



Nature is too big to fail

Biodiversitätsverlust als Finanzrisiko

Onlineseminar CRIC

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Oktober 2020



Nature is too big to fail
Biodiversity: the next frontier in
financial risk management

January 2020

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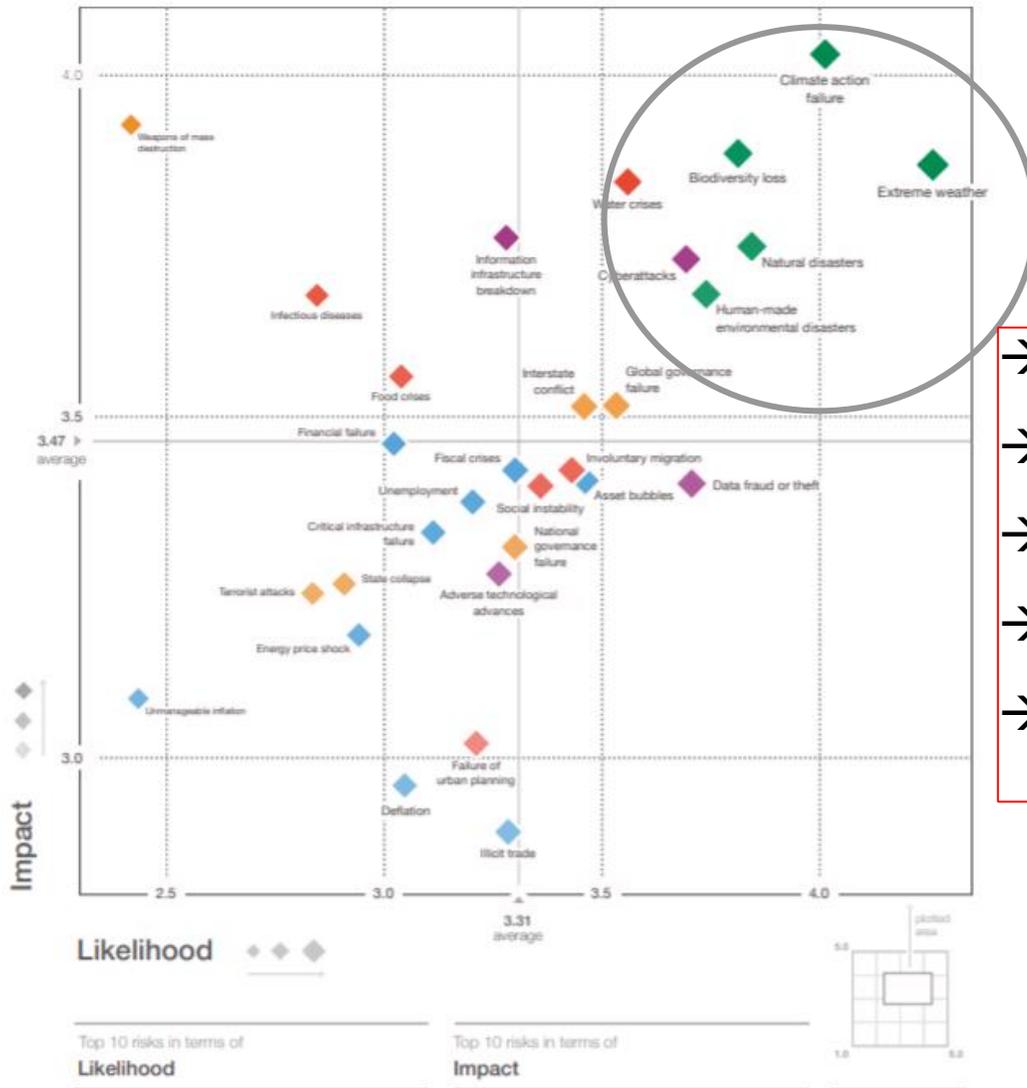
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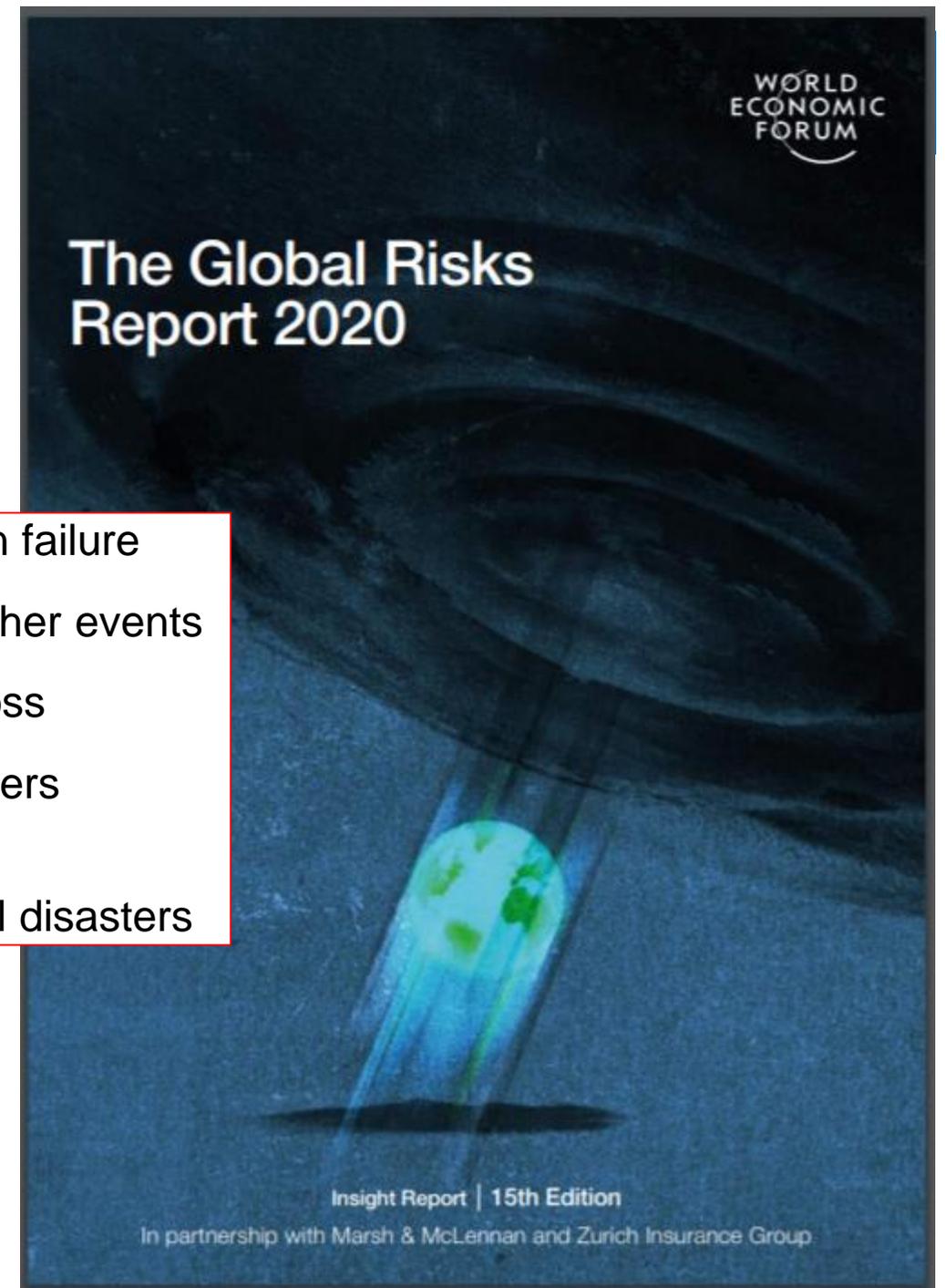


