IMPACT OF THE COVID-19 LOCKDOWN ON THE COASTAL SECTOR IN SOUTH AFRICA

SITUATIONAL ASSESSMENT

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Executive Summary

Background

As most countries in the world, South Africa was hit severely by the global pandemic after the first detected COVID-19 (hereafter shortened to COVID) cases in China in December 2019. South Africa's first response was a national lockdown of economic activities and movement of the population to contain the spread of the virus and to take burden off the healthcare system. As the resurgence of the virus occurred in waves, five lockdown alert levels were determined to respond to the volatile infection levels in the country. South Africa was under varying levels of lockdown for a total of 767 days, from 27 March 2020 until 3 May 2022 when the last transitional restrictions were lifted.

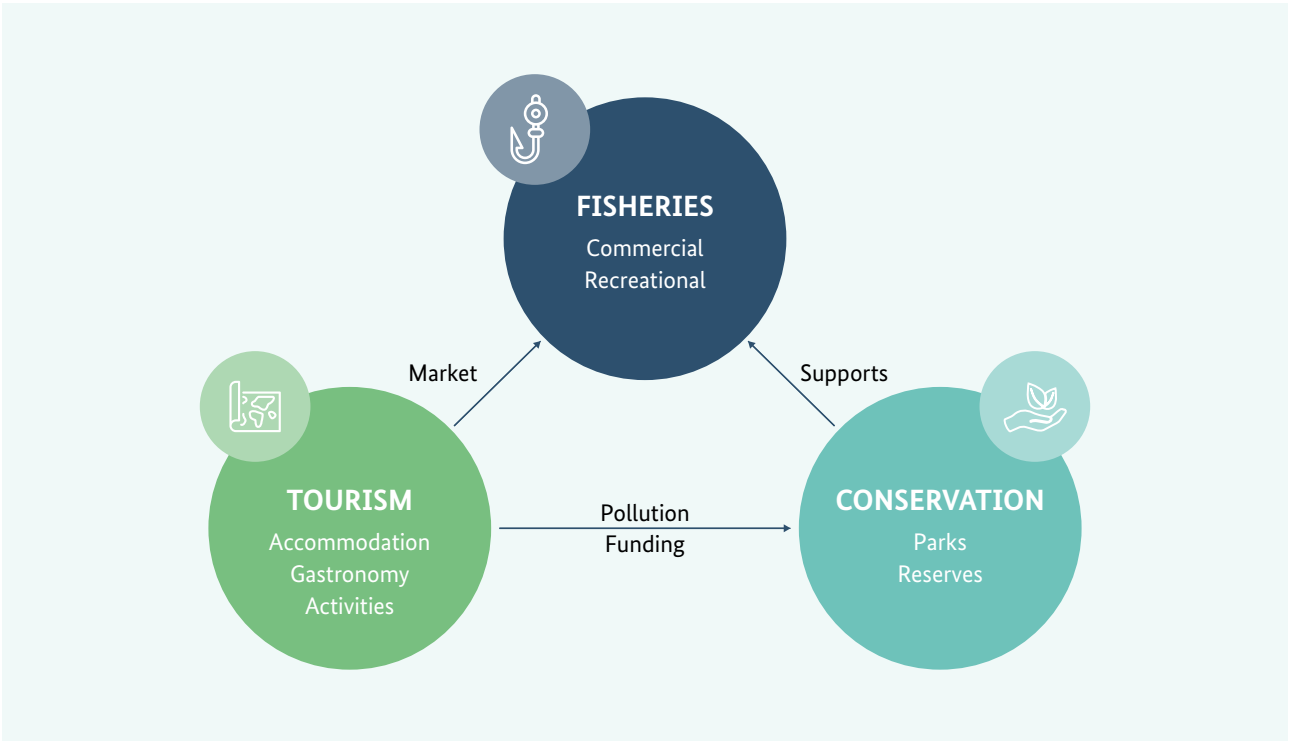
This massive interruption of social and economic activities inherently impacted economies and livelihoods worldwide. To gather further insights, the South African Department of Forestry, Fisheries and the Environment (DFFE) with financial support from the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) commissioned a desktop assessment and survey of the socio-economic impacts the COVID lockdown has had on the coastal sector of South Africa. The assessment includes impacts of the COVID lock down period on natural resource extent and condition; policy and regulation governance; financial planning; socio-economic impacts on livelihoods (direct and indirect); challenges and opportunities caused by the COVID lockdown; recommendations for future disaster management; and the role of decision support tools in a nature positive, green recovery given the impacts of COVID.

This report summarises the findings of a brief, non-comprehensive, international literature review and a complementing online survey to corroborate the findings from literature with observations of South African coastal stakeholders.

In a nutshell

Throughout literature, a triangular relation between the three main coastal sectors Fisheries, Tourism and Conservation was implied (Figure 1). Tourism, specifically gastronomy, creates a market for fisheries. During lockdown, gastronomy was severely restricted, affecting the fisheries industry. So, despite fishing activities being allowed, the industry was indirectly affected by the lockdown due to the collapse of markets.

Figure 1: Relationship between the major coastal sectors fisheries, tourism and conservation.



Nature conservation was negatively affected by the reduction of tourism which contributes funding to conservation and enforcement. Hence, in some areas poaching increased. On the other hand, the lack of tourism seemed to have reduced pressure on water and other natural resources, and reduced waste during the 'anthropause'. However, these short-term benefits of the lockdown seem to be outweighed by the huge amount of additional solid and chemical waste resulting from personal protective equipment (PPE) and other sanitising products. Nature conservation efforts and sustainable resource use in general support fisheries with healthy fish populations. The pandemic limited the efficiency of natural management and controlling, leading to locally increased rates of poaching.

Effects on Coastal Natural Resources

The COVID lockdown offered a rare opportunity in understanding how human presence influences ecosystems. While the hard lockdown period during the COVID pandemic resulted in an 'anthropause' as reflected in some improvements in coastal environmental quality associated with reduced industrial activities, these were mostly short-lived. Initially reduced tourism-related litter in coastal areas were evident, but this soon changed because of inappropriate disposal of solid waste and a reduction in waste recycling. For example, just 100 days into lockdown studies in Kenya showed large amounts of PPE, sanitiser and sanitising wipes, being disposed of in coastal areas, soon to end

up in coastal waters. Further, increased use of cleaning chemicals (e.g. soaps, detergents), medicines, and plastics (e.g. gloves, masks, PPE kits and syringes) is expected to decrease environmental quality in the long-term with ripple effects on marine biota. A return to pre-COVID economic activity also again increased anthropogenic impacts on environmental quality, specifically pertaining to atmospheric pollution and its impact on air quality, also in coastal areas. However, the impact of the marked increase in COVID-related marine litter is already showing its longer-term impacts on birds, with the first sighting of accidentally entangled pelagic seabirds in disposable face masks in the Mediterranean Basin.

During the COVID lockdown period, an improvement in the health and abundance of marine and coastal biota such as fish, marine mammals, and birds had been observed, associated with improved environmental quality, and reduced tourist numbers visiting coastal areas.

However, in various countries an increase in poaching of marine life and illegal fishing activities were also observed during the COVID pandemic, primarily attributed to a lack of sufficient and visible enforcement and the increase in unemployment, forcing many people to compensate loss of income with sourcing of food directly from the natural environment.

Effects on Coastal Environmental Governance and Financial Planning

Governance-related impacts on coastal environments during the COVID pandemic largely related to unexpected increase in solid waste with insufficient management strategies to deal with such loads. This was further hampered by a lack of staff during hard lockdown to collect waste. Further, a lack of sufficient and visible enforcement, especially during hard lockdown, increased poaching of marine life and illegal fishing activities. Once effects of the COVID-pandemic started challenging individual incomes and people started losing their jobs, support for climate policies were found to slow down, showing a shift to short-term survival instead of longer-term sustainability. Multiple waves of COVID outbreaks and the unexpected pressure on health budgets also diverted government finances earmarked for environmental management, including scientific budgets allocated to marine conservation.

Challenges and Opportunities emerging from the COVID Lockdown

The COVID lockdown offered an insight into understanding how human presence influences ecosystems by providing an unparalleled opportunity to gather baseline datasets in this 'anthropause' for consideration in management mitigation options. Despite an initial decrease in support to climate change policies, people's experience of the pandemic eventually did increase concern over climate change, as well as public support for a green recovery, potentially opening the door for policy makers to implement bolder climate mitigation and adaptation policies. Also, lessons learnt from handling the COVID pandemic could be employed by decision-makers to address climate change challenges.

Considerations for Green Recovery and Future Disaster Management

As new understanding on the environmental and socio-economic effects of the COVID pandemic and mistakes made is fast emerging, so are lessons learnt and considerations for a green recovery and better handling of future pandemics. Environmental gains because of COVID were largely short-lived, and the vast quantities of pandemic-related solid waste and illegal living resource exploitation took most authorities by surprise. This highlighted the lack of preparedness and emphasised the need for proper policy guidelines, appropriate technology and skills development, and awareness

programmes to deal with environmental challenges in future disasters of this nature. Further, proactive investment in risk reduction strategies at the community-level are important to build resilience, especially in densely populated coastal urban areas. Early hazard identification and accessible knowledge dissemination, support for people already experiencing social and economic vulnerability, and collaboration between stakeholders at all tiers of government also are critical. Moreover, governance and education in coastal areas should be emphasised to strengthen the capacity for effective crisis response. A sustainable blue economy has become essential for the well-being of coastal populations. Therefore, the protection of incomes and livelihoods in these areas is important, not only in support of a blue economy, but also to build resilience to future disasters. An inability to do so may erode space to implement green recovery policies, requiring a clear, coordinated and adaptable approach among all tiers of government.

Lockdown impact in South Africa in numbers

Commercial (offshore) fishing was affected *directly* only to a minor extent, as right-holding fisheries were considered an essential service and could operate throughout the entire lockdown period. The same is valid for **right-holding coastal and small-scale fisheries (near shore)**, i.e. those with a right or exemption granted in terms of the amended Marine Living Resources Act of 2005 (Act No. 14).

However, even after fisheries could resume business, they were still economically restrained due to the continued closure of international (especially for crayfish and lobster) and local markets.

Recreational and small-scale fisheries that were not granted a lockdown-related exemption could only resume at the beginning of Level 2 on 18 August 2020 (i.e. after 144 days of beach closure and inter-provincial travel restrictions). From 29 December 2020 until 1 February 2021, the beaches were closed for another 34 days, which again resulted in the prohibition of non-essential fishing activities.

Tourism was directly affected by the lockdown for the longest period of all coastal economies. Restaurants, hotels and beaches were closed for 144 days (27 March – 17 Aug 2020). From 18 August 2020, gastronomy and tourism (i.e. accommodation, flights and gatherings) could resume business again, but only with severe limitations (i.e. number of people allowed, safety distance and sanitation measures). Only on 5 April 2022, i.e. after 739 days of lockdown regulations, all restrictions affecting the tourism sector were lifted.

Nature conservation was severely impacted by the lockdown, given that a lot of income for conservation operations comes from local and international tourism. The temporary loss of this income negatively affected conservation operations. Nature reserves and botanical gardens were closed for 144 days (27 March – 17 August 2020). While from 18 August to 28 December 2020 tourism activities started to pick up again, parks and nature reserves were closed for another 34 days from 29 December 2020 until 1 February 2021, resulting in further loss of income.

It was long disputed how long the South African economy would take to recover from the lockdown impacts: In June 2023, StatsSA revealed that South Africa's GDP is now for the first time exceeding the pre-COVID GDP of 2019.

The agriculture, forestry and fisheries sector is a major contributor to this recovery, exceeding the sector's GDP contribution from 2019 by 25.4 % in the 4th quarter of 2022.

However, the trade, catering and accommodation sector (i.e. tourism) still has not fully recovered. Its market contribution in 2022 was 3.6 % lower than in 2019.

No information could be found within the timeframe of this study to assess which activities contributed to the growth in the first sector, i.e. whether agriculture, forestry and fisheries contribute equally to this growth or not.

1 Introduction

As most countries in the world, South Africa was hit severely by the global pandemic after the first detected COVID-19 (hereafter shortened to COVID) cases in China in December 2019. South Africa's first response was a national lockdown of economic activities and movement of the population to contain the spread of the virus and to take burden off the healthcare system. As the resurgence of the virus occurred in waves, five lockdown alert levels were determined to respond to the volatile infection levels in the country. South Africa was under varying levels of lockdown for a total of 767 days, from 27 March 2020 until 3 May 2022 when the last transitional restrictions were lifted.

This massive interruption of social and economic activities inherently impacted economies and livelihoods worldwide. To gather further insights, the South African Department of Forestry, Fisheries and the Environment (DFFE) with financial support from the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) commissioned a desktop assessment and survey of the socio-economic impacts the COVID lockdown has had on the coastal sector of South Africa.

The assessment focusses on the following sections:

- Impacts of the COVID lockdown period on:
  - Natural resource extent and condition
  - Policy and regulation governance
  - Financial planning
  - Socio-economic impacts on livelihoods (direct and indirect)
  - Challenges and opportunities caused by the COVID lockdown
  - Recommendations for future disaster management
- The role of decision support tools in a nature positive, green recovery given the impacts of COVID

This report summarises the findings of a brief, non-comprehensive literature review and a complementing online survey to corroborate the findings from literature with observations by South African coastal stakeholders.

2 COVID lockdown in South Africa

As most countries in the world, South Africa was hit severely by the global COVID pandemic. Figure 2 gives a brief overview of the official COVID statistics in South Africa as of 2 February 2023.

Figure 2: COVID-19 statistics in South Africa as of 2 February 2023.

Source: COVID-19 South African Online Portal

For a very multi-faceted picture of the impact of the lockdown in South Africa, refer to COVID-19 South African Online Portal.

South Africa's first response to the COVID outbreak was a national lockdown of economic activities and restricted movement of the population to contain the spread of the virus and to take burden off the health-care system. As the resurgence of the virus occurred in waves, five lockdown alert levels were determined to respond to the varying states of infection levels in the country.

2.1 Objectives of alert lockdown levels

The alert levels (Figure 3) determined the level of restrictions to be applied during the national state of disaster.

a **'Alert Level 1'** indicates a low COVID-19 spread with a high healthcare system capacity;
b **'Alert Level 2'** indicates a moderate COVID-19 spread with a high healthcare system capacity;
c **'Alert Level 3'** indicates a moderate COVID-19 spread with a moderate healthcare system capacity;
d **'Alert Level 4'** indicates a moderate to a high COVID-19 spread with a low to moderate healthcare system capacity;
e **'Alert Level 5'** indicates a high COVID-19 spread with a low healthcare system capacity.

Figure 3: Summary of COVID lockdown alerts in South Africa.

Source: https://www.gov.za/COVID-19/about/about-alert-system

2.2 Summary of lockdown impacts on the coastal sector

South Africa was under varying levels of lockdown for a total of 767 days from 27 March 2020 until 3 May 2022 when the last transitional restrictions were lifted.

2.2.1 SUMMARY OF IMPACTS ON ECONOMIC COASTAL ACTIVITIES

Commercial (offshore) fishing was affected *directly* only to a minor extent, as right-holding fisheries were considered an essential service and could operate throughout the entire lockdown period. The same is valid for **right-holding coastal and small-scale fisheries (near shore)**, i.e. those with a right or exemption granted in terms of the amended Marine Living Resources Act of 2005 (Act No. 14).

