Rocky shores ecosystems

|  |  |
| --- | --- |
| Summary of the assessed risk:  Rocky shore ecosystems span the intertidal and shallow subtidal zones of the world’s temperate coasts and are typically dominated by calcareous mussels or seaweeds (macroalgae). The high sensitivity of sessile organisms (fixed in one place, e.g. barnacles, mussels) to extreme temperature events (e.g. mass mortality and drastic biodiversity loss of mussels beds), and to acidification gives high confidence that rocky shore species are at high risk of changes in distribution and abundance. More generally, the biodiversity, structure and functioning of rocky shores ecosystems are threatened by warming, acidification, sea-level rise and extreme events. [Table SM5.8a, 5.3.5]  Database id: 68 ([link](https://climrisk.org/cree/ember/68)).  This ember is found in the following figure(s): Figure 5-16 of SROCC-Chapter5;  (as a rule, summaries are not listed here)  The ember diagram included in this document is based on the assessment provided in the IPCC report and supplementary material listed below, but it does not come from the IPCC; all additional information is provided in view of helping to understand this diagram and is also based on, or reproduced from, the same IPCC sources. Please read the disclaimer notice at the end of this document. |  |

# Transition: undetectable to moderate

|  |  |  |
| --- | --- | --- |
| min | 0.8 | *medium confidence* |
| max | 1.3 |

Local extinctions at the equatorial or warm edge of species ranges are increasingly being attributed to climate change. Intertidal rocky shores ecosystems are at a moderate risk at present. [5.3.5]

# Transition: moderate to high

|  |  |  |
| --- | --- | --- |
| min | 1.8 | *medium confidence* |
| max | 2.7 |

(Information on this transition is not available yet)

# Transition: high to very high

|  |  |  |
| --- | --- | --- |
| min | 2.9 | *low confidence* |
| max | 3.4 |

Rocky shores are among the coastal ecosystems expected to reach very high risk under high climate change scenarios. [5.3.7]

# Supplementary information

Chapter 5 (in particular 5.3.5) provides much more information on rocky shores ecosystems than we could summarise here in text; these risks appear well studied.

# Specific references

5.3.5, 5.3.7, Table SM5.8a

# Reference for the source data:

Bindoff, N.L., W.W.L. Cheung, J.G. Kairo, J. Arístegui, V.A. Guinder, R. Hallberg, N. Hilmi, N. Jiao, M.S. Karim, L. Levin, S. O’Donoghue, S.R. Purca Cuicapusa, B. Rinkevich, T. Suga, A. Tagliabue, and P. Williamson, 2019: Changing Ocean, Marine Ecosystems, and Dependent Communities.. In: *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 447-587. <https://doi.org/10.1017/9781009157964.007>  
Alternative direct download: [www.ipcc.ch/site/assets/uploads/sites/3/2022/03/07\_SROCC\_Ch05\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2022/03/07_SROCC_Ch05_FINAL.pdf)

Bindoff, N.L., W.W.L. Cheung, J.G. Kairo, J. Arístegui, V.A. Guinder, R. Hallberg, N. Hilmi, N. Jiao, M.S. Karim, L. Levin, S. O’Donoghue, S.R. Purca Cuicapusa, B. Rinkevich, T. Suga, A. Tagliabue, and P. Williamson, 2019: Changing Ocean, Marine Ecosystems, and Dependent Communities. Supplementary Material. In: *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)], url: [www.ipcc.ch/site/assets/uploads/sites/3/2022/03/SROCC\_Ch05-SM\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/sites/3/2022/03/SROCC_Ch05-SM_FINAL.pdf)

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