Biodiversitätsverlust als Risiko

Figure II: The Global Risks Landscape 2020



- Climate action failure
- Extreme weather events
- Biodiversity loss
- Natural disasters
- Human-made environmental disasters



Biodiversität geht zurück- besonders in Süßgewässern

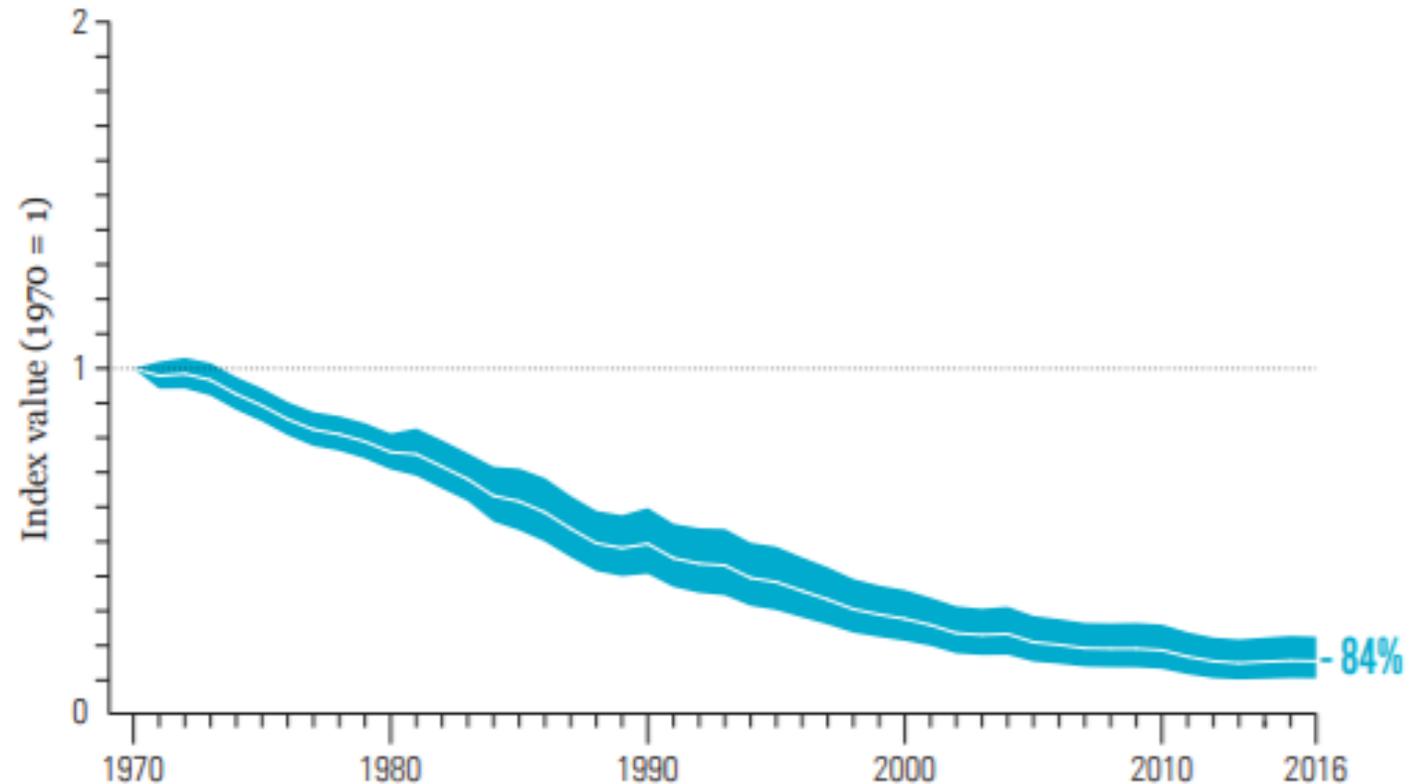


Figure 3: The Freshwater Living Planet Index: 1970 to 2016

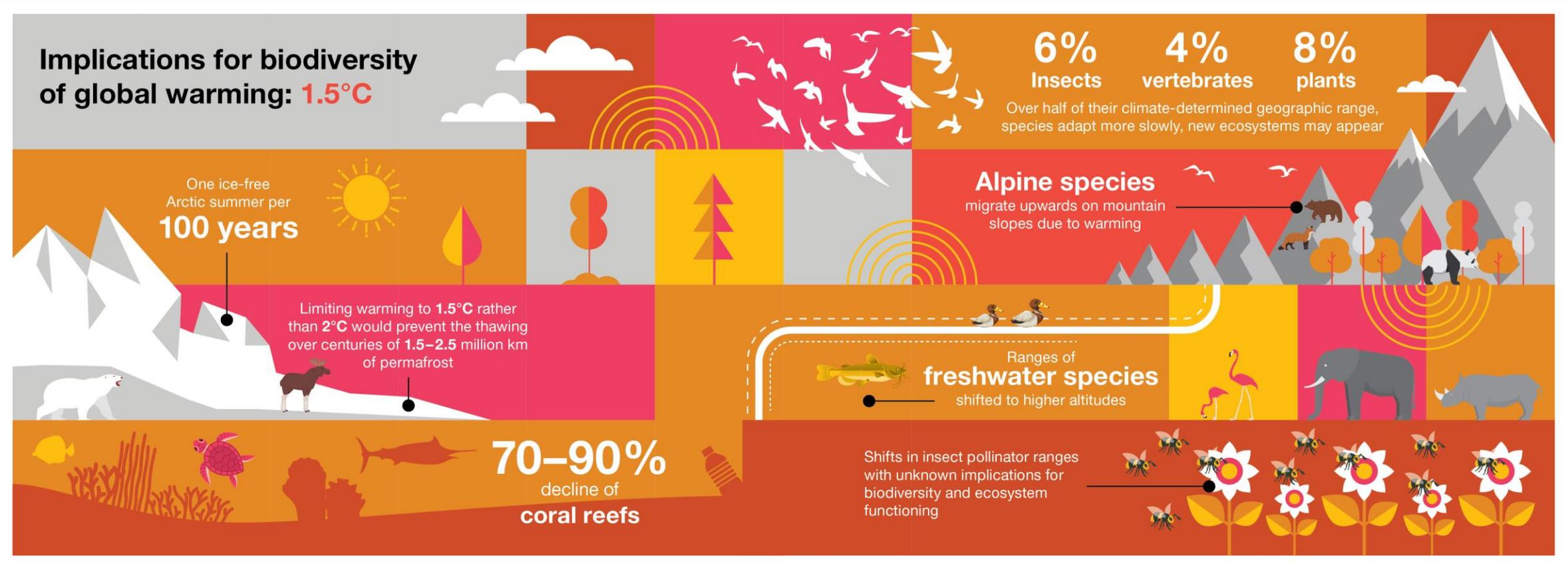
The average abundance of 3,741 freshwater populations, representing 944 species monitored across the globe, declined by 84% on average. The white line shows the index values and the shaded areas represent the statistical certainty surrounding the trend (range -89% to -77%). Sourced from WWF/ZSL (2020)¹.

Key

- Freshwater Living Planet Index
- Confidence limits



Klimawandel und Biodiversitätsverlust – Rückkoppelungseffekte



Source: Adapted from IPCC (2018), "Special Report on 1.5°C global warming"

2



Ökonomische Kosten, aufgrund des Biodiversitätsverlustes



Ecosystem services provide annual value of **USD 125-140 trillion** (1,5 times GDP)



Between 1997 and 2011, the world lost an estimated **USD 4-20 trillion** per year in ecosystem services owing to land-cover change