However, even after fisheries could resume business, they were still economically restrained due to the continued closure of international (especially for crayfish and lobster) and local markets.

Recreational and small-scale fisheries without COVID lockdown exemption granted could only resume at the beginning of Level 2 on 18 August 2020 (i.e. after 144 days of beach closure and inter-provincial travel restrictions). From 29 Dec 2020 until 1 Feb 2021, the beaches were closed for another 34 days, which resulted in the prohibition of non-essential fishing activities again.

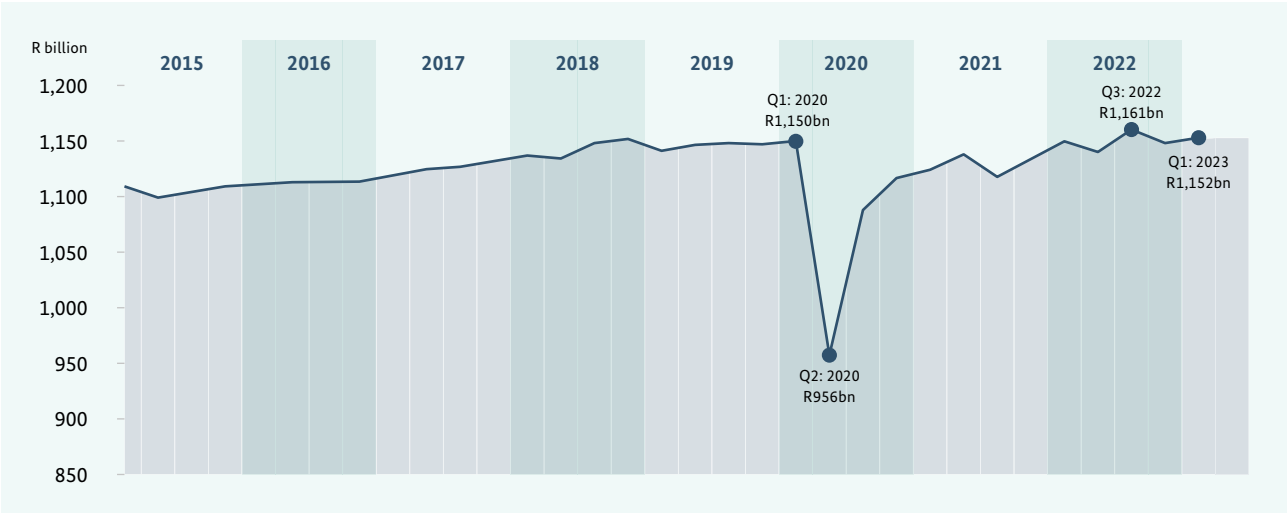
Tourism was directly affected by the lockdown for the longest period of all coastal economies. Restaurants, hotels and beaches were closed for 144 days (27 March – 17 Aug 2020). From 18 Aug 2020, gastronomy and tourism (i.e. accommodation, flights and gatherings) could resume business again, but only with severe limitations (i.e. number of people allowed, safety distance, and sanitation measures). Only on 5 April 2022, i.e. after 739 days of lockdown regulations all restrictions affecting the tourism sector were lifted.

Nature conservation was severely impacted by the lockdown, given that a lot of income for conservation operations comes from local and international tourism. The temporary loss of this income negatively affected conservation operations. Nature reserves and botanical gardens etc. were closed for 144 days (27 March – 17 Aug 2020). While from 18 August to 28 December 2020 tourism activities started to pick up again, parks and nature reserves were closed for another 34 days from 29 December 2020 until 1 February 2021, resulting in further loss of income.

This summary of lockdown impacts is based on Table 1, the literature review as per section 3 and the stakeholder survey results as per section 4.

It was long disputed how long the South African economy would take to recover from the lockdown impacts: In June 2023, StatsSA revealed that the South African GDP is now for the first time exceeding the pre-COVID GDP of 2019 (Figure 4).

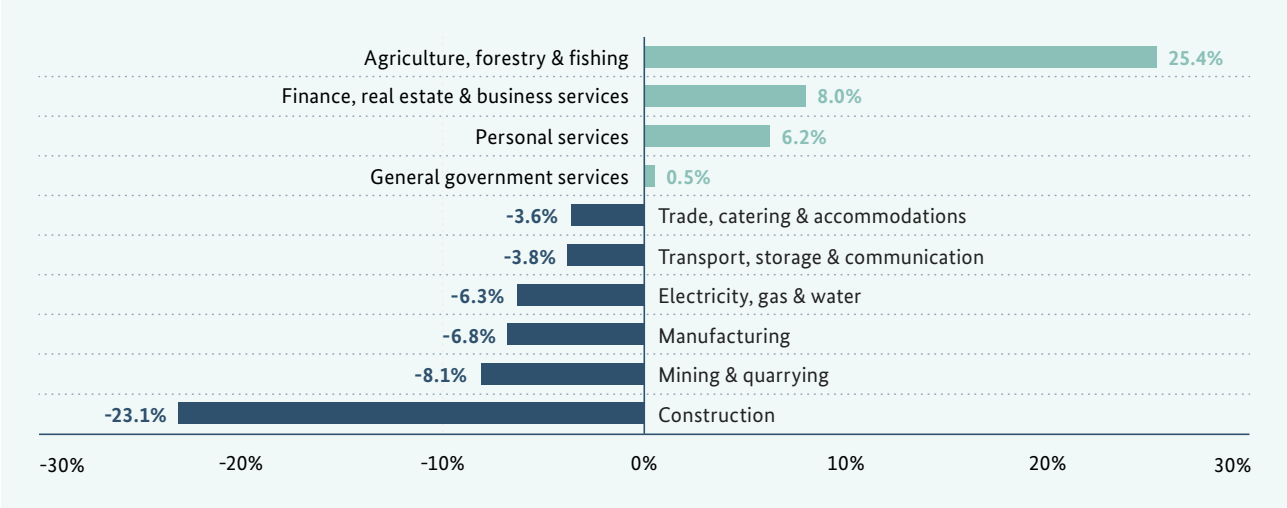
Figure 4: Gross domestic product (GDP) development between 2015 and 2022.



Source: StatsSA

The agriculture, forestry and fisheries sector is a major contributor to this recovery, exceeding the sector's GDP contribution from 2019 by 25.4 % in the 4th quarter of 2022. However, the trade, catering and accommodation sector (i.e. tourism) still has not fully recovered. Its market contribution in 2022 was 3.6 % lower than in 2019 (Figure 5).

Figure 5: Percentage change in annual value added per industry sector: 2022 compared with 2019 (considering constant 2015 prices).



Source: StatsSA

No information could be found within the timeframe of this study to assess which activities contributed to the growth in the first sector, i.e. whether agriculture, forestry and fisheries contribute equally to this growth or not.

2.3 Duration of lockdown levels in South Africa and implications for the coastal sector

South Africa was under varying levels of lockdown for a total of 767 days, from 27 March 2020 until 3 May 2022 when the last transitional restrictions were lifted. Table 1 below gives an overview of the duration of the respective lockdown levels, the relevant official regulations, and the deducted implications for the coastal sector. The information on the durations and relevant regulations can be found on the government's official COVID website: https://sacoronavirus.co.za/. The implications for the coastal sector were deducted from the literature summarised in section 3 below.

The focus was on the key coastal economies, namely:

- **Fisheries and related markets:** Commercial (offshore) fishing; Small scale (near shore), with community rights and Interim relief or recreational fishing
- **Tourism:** Domestic; international; restaurants; beaches
- **Nature conservation:** Parks and resorts

Table 1: Duration of lockdown levels and implications for the coastal sector (list of regulations NOT comprehensive)

Start date	Lockdown level	Duration (days)	Relevant regulation	Implications for coastal sector
18 Mar 2020			Schools are closed	• Reduced workforce without childcare alternatives
27 Mar 2020	LEVEL 5	35	• Complete prohibition of movement, except for food, medical and essential services • Cease of all business and retail except for essential businesses • All borders are closed • Incoming tourists need to quarantine and may not move • Closed: Hotels, lodges, restaurants, holiday resorts, game lodges etc. • Maritime and air passenger transport is prohibited, except for essentials • Workspaces need to employ safety distance measures and/or 50% capacity • People infected by or exposed to COVID need to quarantine for 2 weeks	• **only fisheries with permits according to the Marine Living Resource Act (Act 14 of 2005) could operate** • **only essential retail allowed** • **operating businesses were impaired by safety distance and other limitations** • **no tourism** • **no restaurants, i.e. no market for seafood etc.** • **most international markets for SA produce closed** • reduced workforce due to quarantine, infection and self-isolation
01 May 2020	LEVEL 4	31	• Curfew from 20:00-05:00 h • Borders are closed, except for essential cargo • No domestic and international passenger flights • No interprovincial travel • Delivery & courier services allowed 09:00-19:00 h • Essential retail open only, no leisure or tourism • Public transport only for essential services	• **only permitted fisheries could operate** • **no un-permitted small-scale fishing or shore-based harvesting** • **no interprovincial fishing travel** • **operating businesses impaired by safety distance and other limitations** • **no tourism** • **no restaurants, i.e. no markets for seafood etc.** • **most international markets for SA produce closed** • **delivery services allow for direct fish retail** • reduced workforce due to quarantine, infection and self-isolation

Start date	Lockdown level	Duration (days)	Relevant regulation	Implications for coastal sector
01 Jun 2020	LEVEL 3	78	• https://sacoronavirus.co.za/	• only permitted fisheries could operate • **no un-permitted small-scale fishing or shore-based harvesting** • **operating businesses were impaired by safety distance and other limitations** • **no tourism** • limited restaurant activity & markets for seafood etc. • **most international markets for SA produce closed** • reduced work force due to quarantine, infection and self-isolation
18 Aug 2020	LEVEL 2	34	• Curfew from 22:00-04:00 h • Gatherings limited to 50 (100) people • No spectators at sports events • **Beaches open** • Restaurants open • Hotels open (50 % of floor space) • Ports closed except for cargo, fuel & goods, i.e. no international leisure vessels • DBN, CPT and OR Tambo airports open	• Limited international tourism • Beaches open: un-permitted fishing allowed • Nature resorts etc. open → increased tourism • More restaurants & hotels open → increased tourism → increased markets for seafood etc.
21 Sep 2020	LEVEL 1	99	• Cinemas, shops etc. open at 50 % capacity • Gatherings limited to 250 people indoors and 500 outdoors • Curfew from 00:00-04:00 h • Sale of alcohol Mon-Friday 09:00-17:00 h • Alcohol on-site consumption allowed • No spectators at sports events • 18 land borders open • DBN, CPT and OR Tambo airports open • Gatherings limited to 50 people or less	• Limited international tourism • Beaches open: un-permitted fishing allowed • More restaurants & hotels open → increased tourism → increased markets for seafood etc.
29 Dec 2020	ADJUST LEVEL 3	34	• Curfew from 21:00-06:00 h • International travel allowed • DBN, CPT and OR Tambo airports open • 33 land borders remain closed • **All economic activity is to resume with some exceptions:** ◦ Gatherings, restaurants limited to 50 (100) people ◦ Gatherings at sports grounds and fields are prohibited ◦ Hotels are open with safety distance ◦ Conferences up to 50 people/50 % ◦ Shops limited to 50 people • **Beaches, public parks, sports grounds and swimming pools closed** • No sports events • **The closure of beaches and restrictions in times of operation do not apply to fishermen for fishing purposes who are in possession of a permit or exemption granted in terms of the Marine Living Resources Act, 1998 (Act No. 18 of 1998).** • Game parks, botanical gardens, aquariums and zoos, where access control measures and entry limitations are already in place, remain open to the public • All commercial seaports open • Small crafts are allowed entry into seaports, in-line with health and border law enforcement protocols	• Limited international tourism • **Beaches closed** • Permitted fishing, including recreational fishing, allowed • **No non-permitted fishing** • Restaurants open with limitations → some market for permitted fisheries • Nature conservation areas open → income from tourism
01 Feb 2021	ADJUST LEVEL 3	28	• Beaches & parks are open till 22:00 h • Curfew from 23:00-04:00 h • Rail, ocean, air and road transport is permitted for the movement of cargo to and from other countries and within the Republic	• Beaches & parks open • Non-permitted fishing allowed • Tourism increases

Start date	Lockdown level	Duration (days)	Relevant regulation	Implications for coastal sector
01 Mar 2021	ADJUST LEVEL 1	91	• Curfew from 00:00-04:00 h • Gatherings limited to 100 (250 outdoors) people • Hotels to full capacity with safety distance • Shops open with 50 % capacity • No spectators at sports events • The 20 land borders which are fully operational will remain as such and the 33 land borders which were closed will remain closed. • International air travel is restricted to the following airports: ◦ (i) OR Tambo International Airport; ◦ (ii) King Shaka International Airport; ◦ (iii) Cape Town International Airport; ◦ (iv) Lanseria International Airport; and ◦ (y) Kruger Mpumalanga International Airport.	• More international tourism • More hotel capacity
16 Jun 2021	ADJUST LEVEL 3	12	• Curfew from 22:00-04:00 h • Gatherings limited to 50 (100) people • Beaches are open • Parks are open • Restaurants are open • Interprovincial travel allowed • The 20 land borders which are fully operational will remain as such and the 33 land borders which were closed will remain closed. • No spectators at sports events • International air travel is restricted to the following airports: ◦ (i) OR Tambo International Airport; ◦ (ii) King Shaka International Airport; ◦ (iii) Cape Town International Airport; ◦ (iv) Lanseria International Airport; and ◦ (y) Kruger Mpumalanga International Airport.	• Fisheries retail to restaurants (back to normal) • Domestic tourism allowed (back to normal) • Restaurants open (back to normal) • Beaches and parks open (back to normal) • limited international travel
28 Jun 2021	ADJUST LEVEL 4	28	• Curfew from 21:00-04:00 h • Businesses may operate with health precautions • International travel allowed with screening and masks • Closure of businesses at 20:00 h • No social gatherings allowed • No conferences allowed • No spectators at sports events • Gatherings at hotels etc. at 50 % capacity • Restaurants limited to 50 people / 50 % • Commercial seaports remain open and small crafts are allowed entry	• limited tourism • limited restaurants • limited fishery markets • limited international travel
26 Jul 2021	ADJUST LEVEL 3	49	• Curfew from 22:00-04:00 h • Businesses close at 21:00 h • Interprovincial travel permitted • Schools are open • Gatherings limited to 50 (100) people / 50 % • Restaurants are open • International air travel is restricted to the following airports: ◦ (i) OR Tambo International Airport; ◦ (ii) King Shaka International Airport; ◦ (iii) Cape Town International Airport; ◦ (iv) Lanseria International Airport; and ◦ (y) Kruger Mpumalanga International Airport.	• more restaurants and local travel • more fisheries markets • limited international travel

