refer to food derived from aquatic animals, plants or algae that are caught or cultivated in freshwater and marine environments. Blue protein refers to fish and shellfish caught or cultivated in freshwater and marine environments that provide a source of protein for human consumption.