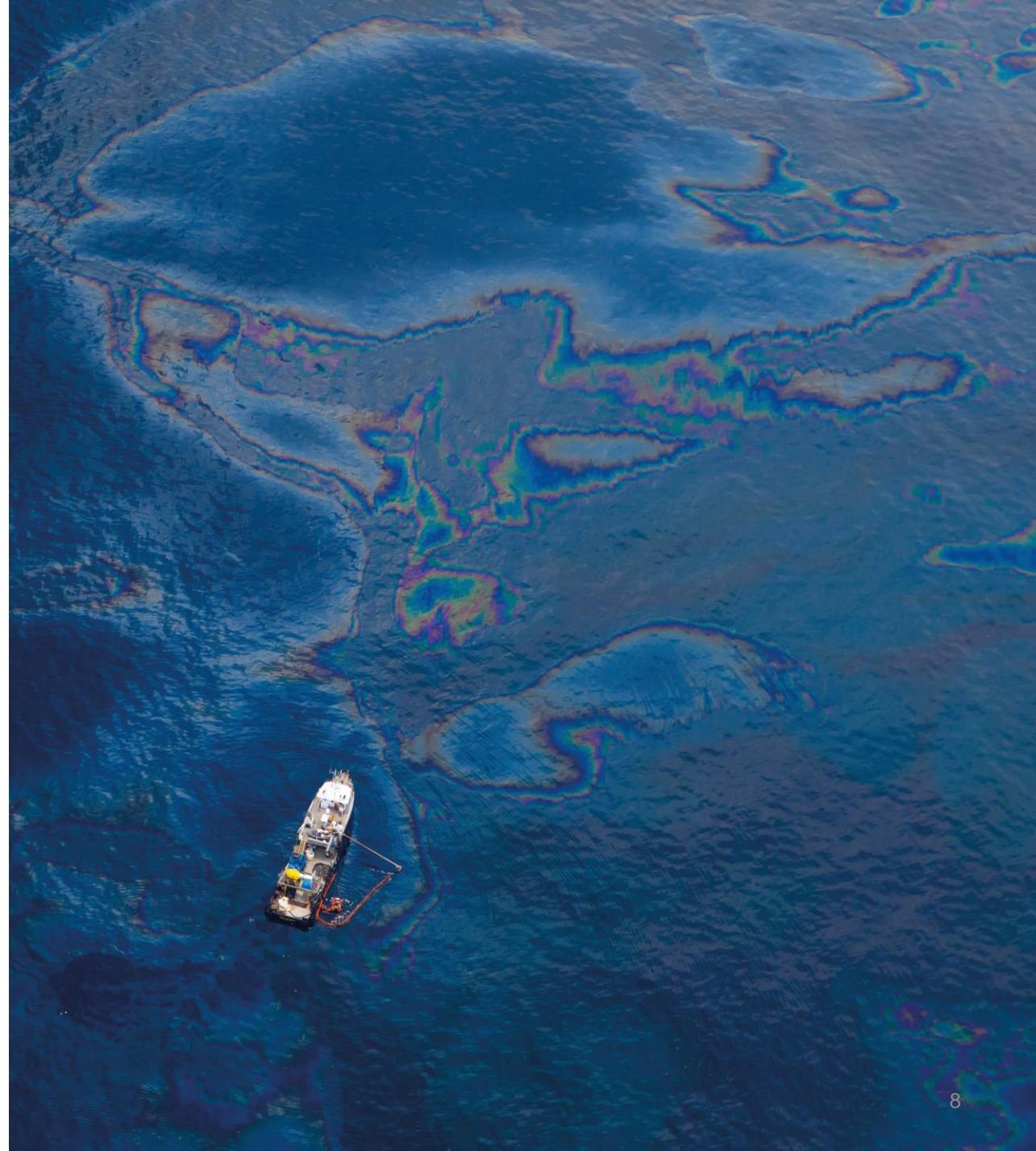


Associated cost of inaction could rise up to the equivalent of **7% of GDP** by 2050

Sources:

OECD Report (2019), "Biodiversity: Finance and the Economic and Business Case for Action", for the G7 in May 2019

EC Report (2008), "The Cost of Policy Inaction (COPI): The case of not meeting the 2010 biodiversity target"



Welche Sektoren profitieren besonders von Biodiversität



Pharma Industry

- Many therapeutic drugs derived from plant, animals, fungi or bacteria
- 70% of all cancer drugs have natural origin
- Important source for development of new medical drugs



Forestry Industry

- 13.2 million jobs in the forestry industry
- Protection from avalanches, fire regulation, regulation of water cycle, carbon sequestration
- Cultural ecosystem services (leisure, tourism)



Food Industry

- Food supply chain is heavily dependent on water supply, climate and animal pollination
- 70% of the 124 most commonly used crops in agriculture rely on insect pollination
- Diverse genetic pool facilitates searching for special genetic features (e.g. resistance to heat stress, adaptation to cool temperatures)