Start date	Lockdown level	Duration (days)	Relevant regulation	Implications for coastal sector
13 Sep 2021	ADJUST LEVEL 2	18	• Curfew from 23:0004:00 h • Gatherings and restaurants limited to 250 (500) people / 50 % • No spectators at sports events • The 20 land borders which are fully operational will remain as such and the 33 land borders which were closed will remain closed • International travel allowed with COVID test • No international passenger ships	• more conferences & gatherings, i.e. more gastronomy • more fisheries markets • limited international travel
01 Oct 2021	ADJUST LEVEL 1	90	• Curfew from 00:00-04:00 h • Gatherings & restaurants limited to750 (2000) people / 50 % • Hotels operate at full capacity with safety distance The 20 land borders which are fully operational will remain as such and the 33 land borders which were closed will remain closed international air travel is restricted to the following airports: (i) OR Tambo International Airport; (ii) King Shaka International Airport; (iii) Cape Town International Airport; (iv) Lanseria International Airport; and (y) Kruger Mpumalanga International Airport. https://sacoronavirus.co.za/	• more conferences & gatherings, i.e. more gastronomy • more fisheries markets • limited international travel
30 Dec 2021	ADJUST LEVEL 1	96	• No curfew • Gatherings & restaurants limited to 1000 (2000) people / 50 % • The 21 land borders which are fully operational will remain as such and the 32 land borders which were closed will remain closed (except for the Telle Bridge Port of Entry which will reopen on the commencement of this amendment to the Regulations). ◦ c) All international travellers arriving at the Ports of Entry listed in paragraph (a) who are- ◦ (i) fully vaccinated must upon arrival at the Port of Entry produce a valid vaccination certificate; and ◦ (ii) unvaccinated must upon arrival at the Port of Entry provide a valid certificate of a negative COVID-19 test recognised by the World Health Organisation, which was obtained not more than 72 hours before the date of travel.	• more conferences & gatherings, i.e. more gastronomy • more fisheries markets • limited international travel
05 Apr 2022	Transitional measures	28	• Still face masks in indoor public places • No face masks in public open spaces but social distance	• All borders open: all economy and tourism resume (back to normal)
03 May 2022			**Cease of restrictions**	
Total duration (days)		**767**		

3 International Review: Effects of COVID lockdown on Coastal Systems

In this section, the international literature is reviewed as far as it relates to the effects of the COVID lockdown on the health and governance of coastal natural resources, as well as the socioeconomics, specifically focusing on the livelihoods of coastal communities. This review is by no means exhaustive but provides an overview of the key effects, including potential long-term impacts. The review largely reflects our current knowledge which may well change as more learning emerges in the future.

3.1 Effects on Coastal Natural Resources

SUMMARY

While the hard lockdown period during the COVID pandemic resulted in an 'anthropause' as reflected in some improvements in coastal environmental quality associated with reduced industrial activities, positive impacts were mostly short-lived. Initially reduced tourism-related litter in coastal areas was evident, but this soon changed because of inappropriate disposal of solid waste and a reduction in waste recycling. For example, just 100 days into lockdown studies in Kenya showed large amounts of personal protective equipment (PPE), sanitiser and sanitising wipes being disposed of in coastal areas soon to end up in coastal waters. Further, increased use of cleaning chemicals (e.g., soaps, detergents), medicines, and plastics (e.g., gloves, masks, PPE kits and syringes) is expected to decrease environmental quality in the long-term with possible ripple effects on marine biota. A return to pre-COVID economic activity also, again, increased anthropogenic impacts on environmental quality, specifically pertaining to atmospheric pollution and its impact on air quality also in coastal areas.

During the COVID lockdown period, an improvement in the health and abundance of marine and coastal biota such as fish, marine mammals, and birds had been observed, associated with improved environmental quality and reduced tourist numbers visiting coastal areas. However, the impact of the marked increase in COVID-related marine litter is already showing its longer-term impacts on birds with the first sighting of accidentally entangled pelagic seabirds in disposable face masks in the Mediterranean Basin.

The COVID lockdown offered a rare opportunity in understanding how human presence influences ecosystems and provided an unparalleled opportunity to gather baseline datasets for consideration in management mitigation options.

3.1.1 Environmental quality

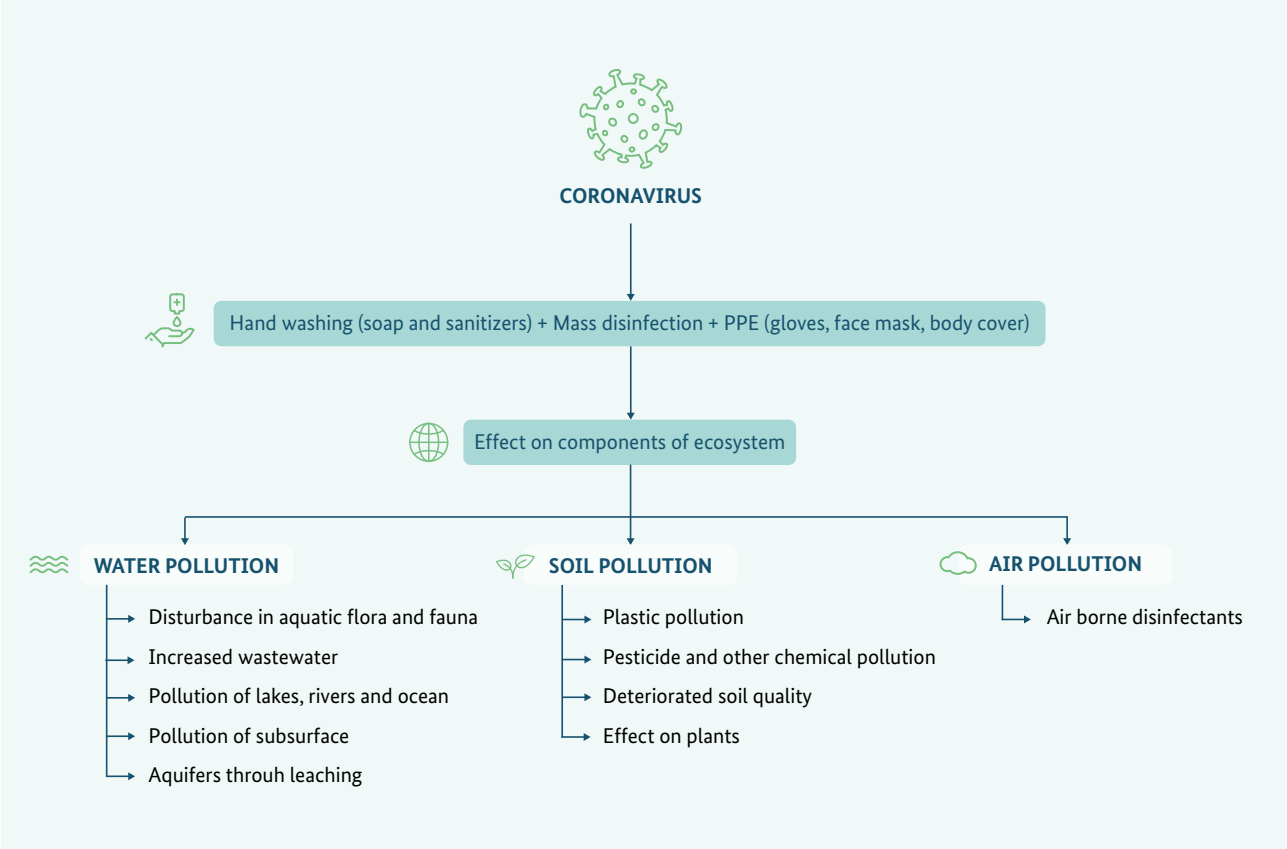
With a marked reduction in economic activities, consumption and movement, pollutant emissions and use of natural resource decreased resulting in a drop in the rate of some environmental impacts (UNECE 2023). Positive effects included reduced greenhouse gas emissions, improved water quality, reduced noise pollution, improved air quality, and in some cases wildlife restoration. However, negative impacts also increased through disposal of medical waste, haphazard disposal of protective material, increased municipal solid waste loads, and a reduction in recycling efforts (Mofiju et al. 2021).

The marked reduction in anthropogenic activities during COVID also manifested in improved coastal water quality (Ansari et al. 2021: Bragga et al. 2022). For example, studies in Italy suggest that low eutrophication measures observed in coastal waters led to improved water quality during the lockdown (Bragga et al. 2022). Public surveys and qualitative observations in Ecuador and Galápagos found a marked improvement in environmental quality, supported by quantitative satellite data on eutrophication levels in the studied areas (Ormaza-González et al. 2021). In addition, a reduction in tourism greatly reduced the pressure on local wastewater treatment facilities, resulting in reduced nutrient and faecal contamination being disposed into coastal waters. Notably, this lockdown-related improvement was viewed as an unparalleled opportunity to gather baseline datasets for consideration in management mitigation options. In India, turbidity, dissolved oxygen, nutrient concentration, microbial levels, and even microplastics concentrations improved during lockdown in aquatic systems as travel, tourism and religious activities were halted, and domestic and industrial activities were restricted (Verma and Prakash 2020; Edward et al. 2021).

While there had been several confirmations of reduced tourism-related litter in coastal areas globally at the onset of lockdown, the situation soon changed because of inappropriate disposal of solid waste and a reduction in waste recycling (Zambrano-Monserrate et al. 2020; Ormaza-González et al. 2021). For example, just 100 days into lockdown, studies in Kenya showed large amounts of personal protective equipment (PPE), sanitiser bottles and wipes being disposed of in coastal areas. While litter levels along beaches and in coastal waters were still low, they concluded that it was a matter of time for those items to end up as marine litter (Okuku et al. 2021). Similar trends were also observed in Ecuador and Galápagos where pollution from plastic water bottles and PPE increased exponentially soon after lockdown (Ormaza-González et al. 2021). In the USA and Italy, restriction to waste recycling also contributed to an increase in solid waste in the environment. Studies on street litter in two coastal cities in South Africa showed a decrease in litter during the strict lockdown, but markedly increased litter as lockdown continued, suggesting a reduction in compliance with regulations (Ryan et al. 2020).

Even while some positive effects on the environmental quality was observed during lockdown, these were mostly short-term, induced by nation-wide lockdowns. Rather, the pandemic is expected to pose long-term adverse impacts on the environment in the future, as is illustrated in Figure 6 (Ankit et al. 2021). Specifically, the increased use of cleaning chemicals (e.g., soaps, detergents), medicines, and plastics (e.g., gloves, masks, PPE kits and syringes) is expected to lead towards a decrease in environmental quality in the long-term (Ankit et al. 2021; Hammad et al. 2022; Jiang et al. 2022). It has been estimated that more than 25 thousand tons of pandemic-associated plastic waste have been discharged into the ocean, and with coastal waters as the primary recipient of such land-derived waste, with likely detrimental ripple effects on marine biota (Jiang et al. 2022). The return to pre-COVID economic activity increased anthropogenic impacts on environmental quality, specifically pertaining to atmospheric pollution also in coastal areas.

Figure 6: Envisaged negative pathways of COVID pandemic on environmental quality.



Source: Ankit et al. 2021

3.1.2 Marine biota

The marked reduction in anthropogenic activities during COVID manifested in some improvement in the health of marine biota. In India, improved environmental quality resulted in an increase in fish density in the reef areas, and provided insight into the benefits of effective enforcement of various eco-protection regulations and proper management pertaining to environmental quality in reviving ecosystem health (Edward et al. 2021).

In Ecuador, an increase in sightings of fish and large marine organisms, such as humpback whales, dolphins, and manta rays were reported, while along the beaches of the Galápagos islands, sightings of turtles, sea lions, penguins and sharks increased (Ormaza-González et al. 2021). Increased sightings were attributed to improved environmental quality, although the contributing effect of the La Niña, prevalent at the time, could not be excluded (Lerma et al. 2020).

Interestingly, in the Baltic Sea, the absence of tourists led to a seven-fold increase in the presence of white-tailed eagles, but with negative ripple effects on the breeding seabirds. The eagles did not prey on the seabirds, but their frequent disturbances delayed egg laying and facilitated egg predation from other birds (Hentati-Sundberg et al. 2021). Future studies will reveal whether the return of tourists will reverse the state or whether the 'anthropause' has permanently shifted the behaviour of the eagles into a long-term threat to breeding seabirds.

While bird numbers might have increased during the COVID lockdown period due to the reduced presence of people (Lewis et al. 2022), the impact of the marked increase in COVID-related marine litter is already showing its longer-term impacts on birds, with the first sighting of accidentally entangled pelagic seabirds in disposable face masks in the Mediterranean Basin (Karris et al. 2023).

3.2 Effects on Coastal Livelihoods

Mbatha (2021): *"COVID lockdown impacts world-wide appear to have been unequally borne by the South African population, with the poorest proportion of the population being most affected. For instance, low-skilled workers are the ones whose food and livelihood security were affected the most. When examining the impacts of lockdown policies on income, food and nutrition security, studies (Arndt et al., 2020; Love et al., 2021) reveal that the negative impact of the lockdown on food security was caused by the loss of household incomes and associated purchasing power."*

3.2.1 Fisheries

3.2.1.1 Commercial/large scale fisheries

In contrast, Mbatha (2021) reported for South Africa that more tuna and yellowtail were fished during the first three months of lockdown as many fishers who previously only fished part-time, now fished full-time. The surplus of available fish on the markets let the prices decrease drastically (R60/kg to R20/kg).

Small-scale fisheries

Definition

Small scale fishers are "... persons that fish to meet food and basic livelihood needs or are directly involved in harvesting or processing or marketing of fish, traditionally operate on or near shore fishing grounds, predominantly employ traditional low technology or passive fishing gear, usually undertake single day fishing trips, and are engaged in the sale or barter or are involved in commercial activity".

A Small-scale Fishing Community is "... an established socio-cultural group of persons who are, or historically have been, fishermen and -women, including ancillary workers and their families; have shared aspirations and historical interests or rights in the harvesting, catching or processing of marine living resources; have a history of shared Small Scale fishing activity but, because of forced removals, are not necessarily tied to particular waters or geographic area; and were or still are operating near or in the seashore or coastal waters where they previously enjoyed access to marine living resources, or continue to exercise their rights in a communal manner in terms of an agreement, custom or law; and who regard themselves as a community".

Source: Policy for the Small-Scale Fisheries Sector in South Africa (DAFF 2012)

In February and March 2021, the WWF conducted community surveys for Small-Scale Fisheries (SSFs) and interviews with seafood supply chain key informants to assess the impact of the lockdown on SSF communities and markets (Mbatha, 2021). Sowman et al. (2021) focussed on assessing the socio-economic COVID impact on small-scale fishermen and -women.

Sowman et al. (2021) assessed the impact of the COVID lockdown on SSF communities on the South African coast through WhatsApp chats and targeted semi-structured interviews. The communities were involved in boat-based line and rock lobster fisheries, shore-based angling, and intertidal resource harvesting. They provide a multi-faceted picture on the effects of the lockdown, ineffective policy implementation, and the incapability of many SSF communities to effectively engage in politics and public engagements on small-scale fishers' economic situation.

While such small-scale fishers who held fishing permits were granted an Exemption Permit for Essential Services and were allowed to fish, those without permits were not, and were thus deprived of their essential source of food and income.