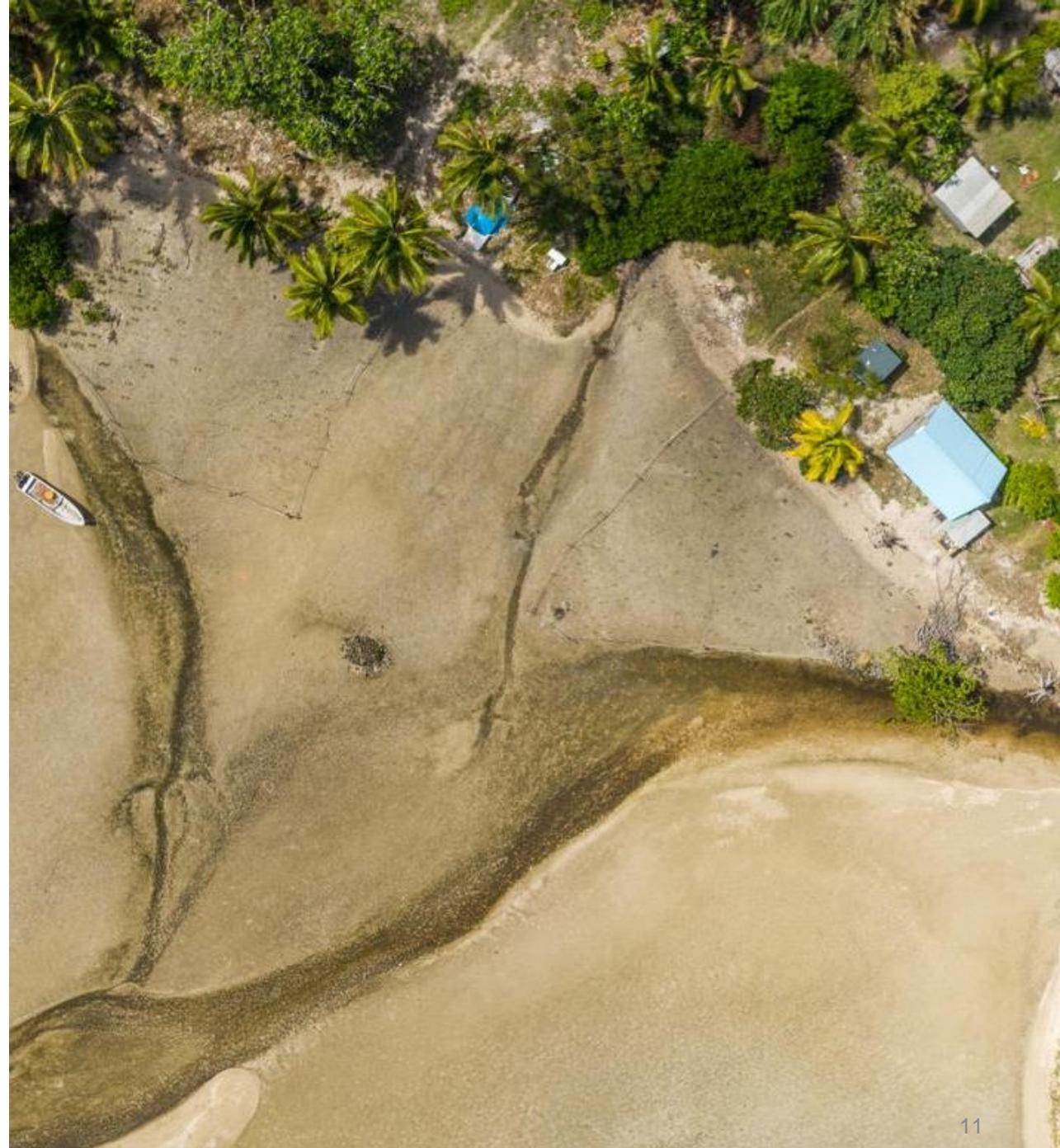
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Finanzielle Risiken

Financial Risks associated with biodiversity loss:

- Increased cost of capital or lending requirements;
- Write-downs of asset value and write-offs of assets;
- Increased insurance claims;
- Higher premiums; loss of insurance value
- Increased risk of default;
- Loss of investment value related to reputational risks;
- Changes in market value of the business.



4 Kategorien des Biodiversitätsrisikos



Biodiversitätsrelevante finanzielle Risiken



Transition risk

Related to the transition to an economy which conserves and restores biodiversity



Physical risk

Arising from material destruction causing direct economic and financial losses for businesses and investors



Litigation risk

Pertaining to biodiversity loss and breach of the underlying legal frameworks



Systemic risk

Exogenous biodiversity risk to the smooth functioning of the financial system as well the risk created endogenously by the financial system

Klassifizierung von biodiversitätsrelevanten Risiken in existierende Risikotypologien

	Credit risk	Market risk	Operational risk
Transitional risk	Investee suffers substantial losses due to sanctions, damages or increased taxes stemming from its negative impact on biodiversity	Long-term price increases as a result of biodiversity change	Image loss resulting from failure to switch to biodiversity Management
Physical risk	Revaluation of debt-servicing capacity and collateral	Rating downgrades and share price losses after biodiversity loss	Biodiversity loss affects balance sheet
Litigation risk	<ul style="list-style-type: none"> • Litigation as pertaining to biodiversity loss and breach of the underlying legal frameworks • New regulatory rules impose limitations on investing in activities with an impact on biodiversity • Damages due to false reporting of biodiversity risks • Damages due to greenwashing 		
Systematic risk	Economy can no longer be insured at reasonable cost	Market-threatening effects from biodiversity loss in an entire region	Reputational losses for entire industries/entire markets

Source: Adapted from BaFin (2019), Guidance notice on dealing with sustainability risks and BaFin (2019), BaFin Perspectives Issue 2



Fazit

Biodiversity loss ...

- ... implies multifaceted consequences for Society
- ... and climate change mutually reinforce each other
- ... has mainly been focused on the opportunity side by financial institutions
- ... results in high economic costs and they are rising
- ... is linked to financial risks, but there is lack of academic studies
- ... and the risks stemming from it is significantly underestimated by conventional financial risk measurements

Current best practice financial risk assessment in 2020:

X (total risk) = x + a

x = Financial risks
a = Climate-related transition and/or physical financial risks



Optimal financial risk assessment in 2020:

X (total risk) = x + α · (a+b)

x = Financial risks
a = Total of physical, transition, litigation and systemic climate-related financial risks – based on 1.5°C IPCC scenario
b = Total of physical, transition, litigation and systemic biodiversity-related financial risks
α = amplifying factor due to feedback loops between climate change and biodiversity loss. (a+b+c)/(a+b) whereas c= Climate- and biodiversity-related financial arising from feedback loops between climate change and biodiversity loss





Key take aways

- Financial risks associated with loss of biodiversity will become increasingly important in 2020
- Climate change and loss of biodiversity mutually reinforce each other. This double crisis significantly increases the risk of financial market instability.
- Biodiversity-related financial risks, suggesting a typology of four financial risks: physical, transition, litigation and systemic risks.

Empfehlungen



Stakeholder need to act and take risk of biodiversity loss and climate into consideration



States and international organisations need to

- Change framing of biodiversity debate and declare a state of emergency and agree to a “New Deal for Nature and People” in 2021
- Set up an international framework that aligns financial flows to conserve and restore biodiversity
- Close the massive funding gap for biodiversity conservation and restoration in 2021
- Specify that biodiversity loss and biodiversity-related financial risks are part of the fiduciary duty of financial agents



Financial regulators and central banks need to

- Demand that regulated entities regularly disclose their biodiversity-related financial risks
- Run stress tests based on aligned and common practices, analysing the impact of risks stemming from biodiversity loss on the whole financial sector and on individual financial institutions
- Start reflecting on how biodiversity-related financial risks could be integrated into the capital and solvency requirements



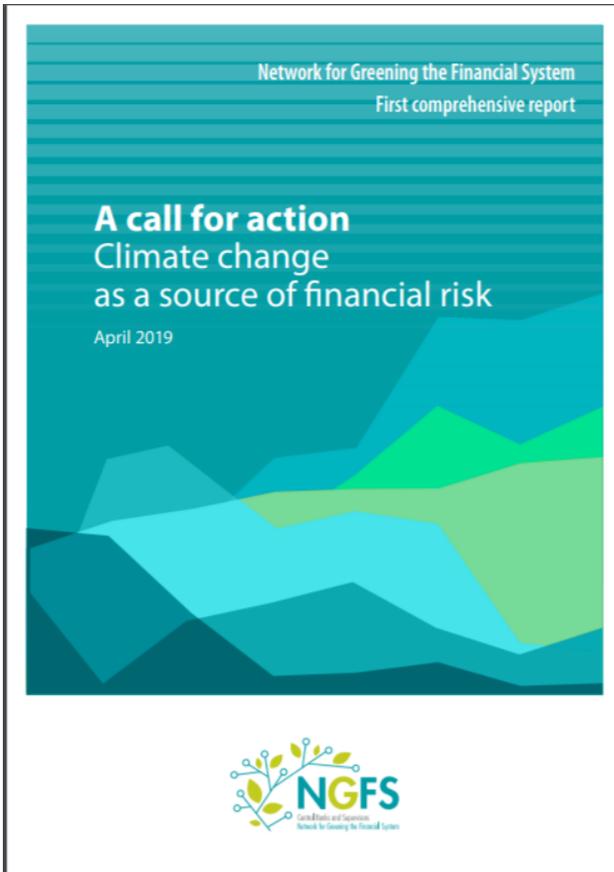
Financial market players need to

- Measuring and disclosing biodiversity-related financial risks and positive and negative impact
- Proactively manage biodiversity-related financial risks
- Promote spatial finance as an important tool for the financial sector to reduce financial risks and measure impact