Sowman et al. (2021) state: *"The COVID-19 pandemic and associated lockdowns have affected every phase of the fishery value chain and disrupted an essential food system that provides food and livelihood to millions of people throughout the world. [...] Restrictions on fishing activities and mobility, closure of conservation areas, unfair fines and arrests, loss of markets and barriers to sale of fish products have had significant impacts on small-scale fishers and coastal communities. The lack of social protection and the limited emergency relief provided by government further exacerbated their precarious position. Despite their vulnerability, fishers have demonstrated a measure of resilience, supporting those in need with food, lobbying government to amend restrictions and recognise their rights, and challenging efforts to fast-track development and exclude their voices."*

A major impact for SSFs has been on their ability to market and sell fish. SSF fishermen and -women could not travel to local markets or rely on other local marketers who were initially prohibited from operating. However, an amendment to the regulations allowed informal fish traders to continue trading under strict conditions.

One of the most significant economic impacts on fishermen and -women was the crash in the global lobster market. Due to their reliance on the industrial sector to market high value species through export markets, thousands of SSF traders lost their income for the entire season. For thousands of fishermen and -women relying on seasonal migration, the prohibition on travel and closure of accommodation in coastal villages immediately stopped the 'snoek run'. This traditional, cultural practice lies at the heart of fisheries in the northern and western Cape (Isaacs, 2013). However, a special arrangement to enable them to travel could be arranged with the government.

Apart from fisheries-specific impacts resulting from the lockdown, SSF communities are often poor and marginalised. They thus also suffered from many impacts that underprivileged and disadvantaged communities faced, such as limited access to clean water for drinking and sanitation as movements were restricted.

Another impact for SSF communities was the lack of social protection. Fishermen and -women without permits could not apply for the business relief grant, and those who were registered could not apply for unemployment insurance or COVID-19 relief funding, except for a once-off food parcel. Fisherwomen, who are mainly responsible for the cleaning and marketing of fish, did not qualify for any relief or social protection such as the unemployment benefit.

It is evident that the extensive delays in policy implementation contributed to the negative impacts the pandemic had on the SSF sector, as most small-scale fish traders have yet to enjoy protection or benefits from the recognition of their rights. The policy for the SSF sector was gazetted in 2012 and the legislation relevant to fisheries management, namely the Marine Living Resources Act (MLRA), was amended in 2014 to enable the legal recognition of SSFs. However, at the time of the lockdown in March 2020, fish traders in the Western Cape had yet to receive their rights, whilst there was confusion in the Eastern Cape and KwaZulu-Natal about which species may be harvested for consumption and commercial purposes. General confusion over permit conditions and a lack of support from local conservation agencies exacerbated their plight. Furthermore, the slow pace of training programmes for the SSF sector delayed the development of viable and sustainable enterprises.

A report commissioned by WWF South Africa on the impact of COVID on SSF communities (Mbatha, 2021) largely corroborate Sowman et al. (2021). Mbatha (2021) further highlights the difficulty of getting permits in place, making voices heard in stakeholder engagements, and developing economic resilience strategies concerning the generally low education level in partly dysfunctional communities.

At the same time, Mbatha (2021) highlights that the COVID lockdown in China, for example, and the related cancellation of exports to China led to a breakdown of the lobster fisheries in South Africa, as China is the main international market for West Coast rock lobster.

According to Mbatha (2021), the SSF sector was strongly affected by the breakdown of tourism, which is an important market for them.

Where in place, co-operatives were partly efficient during the lockdown where they helped apply for food parcels and essential service exemption. There are also reports of functioning communities who shared available food resources amongst each other (Mbatha, 2021).

3.2.2 Tourism

COVID lockdown restrictions affected the tourism sector for a very long period, see section 2 above. This affected accommodation businesses, gastronomy and related industries, as well as nature conservation which largely depends on visitor fees in parks and reserves to cover expenses.

3.3 Effects on Coastal Environmental Governance and Financial Planning

SUMMARY

Governance-related impacts on coastal environments during the COVID pandemic largely related to unexpected increases in solid waste and a lack of management strategies to deal with such loads. This was further hampered by a lack of staff during hard lockdown to collect waste. Further, a lack of sufficient and visible enforcement, especially during hard lockdown, increased the poaching of marine life as well as illegal fishing activities.

Once effects of the COVID pandemic started challenging individual incomes and people started losing their jobs, support for climate policies were found to slow down, showing a shift to short-term survival instead of longer-term sustainability. Multiple waves of COVID outbreaks and the unexpected pressure on health budgets also diverted government finances earmarked for environmental management, including scientific budgets allocated to marine conservation.

Pertaining to environmental quality, the COVID-19 pandemic posed a challenge especially to waste management. As highlighted in literature (Collectors 2020; Sharma et al. 2020), changes in population, slowdown or closure of businesses, and a reduction in tourism activities led to a fluctuation in quantities and composition of waste streams, affecting the operations of treatment facilities. A shortage of staff and the restriction of movement also impacted waste services. Local authorities had to adapt collection services, for example, by closing civic amenity sites to limit interactions between the population and staff, or by reducing services to overcome the difficulties staff shortages (Collectors 2020). Illegal dumping also became an issue (Collectors 2020). Gradual increases in litter in two South African coastal cities after the first strict COVID lockdown period also suggested a reduction in compliance with regulations, probably fuelled by a lack of control and enforcement in the waste management sector (Ryan et al. 2020).

In various countries, an increase in poaching of marine life and illegal fishing activities were also observed during the COVID pandemic, primarily attributed to a lack of sufficient and visible enforcement (Ban et al. 2022; Mkare and Katana 2022; Quimbayo et al. 2022).

In some developing countries, the increase in such activities was also attributed to the desperation in people sourcing for food (Villegas 2021), reflecting on ripple effects associated with impacts on food security during lockdown. In Brazil, for example, even though enforcement increased slightly, it was not sufficient to combat the near doubling of illegal poaching in the marine protected areas during the pandemic. Poachers also became more confident due to limited enforcement staff increasing their chances of not getting caught (Humpal 2022).

China's clampdown on the import of wildlife products dropped market prices by half and had a noteworthy but short-lived effect on abalone poaching in South Africa. However, although demand temporarily dropped, the root causes fuelling poaching intensified under the lockdown, so poaching soon resumed with syndicates stockpiling dried abalone for later smuggling (De Greef 2020).

Interestingly, support for climate policies was found to slow down when the COVID pandemic started to affect individual incomes and people started losing their jobs (Mohommad and Pugacheva 2022), showing a shift to short-term survival instead of longer-term sustainability.

Multiple waves of COVID outbreaks and the unexpected pressure on health budgets also diverted government finances earmarked for environmental management, including scientific budgets allocated to marine conservation (Jiang et al. 2022).

3.4 Challenges and Opportunities emerging from COVID Lockdown

SUMMARY

The COVID lockdown offered a rare insight into how human presence influences ecosystems by providing an unparalleled opportunity to gather baseline datasets in this 'anthropause' for consideration in management mitigation options. Despite an initial slowdown in support to climate change policies, people's experience of the pandemic eventually did increase concern for climate change as well as public support for a green recovery, potentially opening the door for policy makers to implement bolder climate mitigation and adaptation policies. Also, lessons learned through managing the COVID pandemic could be employed by decision-makers to address climate change challenges.

While the lockdown put immense pressure on most industries, new marketing strategies were developed by large enterprises (e.g. online shopping by grocery stores) as well as small businesses (e.g. fishermen selling door-to-door instead of to restaurants). Some of these new strategies are still in place at the time this report is created.

In terms of socio-economic challenges and opportunities, the following emerged:

- South Africa generally saw an increase in e-commerce during lockdown.
- Some small-scale fish traders changed their marketing strategy; as selling of fish products (in restaurants and shops) was not possible during lockdown, some reverted to selling fresh fish door to door (Mbatha, 2021). During the second lockdown wave (between Dec 2020 – Feb 2021), many of the seafood supply chains were less severely affected as they were better prepared, reflecting some degree of resilience development. However, other informants were hit by the second wave equally hard.
- During lockdown, small-scale fish traders went to market their fish to the end users directly. Mbatha (2021) reports that fish retail demand increased during lockdown. The ABALOBI marketplace app supports the from-fisher-to-consumer sale of small-scale fishing produce. Other online marketing options for SSF produce also exist (not specified though).

3.5 Considerations for Green Recovery and Future Disaster Management

3.5.1 Natural resources

SUMMARY

Environmental gains because of COVID were largely short-lived, and the vast quantities of pandemic-related solid waste and illegal living resource exploitation caught most authorities off guard. This highlighted the lack of preparedness, emphasised the need for proper policy guidelines, appropriate technology and skills development, and awareness programmes to deal with environmental challenges in future disasters of this nature. Further, proactive investment in risk reduction strategies at community-level are important to build resilience especially in densely populated coastal urban areas. Early hazard identification and accessible knowledge dissemination, support for people already experiencing social and economic vulnerability, and collaboration between stakeholders at all tiers of government are also critical. Moreover, governance and education in coastal areas should be emphasised to strengthen the capacity for effective crisis response. A sustainable blue economy has become essential for the well-being of coastal populations. Therefore, the protection of incomes and livelihoods in these areas is important, not only in support of a blue economy, but also to build resilience to future disaster. An inability to do so may erode space to implement green recovery policies, requiring a clear, coordinated, and adaptable approach among all tiers of government.

As new understanding on the environmental and socio-economic effects of the COVID pandemic and mistakes made is fast emerging, so are lessons learnt and considerations for a green recovery and a better handling of future disasters. For example, the OECD has been taking stock of global responses and developing evaluation and recommendations on a range of public governance themes, resulting in a selection of evidence-based policy responses for consideration by governments for a sustainable recovery and for tackling disasters in the future (see Responding to COVID-19: The rules of good governance apply now more than ever - OECD).

Environmental gains because of COVID were mostly short-term with long-term adverse effects already emerging. To tackles such threats, Ankit et al. (2021) posed the following considerations pertaining to natural resource management:

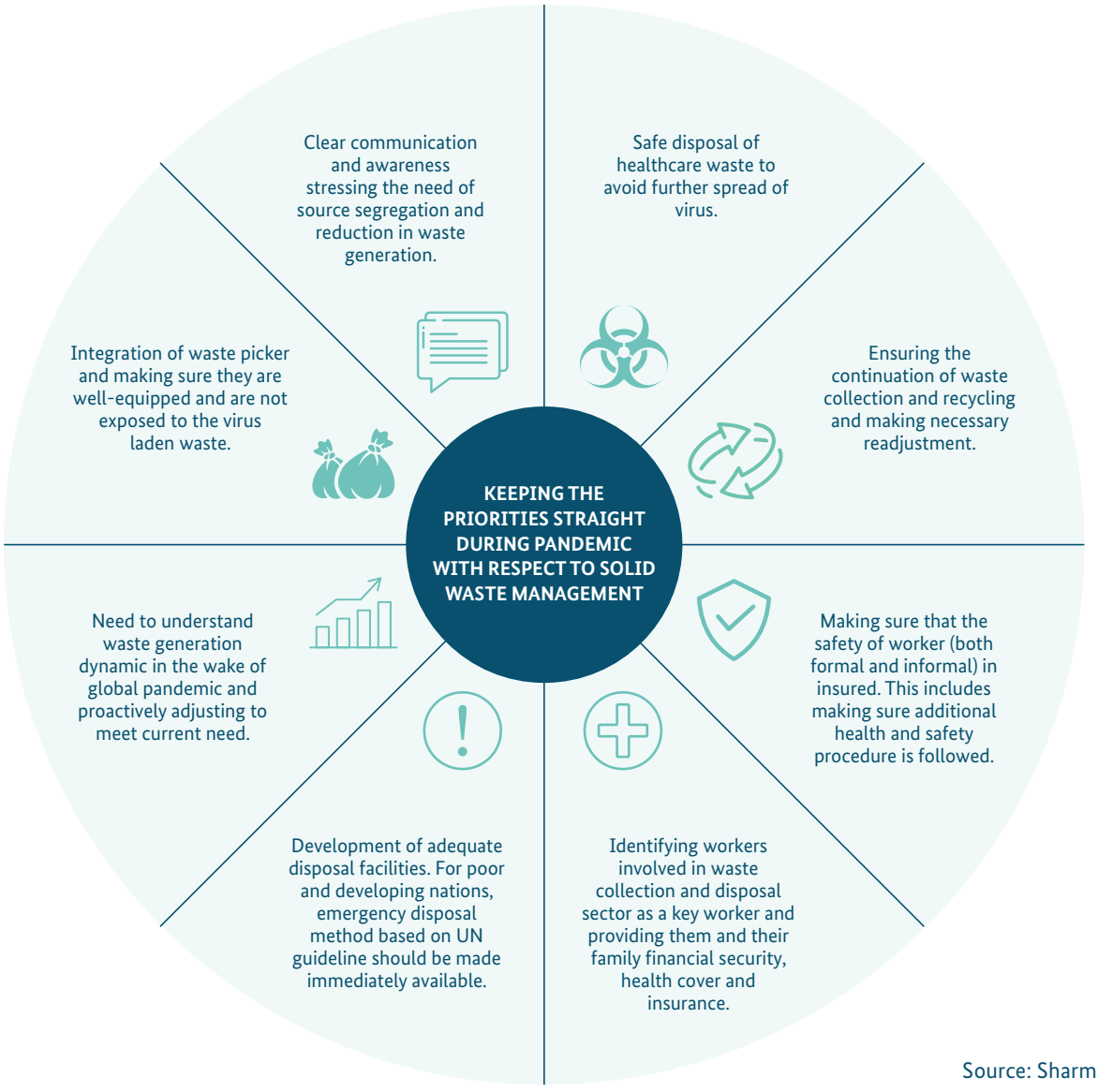
- Framing policy guidelines for proper management of plastic and chemical waste and wastewater treatment, and the effective implementation thereof.
- Driving awareness programmes and campaigns at various levels of society to avoid the spread of misinformation and misconceptions, and to guarantee proper implementation of guidelines.
- Having concerted research efforts to build understanding on environmental and ecological impacts of COVID to tackles such adversities more effectively in future (see Perillo et al. 2021).

Recommendations pertaining to improved preparedness in the waste sector to assist authorities and in the waste collection system to fulfil their role while keeping collection staff safe, albeit within a European context, also could be useful (Collectors 2020), for example:

- Developing consistent guidelines on handling contaminated waste, staff safety, disinfection process, and the prioritisation of waste collection services in terms of shortage of staff. Such guidelines also contribute to harmonise local responses, thus making communication to citizens clearer.
- Promoting inter-city cooperation where local authorities collaborate, for instance, on setting specific waste collection routes for infected or quarantined households, or mutual amenity sites.
- Ensuring proper communication between health and waste authorities.
- Communicating on environmental and health impacts of littering and illegal dumping of waste through communication campaigns.
- Promoting training sessions to multi-skill workers both in terms of ICT competences and operational skills, and thus making collection services more flexible and adaptable for a potential future pandemic or other events impacting waste services.

Figure 7 provides a useful schematic overview of waste management priorities to consider in the event of a pandemic (or related disaster) (Sharma et al. 2020).

Figure 7: Key waste Management priorities for consideration in a pandemic.



Source: Sharma et al. 2020

The increase in poaching of marine life and illegal fishing activities during COVID due to a lack of sufficient enforcement emphasised the critical importance of adequate planning, strategic monitoring, and visible enforcement in the future. Suggestions for future consideration are the use of drones, social media, and the 'Automatic Identification System' (Quimbayo et al. 2022).

Proactive investments in risk reduction strategies such as strong land-use legislation, climate-resilient infrastructure, and capacity-building at the community level are important to build resilience in densely populated coastal urban areas (Jiang et al. 2022). Further, early hazard identification and accessible knowledge dissemination, support for people already experiencing social and economic vulnerability, and collaboration between stakeholders at all tiers of government are also critical.

The COVID pandemic exacerbated the existing socio-economic inequalities, meaning policy responses aimed at addressing future disasters must account for socio-economic vulnerabilities (MIPP 2020; Ehez et al. 2020). Moreover, governance and education in coastal areas should be emphasised to strengthen the capacity for an effective crisis response. A sustainable blue economy has become essential for the well-being of coastal populations. Therefore, the protection of incomes and livelihoods in these areas is important, not only in support of a blue economy, but also to build resilience to future disasters as an inability to do so may erode space to implement green recovery policies (Jiang et al. 2022). This requires a clear, coordinated, and adaptable approach among all tiers of government, although national government should take on the key responsibility because of resources availability (MIPP 2020). Specifically, policymakers need to pay special attention to the wise use of resources, also considering the budgetary constraints of public sectors (Martínez-Córdoba et al. 2021).

3.5.2 Socio-economics

It appears that the economic recovery from the lockdown was accelerated by the appearance of many e-Commerce services, such as online shopping by grocery chains like Woolworth, Checkers, PicknPay etc., which helped to compensate for some loss of income from constrained in-person shopping. These e-Commerce services should help in the reduction of road traffic and hence contribute to a "green" recovery.

4 Perceptions of South African Coastal Stakeholders

4.1 Introduction

An online survey was conducted to corroborate the information gathered through the literature review with observations by coastal stakeholders from the four coastal provinces in South Africa. About 200 stakeholders from different spheres of government, academia, NGOs, and other stakeholders were invited to complete the 21-question online survey on Google Forms. The survey was open for about three weeks in June 2023. The questions were designed and sequenced aiming to minimise bias in the answers. Answering options included binary options ("yes"/"no") with related follow up questions ("if yes, what..."; "if no, why..." etc.) as well as open-ended questions. The resulting online survey form is provided in the Appendix – Online Survey to this report.

The purpose of this survey was to collate information on a national level, in the anticipation that the lockdown might have impacted different communities and industries differently along the South African coast. The survey informed DFFE and the GIZ on where needs for future research, development, and investments are, to recover the coastal sector from impacts incurred as a result of the lockdown, and for more resilience in the future.

The participants were informed that participation was entirely voluntary, and that the collated data was to be used exclusively for this project. Personal information was not to be shared with any other entities. The participants were also informed that the information collated from this survey will be made available publicly, but any personal information provided will be anonymous.

The participants had the opportunity to leave their contact details should they be interested in receiving the outcomes of the survey.

4.2 Survey Results

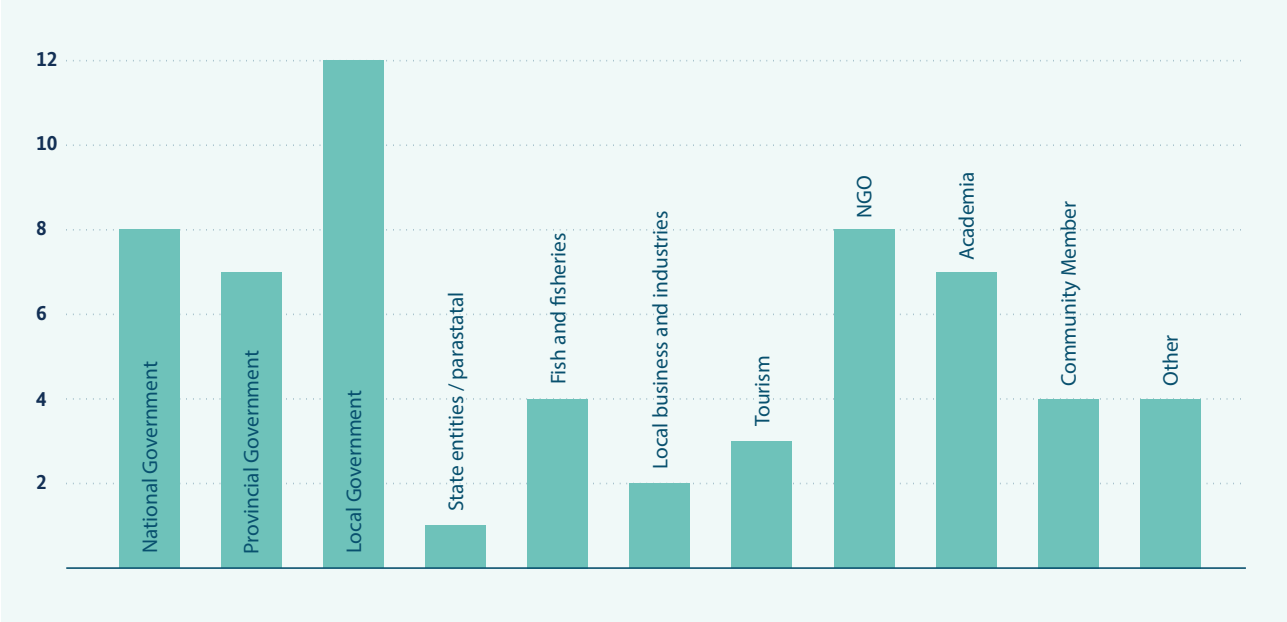
In total, 46 responses were received. The following sections summarise the results for each of the 21 questions asked, together with interpretation and conclusions on the results.

1. In what part of the coastal sector do you work?

This question aimed to establish the perspective of the respondents on the topic. A tick list of typical sectors was provided.

Figure 8 illustrates the results. Most of the participants came from local government, national government, and NGOs.

Figure 8: Affiliation of the survey participants

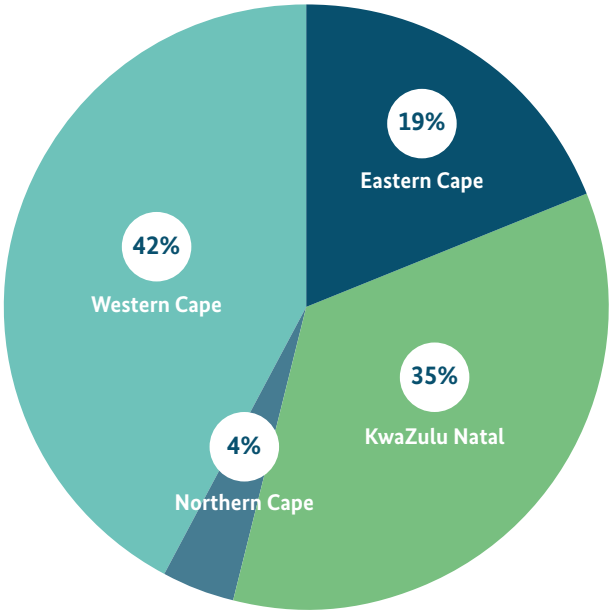


Some participants listed affiliation to several sectors. These affiliations are captured in Figure 8 individually.

2. In which coastal province where you located/working during the COVID pandemic?

This question was asked in the anticipation that the observations of the impact of the COVID lockdown would vary between the provinces. Of the 46 participants, 42 % were located/worked in the Western Cape, 35 % in KwaZulu-Natal, 19 % in the Eastern Cape and 4 % in the Northern Cape. As such, there were respondents from all 4 of South Africa's coastal provinces.

Figure 9: Professional origin of survey participants



3. Did you observe any changes in coastal natural resources during the pandemic?

This question was to establish whether the targeted South African stakeholders observed any changes to the coast during the pandemic. The literature implies that significant changes did occur, however this was not necessarily the observation of the respondents with only half observing a change in the natural resources (Figure 10).

Figure 10: Observation whether changes occurred on the coast during the pandemic

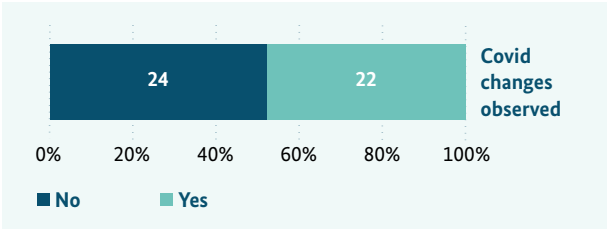


Table 2 illuminates that the perception of change varied significantly between the answers of the four coastal provinces. Most strikingly, no change was observed in the Northern Cape (2 responses from this province). However, human impact for most of the coast is negligible even without lockdown conditions, so the lockdown 'anthropause' probably did not cause much of a change. Another factor to consider might be that most of the Northern Cape coast is mining area and might be inaccessible for observations.

Table 2: Provincial overview of responses on whether changes occurred during the lockdown.

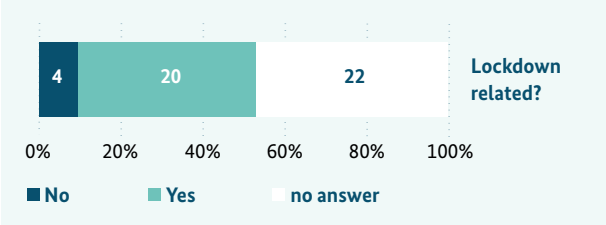
Answers	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	44 %	53 %	100 %	40 %	49 %
Yes	44 %	47 %	0 %	60 %	49 %
(blank)	11 %	0 %	0 %	0 %	2 %

The responses from the Eastern Cape respondents were undecided between change/no change answers, with a high fraction of respondents not having answered this question. In KwaZulu-Natal a slight majority of the respondents answered "no change" while for the Western Cape respondents a majority answers "change". There seems to be a correlation between the general degree of human influenced coastline and the answers: the larger the human influence on the coast, the stronger the impact of the 'anthropause'.

4. Do you think these changes were related to the COVID lockdown?

During a coastal stakeholder workshop, which was used to refine the design of this survey, it was observed by stakeholders that not all changes to coastal natural resources during the last 2-3 years were due to the COVID lockdown. This question was designed to get further insight.

Figure 11: Stakeholder perception whether observed changes are related to the lockdown.



47 % of respondents suggested that the observed changes to coastal natural resources were the result of the lockdown, while 8 % believed that this was not the case. It is interesting to note that a large majority of the respondents refrained from answering this question suggesting much uncertainty as to the reasons for observed changes to coastal natural resources during the time of the pandemic.

Table 3 shows that there is a vast difference, again, in answers between the different provinces. KwaZulu-Natal and Western Cape respondents imply the lockdown as a key element to the observed changes of coastal natural resources, while 33 % of the Eastern Cape participants negated the relation.

Table 3: Provincial overview of responses on whether observed changes are related to the lockdown

Answers	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	33 %	0 %	0 %	5 %	8 %
Yes	22 %	47 %	0 %	60 %	45 %
(blank)	44 %	53 %	100 %	35 %	47 %

Northern Cape respondents did not answer this question as they did not observe any changes.

5. If NO, what other factors could have caused the observed changes?

This question aimed to elaborate on other possible causes for changes observed in the coastal natural resources during the time of the pandemic. The following responses were received from the Eastern Cape respondents:

- Anthropogenic impacts (pollution etc.); climate change
- Sea level rise and coastal erosion

Further communication with Eastern Cape stakeholders during workshops prior to this survey revealed that extreme weather events occurred during the lockdown period (draughts and heavy rainfalls) which locally had a larger impact on observed changes than the lockdown.

6. If YES, what trends on natural coastal resources did you observe during the pandemic?

This question aimed at establishing the actual changes that were observed during the pandemic. A list of seven coastal aspects on which impacts were reported in literature was given (Figure 12), together with five possible answers, ranging from "much improvement" to "no improvement" and "do not know". This question was answered by 23 respondents, of which 3 were from the Eastern Cape, 8 from KwaZulu-Natal and 12 from the Western Cape. No responses were received from the Northern Cape.

Figure 12: Stakeholder perception on the impact of the lockdown on various natural coast aspects.

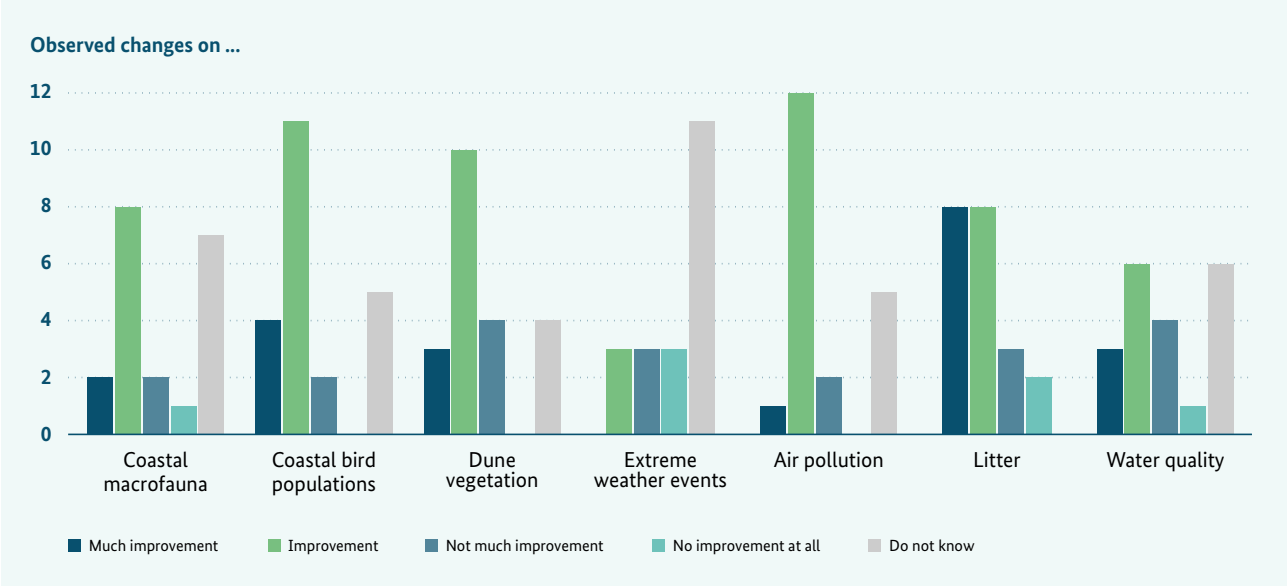


Table 4 shows that for all options given to the respondents there was a high 'do not know' response, especially for changes in extreme weather events. Of those respondents that answered, it was observed that for coastal macrofauna (such as whales, sharks, seals), coastal bird populations, air pollution in the coastal space, and water quality, "improvement" was the most chosen answer. As for coastal litter, "much improvement" and "improvement" were equally observed, indicating that the coastal waste situation improved the most of all options provided in this question.

Table 4 gives an overview of the received answers per province. As for question 4 above, the highest rates of improvements were stated for provinces where the human impact on the coast is usually the highest, i.e. KwaZulu-Natal and the Western Cape.