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Network for Greening the financial system - NGFS



BOX 1

Distinguishing between climate and environment-related risks

The NGFS aims to contribute to the development of environment and climate-related risk management in the financial sector. By **environment-related risks**, this report refers to risks (credit, market, operational and legal risks, etc.) posed by the exposure of financial firms and/or the financial sector to activities that may potentially cause or be affected by environmental degradation (such as air pollution, water pollution and scarcity of fresh water, land contamination, reduced biodiversity and deforestation). By **climate-related risks**, the report refers to risks posed by the exposure of financial firms and/or the financial sector to physical or transition risks caused by or related to climate change (such as damage caused by extreme weather events or a decline of asset value in carbon-intensive sectors).

This report focuses on climate-related risks rather than environmental risks for two main reasons: first, the transition to a low-carbon economy consistent with the objectives of the Paris Agreement requires a radical shift of resource allocation and, thus, a seminal response by the financial sector. It was first against this background that the

NGFS was founded. Second, climate change itself poses a major challenge – if not the major challenge – of our time and its impact will be felt globally, thus demanding a strong international response and multilateral cooperation, particularly given that the impacts of climate change may only be felt many years into the future, and yet are determined by the actions we take today.

Nevertheless, there are compelling reasons why the NGFS should also look at environmental risks relevant to the financial system. For instance, environmental degradation could cascade to risks for financial institutions, as reduced availability of fresh water or a lack of biodiversity could limit the operations of businesses in a specific region. These could turn into drivers of financial risks and affect financial institutions' exposures to those businesses.¹ Also, it is important to be aware of potential greater impacts due to the combined effects of climate and environmental risks. Against this background, the NGFS expects to dedicate more resources to the analysis of environmental risks going forward.

¹ Schellekens, Van Toor (DNB), *Values at risk? Sustainability risks and goals in the Dutch financial sector*, 2019.

Network for Greening the financial system - NGFS



Network for Greening the Financial System
First comprehensive report

Network for Greening the Financial System
Technical document

BOX 1

«..lack of biodiversity could limit the operations of businesses in a specific region. These could turn into drivers of financial risks and affect financial institutions' exposure to those businesses.»



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DNBulletin: Indebted to nature

Datum 18 juni 2020
Theme Economy



The financial sector is exposed to risks as a result of biodiversity loss. This emerged from a joint study by De Nederlandsche Bank (DNB) and PBL Netherlands Environmental Assessment Agency. The new study builds on the report *Values at risk?*, published last year by DNB, in which risks of biodiversity loss were investigated in qualitative terms.

Dependence of the financial sector on biodiversity

Biodiversity risks: an important caveat

Financial institutions must ensure they identify the exposure of their portfolios to biodiversity risks in a timely manner, since in-depth understanding of these risks informs adequate risk management. The joint DNB-PBL study has identified only the lower limit of the total exposure of financial institutions to risks of biodiversity loss. Due to the limited availability of data, we were able to investigate only a limited number of biodiversity risks. Based on the results, therefore, it cannot be concluded that other risks are less relevant. It is important to further develop consistent and widely applied standards for measuring and disclosing biodiversity risks.

UN Principles for Responsible Investment PRI



ENVIRONMENTAL ISSUES

Investor action on biodiversity: discussion paper

1 September 2020

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‘TCFD for nature’ working group launches with investor and government backing

The 62 member group includes Storebrand, NatWest, Citi, BNP Paribas, AXA, Rabobank, Credit Suisse, Banorte, Manulife, Pimco, DBS Bank, Sumitomo Mitsui and Yes Bank



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by: Ella Milburn Sep 25th, 2020

- An Informal Working Group (IWG) works on the reporting, metrics, and data needs of financial institutions
- Enabling FIs them to better understand their risks, dependencies and impacts on nature.
- Reporting frameworks will be developed in 2021, and tested early in 2022 before being made available worldwide.



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