Table 4: Summary of perceived impact on natural environment per province

Q1	Macrofauna			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	33 %	13 %	0 %	**9 %**
Improvement	0 %	38 %	50 %	39 %
Not much improvement	33 %	0 %	17 %	**13 %**
No improvement at all	0 %	13 %	0 %	**4 %**
Do not know / no answer	33 %	38 %	32 %	**34 %**

Q2	Bird populations			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	0 %	13 %	25 %	**17 %**
Improvement	100 %	38 %	50 %	52 %
Not much improvement	0 %	13 %	8 %	**8 %**
No improvement at all	0 %	0 %	0 %	**0 %**
Do not know	0 %	38 %	17 %	**22 %**

Q3	Dune vegetation			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	0 %	13 %	25 %	**17 %**
Improvement	33 %	38 %	58 %	48 %
Not much improvement	33 %	25 %	8 %	**17 %**
No improvement at all	0 %	0 %	0 %	**0 %**
Do not know	33 %	25 %	8 %	**17 %**

Q4	Extreme weather events			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	0 %	0 %	0 %	**0 %**
Improvement	0 %	13 %	17 %	**13 %**
Not much improvement	33 %	25 %	8 %	**17 %**
No improvement at all	33 %	13 %	8 %	**13 %**
Do not know / no answer	33 %	50 %	66 %	56 %

Q5	Air pollution			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	0 %	0 %	8 %	**4 %**
Improvement	33 %	75 %	58 %	61 %
Not much improvement	33 %	0 %	8 %	**9 %**
No improvement at all	0 %	0 %	0 %	**0 %**
Do not know / no answer	33 %	25 %	25 %	**26 %**

Q6	Litter			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	0 %	63 %	33 %	39 %
Improvement	100 %	0 %	50 %	39 %
Not much improvement	0 %	25 %	8 %	**13 %**
No improvement at all	0 %	13 %	8 %	**9 %**
Do not know	0 %	0 %	0 %	**0 %**

Q7	Water quality			
Answers	Eastern Cape	KwaZulu-Natal	Western Cape	Total
Much improvement	0 %	13 %	17 %	**13 %**
Improvement	33 %	25 %	33 %	30 %
Not much improvement	33 %	25 %	17 %	**22 %**
No improvement at all	0 %	13 %	0 %	**4 %**
Do not know	33 %	25 %	33 %	30 %

7. Are there any other trends in natural resources that you noticed?

This question aimed to assess whether any other changes were perceived apart from those asked about in Question 6. A total of 13 answers was received, 2 from the Eastern Cape, 6 from KwaZulu-Natal, and 5 from the Western Cape. Table 5 documents the responses received by province.

Interestingly, some respondents observed an increase in poaching (in accordance with the literature above), while others observed a decrease in poaching.

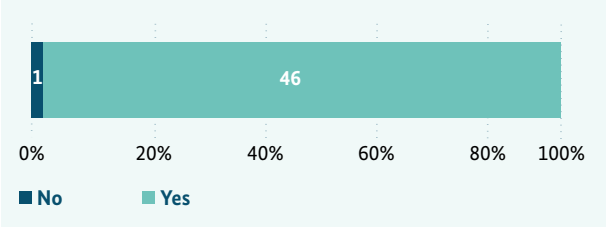
Table 5: Additional observations on changes in the natural environment perceived by stakeholders

Province	Other changes in natural resources perceived
Eastern Cape	'Increase in abundance/biomass of bait species.'
Eastern Cape	'There was little to no poaching of shellfish, resulting in their increased population during that time.'
KwaZulu-Natal	'I see no category for changes in fisheries in item 6 - this is an omission as it is NB, although dealt with differently in item 9. I (& others) noticed a lot more large fish at the Umgeni mouth - the water was cleaner and there weren't any fishermen (during the 1st lockdown); after lockdown eased, things turned to "normal" and they weren't seen again (& of course the KZN floods and pollution had an impact). I think there would have been a recovery of mussels and oysters along the coast as well, as people weren't allowed access (but as we couldn't get access either, this is difficult to quantify!), maybe also crayfish in the Transkei (no tourists, therefore no sales/income for locals, therefore no harvesting, except for personal use).'
KwaZulu-Natal	'As fishing was one of the activities exempted from lockdown, some users of the coast (non-fishermen) may have used this loophole to get access to the coast. Check Post Office records if there was an increase in applications for fishing permits.'
KwaZulu-Natal	'Less emissions from traffic.'
KwaZulu-Natal	'More fish and animals were noticed. Monkeys were also noticed in places where they do not frequently go, like certain parts of the promenade, as the areas where they usually reside were not visited by people who they fed off.'
KwaZulu-Natal	'People's use and appreciation of natural spaces as recreation spaces once the restrictions were lifted was very apparent.'
KwaZulu-Natal	'Nature was making a comeback everywhere without human influence.'
Western Cape	'Bird abundances increased at sites previously heavily used by humans.'
Western Cape	'All the EPIP and Working for the Coast projects came to a complete stand still. Some EPIP projects are still outstanding and never materialized and the main reason provided by DFFE is because of the COVID 19 Pandemic.'
Western Cape	'Increased poaching activities and lack of law enforcement.'
Western Cape	'There was little or no poaching of shellfish, resulting in their population must have increased during that time.'
Western Cape	'Nature was making a comeback everywhere without human influence.'

8. Do you think the lockdown had any socio-economic impacts on people who depend on the coast for their livelihoods?

The respondents almost unanimously agreed that the lockdown had a socio-economic impact on people dependent on coastal resources (Figure 13). This observation was for all coastal provinces.

Figure 13: Stakeholders perception on whether the lockdown had socio-economic impacts on people dependent on coastal resources.



9. If YES, what changes did you observe?

A total of 48 answers was received on this question[1], 1 from a national stakeholder, 9 from the Eastern Cape, 17 from KwaZulu-Natal, 2 from the Northern Cape, and 20 from the Western Cape. Figure 14 provides an overview of responses received irrespective of the province of the respondents. The figure shows that there is agreement among the respondents that the unemployment rates increased, and the total amount of tourists decreased in coastal areas during the lockdown period.

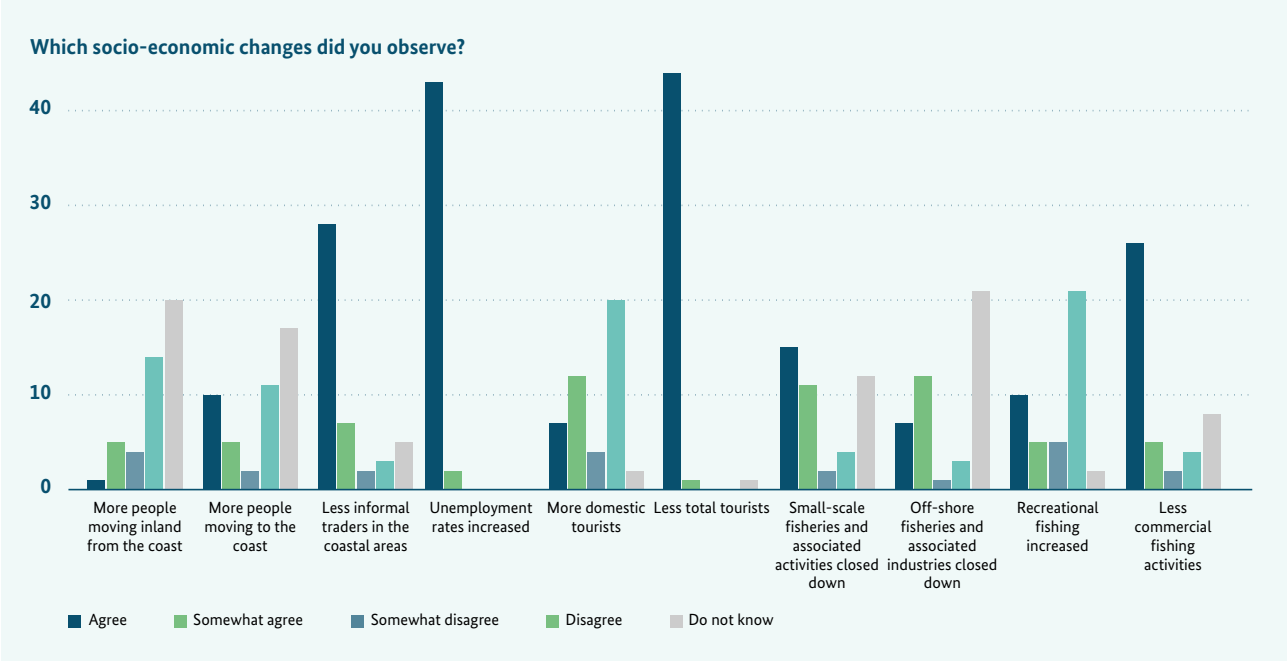
However, while the majority of the Eastern Cape and Northern Cape respondents somewhat agreed that there was an increase in domestic tourists during lockdown, most of the KwaZulu-Natal and Western Cape-based respondents disagreed with this observation. The reason for this difference might be related to different tourism patterns in the coastal provinces, with the Western Cape and KwaZulu-Natal receiving a fair amount of international tourism, which completely collapsed during lockdown. This means even if there was more domestic tourism in those two provinces, the lack of international tourists would still have left the market seriously impacted. At the same time, the Eastern Cape and Northern Cape being more rural probably do not usually have a high number of international tourists (outside small peak times), and with the uptick in domestic tourism in the later lockdown phases, these two provinces would have noticed higher overall tourist numbers. This increase might be related to many South Africans explicitly having sought out more rural places in order to avoid COVID infections.

The stated decrease of tourism-related informal traders on the coast was confirmed by most of the stakeholders across the provinces.

1 This is more than the total of 46 survey results that were received, because 2 respondents provided input for two different provinces.

Interestingly, the responses regarding fishing activities starkly contrast the anticipated effects on fisheries described in section 2.2 above. Provincial stakeholders agreed that there were less commercial fishing activities, offshore fisheries and associated industries closed down as well as small-scale fisheries and associated activities. Only the Northern Cape respondents disagreed with the stated close-down of small-scale fisheries. However, according to the lockdown levels as per section 2.2, all these fishing activities were considered essential services and were thus permitted. However, these activities were likely negatively affected by the loss of local and international markets. The diverging observation on whether recreational fishing increased or decreased is consistent throughout the provinces.

Figure 14: Socio-economic changes observed by stakeholders.



No conclusive trends were observed with regards to whether more people were moving to the coast or away from it during lockdown. While the majority of KwaZulu-Natal, Northern Cape and Western Cape-based respondents "did not know" or did not answer these questions, Eastern Cape-based respondents saw a trend of more people moving to the coast. This is an area that needs further investigation.

10. Did you notice any other socio-economic impacts?

In this question, the participants were asked if they noticed any socio-economic impacts beyond those tested in question 9. The responses suggest that businesses which have a dependency on tourism and tourists were affected. These included the closing-down of restaurants, the depletion of income for car guards, surf shops, curio sellers, and informal and formal beach traders losing trade. It was also observed that environmental management programmes came to a halt. Further, throughout the responses there is great discontent with the lockdown restrictions, which, in hindsight, are perceived as having caused severe economic (and health) damage while being ineffective in protecting the overall health of the citizens.

Table 6: Additional observations on socio-economic impacts

Province of respondent	Other socio-economic impacts perceived
Eastern Cape	'Increased in unemployed has increased poaching /crime.'
Eastern Cape	'Loss of jobs and no access to ecosystem- based services. Vandalism ices resulting in vandalism. Stealing of cables for sewa re.'
Eastern Cape	'More restaurants along the coast were closed down.'
KwaZulu-Natal	'The "more domestic tourists" in question 9 is ambiguous - there weren't any domestic tourists during strict lockdown periods, but there were proportionately more when lockdowns eased, but people still couldn't travel overseas. Some surf shops were forced to close down due to ridiculous lockdown measures stopping surfers and other beach users from accessing the coast, not to mention a lot of other coastal-related tourist industry (e.g. restaurants, curio sellers, informal and formal beach traders). Govt did not consider the socio-economic impacts, the effects of which were worse than the disease itself! A whole sector of beachfront car guards, who rely on surfers and other beach users for income, were left destitute - this is an organised industry in some places (e.g. Durban). Surfers themselves (& other beach users) were inexplicably denied use of the beaches to pursue a healthy pastime, keeping a healthy body and mind, whereas in Spain people were encouraged to go to the beach and swim (salt flushing of nasal passages, beneficial for fighting COVID).'
KwaZulu-Natal	'Less small business at the coastal towns.'
KwaZulu-Natal	'The beach was probably one of the safest places, yet it was locked down. People who exercise and surf and sports were very frustrated.'
Northern Cape	'More unemployment.'
Northern Cape	Refer to answers in question 9.
Western Cape	'Restaurants closing or attended less frequently, translating to less sales of marine natural resources.'
Western Cape	'People did not move around under Level 5 lockdown; people became stressed and frustrated about irrational measures and regulations by incapable government at national level. The lockdowns killed many economic activities that would not and that could not make the pandemic worse. Illegal trade of cigarettes and alcohol products increased dramatically. Strangely enough, most residents of my municipal area respected the regulations and measures taken to address the pandemic.'
Western Cape	'Startup of new private enterprises.'
Western Cape	'All socio-economic activities were affected, DFFE approved projects never materialized and are still not implemented (EPIP[2] Coastal Infrastructure projects & Working for the Coast projects within Municipal areas) Working for the Coast is only working in National Parks (Coastal Parks) which are situated along the coastline, no Working for the Coast is operational in any other municipal coastal areas.'
Western Cape	'Increased unemployment and hunger needs.'
Western Cape	'Food and petrol price went extremely high.'
Western Cape	'I saved on petrol.'
Western Cape	'More restaurants along the coast were closed down.'

2 Environmental Protection and Infrastructure Programme

11. Did the lockdown unlock new opportunities for coastal livelihoods?

After all the negative impacts observed by the respondents in the previous two questions, this question aimed at investigating whether the lockdown might have had any positive socio-economic consequences. A total of 45 answers was received, 8 from the Eastern Cape, 12 from KwaZulu-Natal, 2 from the Northern Cape, and 19 from the Western Cape. 69 % stated that the lockdown did not unlock new opportunities (Table 7).

Table 7: Stakeholders perception on whether the lockdown unlocked any new opportunities for coastal livelihoods.

Answers	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	67 %	88 %	100 %	55 %	69 %
Yes	22 %	6 %	0 %	40 %	22 %
(blank)	11 %	6 %	0 %	5 %	8 %

In KwaZulu-Natal and the Northern Cape, the respondents (almost) unanimously negated any positive impacts of the lockdown, in the Eastern and Western Cape the development of new business opportunities was affirmed much more strongly (22 % and 40 % respectively). This is confirmed in the responses to the next question.

12. If YES, please describe the opportunities you observed in the space provided?

This question invited the participants to elaborate on new business opportunities they observed in their respective province. Eleven answers were received, 2 from the Eastern Cape, one from KwaZulu-Natal, and 8 from the Western Cape.

Selling and manufacturing of COVID-related personal protective equipment and sanitisers was mentioned as well as “aquaculture” as opportunities observed during the lockdown period. While most of the other answers were unspecific and provided less details than the literature review (sections 3.2 and 3.3), one detailed response was received from a Western Cape respondent (bottom of Table 8).

Table 8: New opportunities perceived by stakeholders

Province of respondent	Perceived opportunities
Eastern Cape	'Aquaculture.'
Eastern Cape	'Selling and manufacturing of masks, sanitizers and other Person Protective Equipment (PPE).'
KwaZulu-Natal	Various...
Western Cape	'A few people benefitted from trade in sanitation services and the supply of sanitation services and products.'
Western Cape	'Startup of new private enterprises.'
Western Cape	'Enhance local tourism through small vessels targeting SPH.'
Western Cape	'Take a long vacation.'
Western Cape	'Selling and manufacturing of masks, sanitizers and other Person Protective Equipment (PPE).'
Western Cape	Various...
Western Cape	'More adaptive initiatives were explored by many sectors.'
Western Cape	'While the lockdowns imposed during the COVID-19 pandemic presented significant challenges for coastal livelihoods, they also unlocked some new opportunities. Here are a few examples: **Localized Economies:** Lockdowns restricted travel and tourism, leading to a shift in consumer behaviour towards local and regional destinations. This created opportunities for coastal communities to promote local tourism, artisanal products, and services. It allowed for the development of localized economies, where coastal residents could offer unique experiences, such as guided tours, local cuisine, and cultural activities. **Diversification of Livelihoods:** The limitations on traditional livelihood activities, such as fishing or tourism, prompted some individuals and communities to explore alternative income sources. Coastal residents sought opportunities in sectors like agriculture, aquaculture, e-commerce, and online services. This diversification allowed them to adapt to changing market demands and reduce dependency on a single sector. **Enhanced Digital Connectivity:** The pandemic highlighted the importance of digital connectivity for remote work, e-commerce, and online collaboration. Coastal communities that had access to reliable internet and digital infrastructure were able to explore new avenues for entrepreneurship, marketing, and knowledge exchange. Online marketplaces, virtual consultations, and remote work opportunities emerged, opening up new possibilities for coastal livelihoods. **Sustainable Practices and Conservation:** With reduced human activities during the lockdowns, coastal ecosystems experienced a temporary respite from pollution, overfishing, and habitat destruction. This presented an opportunity for coastal communities to engage in sustainable practices and conservation efforts. Some individuals and organizations focused on coastal clean-ups, ecosystem restoration, and promoting sustainable fisheries to enhance long-term livelihood resilience. **Skill Development and Training:** The slowdown in economic activities during the lockdowns provided individuals with an opportunity to invest time in skill development and training. Coastal residents could engage in online courses, vocational training, and capacity-building programs to enhance their expertise and diversify their skill sets. This empowered them to pursue new livelihood opportunities and adapt to evolving market demands. **Community Support and Solidarity:** The challenges posed by the lockdowns brought communities together and fostered a sense of solidarity. Coastal residents collaborated on community-based initiatives, such as collective marketing, shared resource management, and mutual support networks. This enhanced community resilience and created opportunities for joint ventures and cooperative enterprises. It's important to note that these opportunities were not uniformly experienced across all coastal regions, as they depended on factors such as the local context, existing infrastructure, digital connectivity, and the ability of communities to adapt to changing circumstances. Additionally, the long-term sustainability and scalability of these opportunities may vary, and their realization depends on various factors beyond the scope of the lockdowns.'

13. Did lockdown affect budget availability for your industry/business in the coastal and marine areas due to re-prioritising of available funds?

This question aimed at establishing if the COVID pandemic led to a re-direction of funds in the respondents' industries/businesses. In total, 49 responses were received, 20 responding no impact on their budget, 25 confirmed impacts on their budget, and 4 did not answer this question (Table 8). This suggests there is no consensus across the provinces on the budget impact of the pandemic.

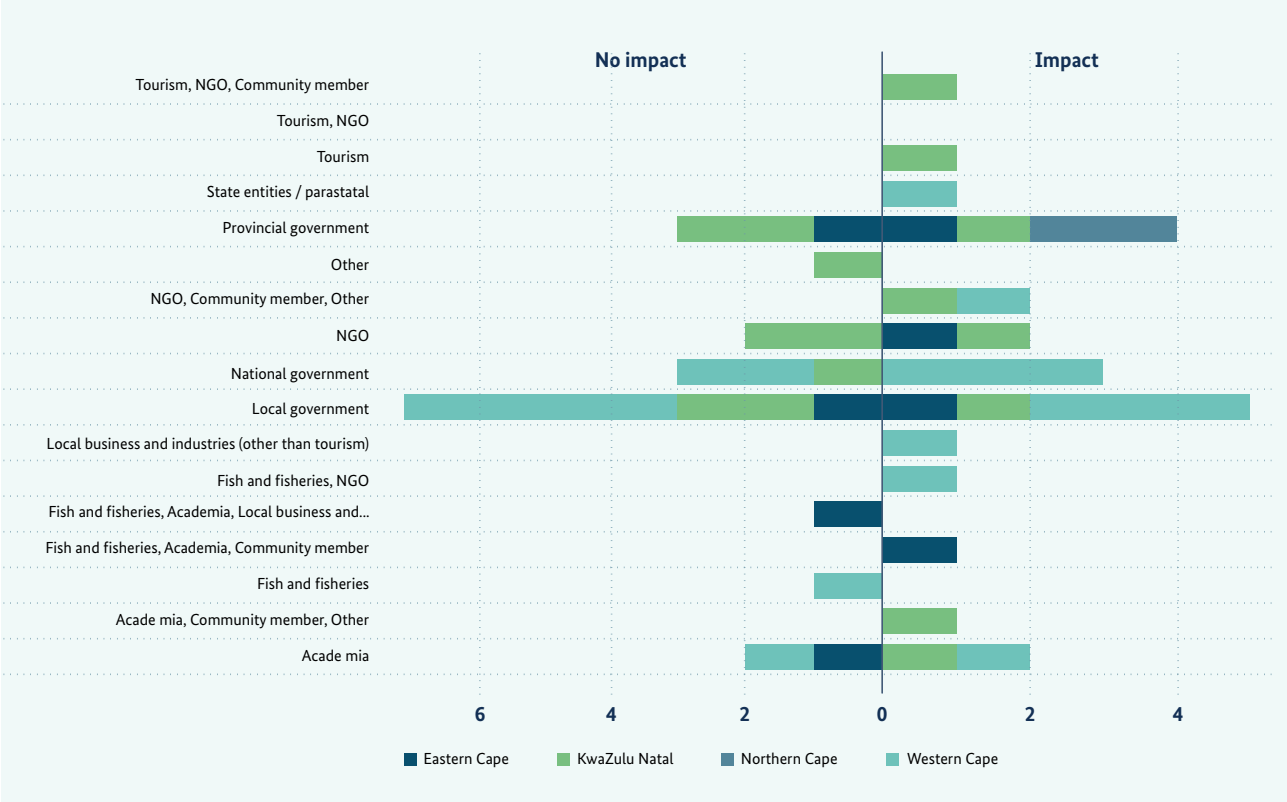
It was then assessed whether there are significantly different perceptions of the budget impact in the different sectors.

However, as seen in Figure 15, there are no clear impact trends visible between the sectors. This is an area where further research is required.

Table 9: Stakeholders' perceptions if lockdown affected their available budgets

Possible answers	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	44 %	47 %	0 %	40 %	41 %
Yes	44 %	47 %	100 %	55 %	51 %
(blank)	11 %	6 %	0 %	5 %	8 %

Figure 15: Lockdown budget impacts received per sector and province



14. If YES, which area of budget or expenditure was most affected?

This question aimed to establish in which areas budget impacts were perceived by the stakeholders. A total of 25 answers was received, 4 from the Eastern Cape, 8 from KwaZulu-Natal, 2 from the Northern Cape, and 11 from the Western Cape.

Table 9 lists the individual responses, sorted by province. Re-allocation of funding originally planned for coastal issues to COVID-related health issues such as personal protection equipment was observed in many of the responses. This was perceived to have caused cuts in budgets for research, travel, conservation and training, as well as salary cuts.

Table 10: Impacts on budget or expenditure perceived by stakeholders

Province of respondent	Area impacted by budget or expenditure availability
Eastern Cape	'Overseas based funding was cut as a result of the lockdown, less auxiliary money coming into country for aid and research.'
Eastern Cape	'Budget cuts at municipal level.'
Eastern Cape	'Less budget for research.'
Eastern Cape	'No site visits conducted.'
KwaZulu-Natal	'Field expenditure and field related costs.'
KwaZulu-Natal	'Not quite the reprioritising of available funds, but because development came to a halt, there was no demand for environmental consultancies until after lockdown got (finally) lifted. Our lockdown was too long, amongst the longest in the world, for no gain (considering it was also unenforceable in some sectors).'
KwaZulu-Natal	'Funds diverted for PDP equipment.'
KwaZulu-Natal	'All budget - 10 % annual budget cut, no annual increases, no bonuses.'
KwaZulu-Natal	'Integrated Coastal Management'
KwaZulu-Natal	'Travel'
KwaZulu-Natal	'Budget was constrained for a long time after the curfews were lifted which affected increases of staff salaries.'
KwaZulu-Natal	'All areas of conservation and training.'
Northern Cape	'G&S budget used for the purchase of PPE and hand sanitiser.'
Northern Cape	'Funding was reprioritized to buy COVID-19 supplies.'
Western Cape	'Transfer of government funding to combat COVID-19 resulted in less funds available for fisheries management and marine conservation.'
Western Cape	'All our income ceased due to lockdown. No salaries were paid to our staff.'
Western Cape	'Budgets were re-prioritised in order to pay fixed costs, e.g. municipal costs, labour and personnel costs, and to keep the doors of the business open when there was almost no buying power and customers on our shopfloors and forecourts.'
Western Cape	'Tourism'
Western Cape	'Budget availability and provision of support by government.'
Western Cape	'Coastal & Erosion Protection'
Western Cape	'Operational budget due to reprioritisation to health and important sectors of government.'
Western Cape	'Coastal Access Awareness Campaign'
Western Cape	'Not in the industry but cashflow was limited to essential items were.'
Western Cape	'Had to work and earn half time for a bit due to schools closed.'
Western Cape	'All areas of conservation and training.'

15. Did lockdown impact the implementation of programmes, strategies or plans in your area of work in the coastal zone?

This question aimed at establishing whether the lockdown impacted on the implementation of programmes, strategies or plans in the stakeholders' respective field of work. A total of 47 answers was received, 9 from the Eastern Cape, 16 from KwaZulu-Natal, 2 from the Northern Cape, and 20 from the Western Cape. More than ¾ of the respondents confirmed perceived impacts on implementation.

Table 11: Stakeholders' perception of impact on implementation

Possible answers	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	0%	24%	0%	25%	18%
Yes	100%	71%	100%	75%	78%
(blank)	0%	6%	0%	0%	4%

16. If YES, please can you describe the impact experienced

This question followed up on the previous question and invited the respondents to elaborate on the perceived implementation impacts. A total of 37 answers was received, 7 from the Eastern Cape, 12 from KwaZulu-Natal, 2 from the Northern Cape, and 16 from the Western Cape. Table 11 lists the received responses.

Table 12: Impacts on implementation perceived by stakeholders

Province of respondent	Impacts on implementation perceived
Eastern Cape	'Research programmes were interrupted.'
Eastern Cape	'Numerous marine based social activities such as fishing competitions were cancelled, student projects where field work was required were cancelled, students forced to do project which required no field work.'
Eastern Cape	'Reduced awareness raising.'
Eastern Cape	'Unable to continue with field work and work with communities.'
Eastern Cape	'For the early part of lockdown, it was not possible to carry out curatorial work or work on exhibitions.'
Eastern Cape	'All the plans for the two financial years were halted.'
Eastern Cape	'Some projects got delayed due to the lockdown, as a result the budget was lost or had to be rolled over to the next financial year.'
KwaZulu-Natal	'Couldn't do field work, couldn't conduct work on ships, research cruises were cancelled.'
KwaZulu-Natal	'It prevented a proper public participation programme for large project I was working on, therefore corners had to be cut and a lot of people who should have been consulted, couldn't.'
KwaZulu-Natal	'Business people were unable to participate in anything because the country was lockdown, Certain activities were not allowed.'
KwaZulu-Natal	'Much less development in the built environment and tourism.'
KwaZulu-Natal	'Beaches were off limits, so no development.'
KwaZulu-Natal	'Had an effect on our field research activities, education activities, and visitors to our public facilities (and therefore income).'
KwaZulu-Natal	'Less awareness campaigns and capacity building programmes.'
KwaZulu-Natal	'Limited access to service providers and stakeholders (i.e. no physical public participation could be convened).'
KwaZulu-Natal	'No personnel and volunteers to implement programs.'
KwaZulu-Natal	'Inability to implement.'

Province of respondent	Impacts on implementation perceived
KwaZulu-Natal	'No guests. No landscaping, no cleaners, only necessary staff. Facility took a beating on maintenance.'
KwaZulu-Natal	'Unable to deploy conservation teams.'
Northern Cape	'Coastal clean-ups and audits could not take place.'
Northern Cape	'Budget cuts for functional work.'
Western Cape	'Impossible to conduct planned surveys and monitoring.'
Western Cape	'Research was limited during the lockdown as travel was restricted.'
Western Cape	'We were unable to conduct our research, and this affected our long term data sets.'
Western Cape	'A large capital investment in the form of a tourist destination was cancelled/postponed; training of personnel was stopped and postponed, some vacancies have not been filled, some employees took packages and resigned.'
Western Cape	'Programmes came to a standstill (alien clearing, firebreaks, rehabilitation, etc).'
Western Cape	'No Working for the Coast teams or EPIP/Infrastructure Projects were operational, and the new roll out of these programs also stopped and is still not operational today, years later after the pandemic is over, projects that should have been rolled out during the pandemic is still outstanding and has not yet started, the reason/ excuse being that COVID 19 stopped and prevented DFFE to implement the DFFE approved projects along the coast. Now the supply chain and financial Dept are blamed for the roll out.'
Western Cape	'Priority is now development.'
Western Cape	'Availability of staff present from other NGO or coastal Partners were difficult to get hold of when needed. Staff members were sick when required for meetings.'
Western Cape	'With enough budget to implement activities, this had a significant impact on implementation.'
Western Cape	'Absence of people at the beach meant we were not able to carry out our awareness and educational campaigns for coastal access.'
Western Cape	'Since travelling was not permitted at first, programmes and strategies that were meant to take place in other provinces therefore did not take place.'
Western Cape	'Limited movement - restriction to essential goods and services'
Western Cape	'Many projects could not be implemented due to diverging of funds for COVID and due to the lockdown and business that closed.'
Western Cape	'Had to do stuff online, not in person.'
Western Cape	'Some projects got delayed due to the lockdown, as a result the budget was lost or had to be rolled over to the next financial year.'
Western Cape	'Unable to deploy conservation teams.'

Across the provinces, limitations to conduct research, stakeholder engagement, public awareness programmes, and

other public engagements were mentioned the most frequently.

17. Did lockdown impact the functioning and operation of institutional structures or arrangements within different sectors, such as coastal committees, ports consultative committees, and industry forums?

This question aimed to establish whether the lockdown impacted on the functioning and operation of institutional structures or arrangement within different sectors, such as coastal committees, ports consultative committees, and industry forums. A total of 46 answers was received, 8 from the Eastern Cape, 16 from KwaZulu-Natal, 2 from the Northern Cape, and 20 from the Western Cape. Table 12 shows that a total of about 2/3 of the respondents observed an impact. While this ratio is consistent with the "yes"/"no" distribution in the Eastern and Western Cape, it is interesting that in KwaZulu-Natal an equal number of respondents (8 respectively) confirmed and rejected this statement. This requires a more in-depth assessment to establish whether this result indicates a somewhat better adaptation of KwaZulu-Natal-based respondents and institutions to the lockdown-enforced circumstances.

Table 13: Stakeholder perceptions of impacts on the functioning and operation of institutional structures

Possible answers	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	22%	47%	0%	30%	33%
Yes	67%	47%	100%	70%	61%
(blank)	11%	6%	0%	0%	6%

18. If YES, please describe the impacts experienced

A total of 28 responses was received on this question, 4 from the Eastern Cape, 8 from KwaZulu-Natal, 2 from the Northern Cape, and 14 from the Western Cape (Table 13). Most answers regarding challenges related to people working from home during the lockdown or institutions closing entirely. This led to (regular) meetings such as Working group meetings to be cancelled or conducted virtually via online platforms. These were in many cases affected by internet connectivity issues. Further, while virtual meetings enabled some degree of continuity in business, the limitations of personal interactions still affected effectiveness.

Table 14: Impacts on the functioning and operation of institutional structures as perceived by stakeholders

Province of respondent	Perceived impacts on functioning and operation of institutional structures
Eastern Cape	'Postgraduate students were forced to extend the duration of their registration.'
Eastern Cape	'Committees could not meet.'
Eastern Cape	'Although meetings were held virtually, network challenges hampered progress.'
Eastern Cape	'Travelling was not allowed, meetings were held virtually and came as certain challenges such as people not pitching.'
KwaZulu-Natal	'I think so - PCC affected.'
KwaZulu-Natal	'Meetings were held virtually. Less travel less contamination (low carbon).'
KwaZulu-Natal	'No meetings held - either virtual or face to face.'
KwaZulu-Natal	'Although virtual meetings helped, it was difficult to keep up with coast related meetings, monitoring, and operational activities.'
KwaZulu-Natal	'Decline in forum meetings attendance.'
KwaZulu-Natal	'No meetings held.'
KwaZulu-Natal	'Inability to have committee meetings.'
KwaZulu-Natal	'Nobody was available!'

Province of respondent	Perceived impacts on functioning and operation of institutional structures
Northern Cape	'No meetings could be conducted.'
Northern Cape	'Meetings were not conducted regularly, and it was virtual.'
Western Cape	'Staff less available to deal with operations.'

Province of respondent	Perceived impacts on functioning and operation of institutional structures
Western Cape	'Access to these institutions became very limited.'
Western Cape	'Everything came to a halt.'
Western Cape	'Employees in these structures worked from home, or they worked part-time which resulted in lower productivity and service standards.'
Western Cape	'The different institutional structures (committees and forums) did not meet or functioned at 100 % due to the total lockdown and online platforms were challenging due to internet availability and connectivity challenges, especially within your rural areas.'
Western Cape	'All meetings were forced to be done virtually with some initial difficulty for those who were not able to keep up with the sudden change, working from home and not being able to meet in person. Technical limitations and reliance on Technology was a huge unplanned shift.'
Western Cape	'Some of the structures were not effective and functional. Virtual platforms were not effective tools to others.'
Western Cape	'All meetings or engagements had to switch to virtual platforms. These came with challenges of connectivity.'
Western Cape	'**Disruption of Meetings:** Lockdown restrictions, including travel limitations and social distancing measures, made it challenging to hold in-person meetings. As a result, many coastal committees, port consultative committees, and industry forums had to suspend or postpone their regular meetings. This disruption affected the exchange of information, decision-making processes, and collaborative efforts among stakeholders. **Shift to Virtual Platforms:** To overcome the limitations imposed by lockdowns, many institutional structures and arrangements transitioned to virtual platforms for conducting meetings and discussions. Video conferencing tools and online collaboration platforms became the primary means of communication. While this allowed some level of continuity, it also presented challenges related to internet connectivity, access to technology, and adapting to virtual formats. **Reduced Engagement and Participation:** The lockdowns resulted in decreased engagement and participation from stakeholders in institutional structures. Some individuals and organizations faced difficulties in actively participating due to various reasons, such as limited resources, remote work setups, or competing priorities during the crisis. This reduced engagement impacted the effectiveness and inclusivity of decision-making processes.'
Western Cape	'Rotational scheduled and extended virtual meeting more especial international where time zones were not to be synchronised.'
Western Cape	'Due to working from home, uncertainty, and the hard lockdown.'
Western Cape	'Virtual, not in person.'
Western Cape	'Travelling was not allowed, meetings were held virtually and came as certain challenges such as people not pitching.'
Western Cape	'Nobody was available!'

19. Do you have any recommendations for future disaster management for the coastal space for lockdown-like situations in the future?

A wide range of different recommendations was suggested by the respondents. A lot of the recommendations called upon learning from the COVID lockdowns in relations to regulations to be applied and how to best function amidst the crisis.

Table 15: Recommendations for future disaster management by stakeholders

Province of respondent	Recommendations for disaster management
Eastern Cape	'It was difficult to get permits for Engineers we needed on site
Eastern Cape	'Learn from the past experiences and put systems in place.'
Eastern Cape	'If we could learn how to efficiently use working online and im
KwaZulu-Natal	'Application of common sense and not utter and complete con again. Although there were some positive spin-offs for the env industry, car usage) the socio-economic impacts were huge. D affected communities - this was never allowed to happen in th abiding citizens were treated like criminals.'
KwaZulu-Natal	'Certain activities must be allowed especially those who affect
KwaZulu-Natal	'More lenience to sports persons.'
KwaZulu-Natal	'Plan to be in place to keep the beach clean from waste as a res water).'
KwaZulu-Natal	'Consistent, science-based regulations.'
KwaZulu-Natal	'Policy decisions must be informed by the science.'
KwaZulu-Natal	'If you have to... rather not close but insist on solo activities or to swim at their own Risk, give time limits etc.'
KwaZulu-Natal	'Emergency funding is beneficial to ensure longevity of the pro demand.'
KwaZulu-Natal	'Research, protection, conservation and monitoring of our MP
National	'Provide alternative source of income to those who depend on sector, tourism, small scale fisherman, aquaculture, etc). Creat coastal space with caution during similar disaster. Allow coasta participate when formulating policy development to enable in
Northern Cape	'Government can provide stakeholders with means to attend v
Western Cape	'Implementation of management plans for the coast.'
Western Cape	'Allow scientific research to continue.'
Western Cape	'Establish collaborative forums from various communities, ins arrangements can be devised in a sensible and wise manner. Su based on the local context.'
Western Cape	'Outdoors work must be allowed - crowds to be avoided.'
Western Cape	'Catchup strategy/program to get livelihoods projects and pro lockdown.'
Western Cape	'Continue with MS Teams and online platforms to save time ar
Western Cape	'Draft SOPs for all activities with disaster management /lockd
Western Cape	'More law enforcement operations to be implemented.'
Western Cape	'Active readiness programme to be developed well ahead of fu
Western Cape	'Government must use a more consultative approach to handli People are more responsive when engaged properly.'
Western Cape	'It is my view that the beach area should be better defined.'
Western Cape	'Keep on learning.'
Western Cape	'If we could learn how to efficiently use working online and im

Province of respondent	Recommendations for disaster management
Western Cape	‘**Early Warning Systems:** Implement robust early warning systems that can quickly and accurately detect potential threats such as storms, tsunamis, or other natural disasters. These systems should be integrated with various communication channels to reach coastal communities promptly. **Evacuation Plans:** Develop comprehensive evacuation plans specifically tailored to coastal regions. Identify safe locations for evacuees, establish evacuation routes, and educate residents about evacuation procedures and assembly points. **Community Engagement:** Foster strong community engagement and participation in disaster management efforts. Conduct regular awareness campaigns, workshops, and drills to educate coastal residents about disaster preparedness, response protocols, and self-sufficiency during lockdown-like situations. **Infrastructure Resilience:** Invest in resilient infrastructure along coastal areas. This includes constructing buildings, shelters, and critical facilities that can withstand natural disasters and providing backup power systems, water supplies, and communication networks that can function during lockdowns. **Digital Platforms:** Develop digital platforms or mobile applications to disseminate real-time information during disasters. These platforms can provide updates on evacuation routes, shelter availability, emergency contacts, and essential services, ensuring effective communication even during lockdown situations. **Coordination and Collaboration:** Establish strong coordination mechanisms between government agencies, emergency services, non-governmental organizations, and community-based organizations involved in disaster management. Collaborate on joint planning, resource allocation, and response strategies to ensure a cohesive and effective approach. **Training and Capacity Building:** Conduct regular training and capacity-building programs for emergency responders, local authorities, and volunteers. This should include specialized training for handling lockdown-like situations, remote communication, and remote coordination techniques to effectively manage disasters while maintaining social distancing protocols. **Integrated Risk Assessments:** Conduct integrated risk assessments to identify vulnerable areas and potential risks associated with coastal disasters. Utilize this data to develop targeted strategies and prioritize resource allocation for preparedness and response efforts. **Data-driven Decision Making:** Leverage advanced data analytics and modeling techniques to enhance decision-making processes. Utilize historical data, satellite imagery, and real-time information to predict and manage the impacts of coastal disasters and lockdown-like situations. **International Cooperation:** Foster international cooperation and information sharing among coastal regions prone to similar disasters. Collaborate on best practices, knowledge exchange, and joint research efforts to enhance disaster management capabilities. Remember that these recommendations should be adapted to the specific characteristics and challenges of your coastal area. It’s important to involve local stakeholders, including community members, in the planning and implementation of disaster management strategies to ensure their effectiveness and acceptance.’
Western Cape	‘Research, protection, conservation and monitoring of our MPA’s needs to be prioritised.’

A total of 49 answers were received. Of these responses, 50% state that business is back to normal, and the remaining suggest that business is not (Table 15). *This result contradicts StatsSA data from 2023 which state that the Agriculture, Fisheries, and Forestry Sector is in fact outperforming the pre-Covid situation. Is perhaps Agriculture back but fisheries not? Or has fisheries sector changed to a new normal?*

Table 16: Stakeholder perception whether business is back to normal yet.

Row Labels	Eastern Cape	KwaZulu-Natal	Northern Cape	Western Cape	Grand Total
No	33%	59%	50%	45%	47%
Yes	56%	41%	50%	50%	47%
(blank)	11%	0%	0%	5%	6%

If NO, is there anything that has changed permanently or is still not back to pre-COVID status?

This question was answered by 23 respondents, 4 from the Eastern Cape, 8 from KwaZulu-Natal, 1 from the Northern Cape, and 9 from the Western Cape. The respective answers are listed in Table 16.

Table 17: Ongoing deviations from pre-COVID situation perceived by stakeholders

Province of respondent	Perceived ongoing deviations from pre-COVID situation
Eastern Cape	'Increase in budget availability.'
Eastern Cape	'More virtual meeting undertaken than before COVID.'
Eastern Cape	'No, we are still playing catch up and numerous relationships with stakeholder groups fell through and have not been the same since.'
Eastern Cape	'None that I am aware of.'
KwaZulu-Natal	'Decreased tourism & visitors, which has resulted in on-going financial constraints.'
KwaZulu-Natal	'Difficult to get funding from potential sponsors.'
KwaZulu-Natal	'Economic factors reducing long distance travel, exacerbated by damaged infrastructure in KZN, and zero maintenance of some critical infrastructure.'
KwaZulu-Natal	'Fewer meetings overall and less personal contact with relevant.'
KwaZulu-Natal	'Interactions with animals aren't where they used to be. Socially people are different as some were polarised. Also, people got divided by their beliefs during COVID about COVID and this is still evident today to some degree.'
KwaZulu-Natal	'There is still not enough community engagement.'
KwaZulu-Natal	'Tourism'
KwaZulu-Natal	'Unemployment, small businesses'
Northern Cape	'Virtual meetings'
Western Cape	'All meetings continue to be virtual (cost containment)'
Western Cape	'Difficult to get funding from potential sponsors.'
Western Cape	'Meetings are online, budget cuts on traveling and accommodation remains in force.'
Western Cape	'More virtual meeting undertaken than before COVID.'
Western Cape	'Still working from home.'

Province of respondent	Perceived ongoing deviations from pre-COVID situation
Western Cape	'The damage caused by the pandemic and the unprofessional manner in which it was managed caused lasting damage. Some businesses closed down not to open again. The entire local economy has become smaller and is still recovering.'
Western Cape	'The working ethics and going back to business as usual.'
Western Cape	'We are still not getting volunteers and interns to our institute.'
Western Cape	'Yes, but in my opinion the COVID created big scars which take longer to heal.'

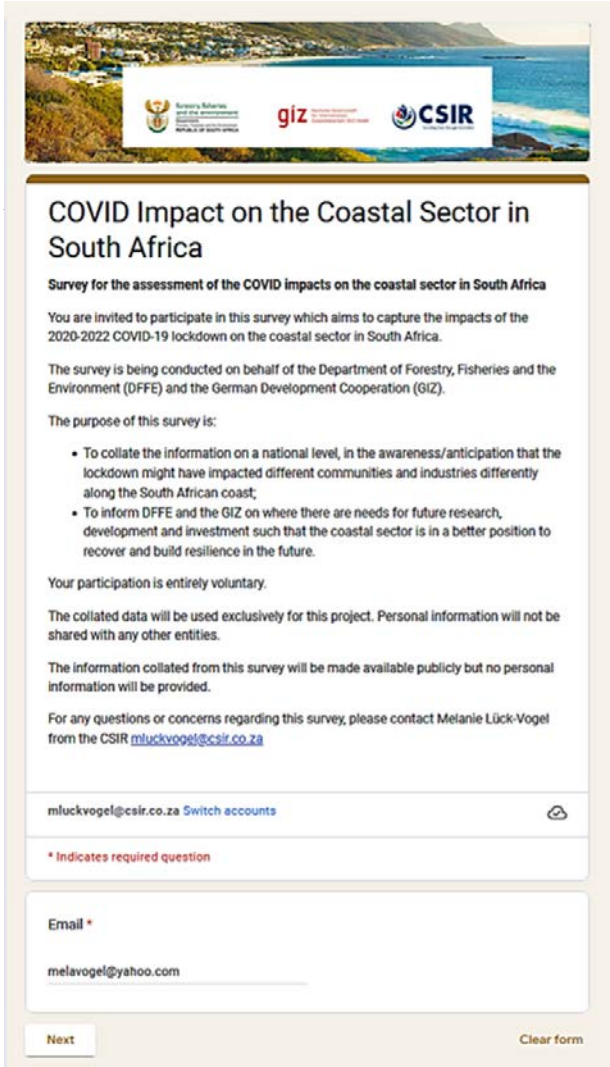
21. Is there anything else you would like to share with us regarding observed COVID impacts on the coast?

This question was answered by 8 respondents, 2 from the Eastern Cape, 2 from KwaZulu-Natal, and 4 from the Western Cape.

Table 18: Any other observations on COVID impact on the coast by stakeholders

Province of respondent	Any other observations on COVID impact on the coast
Eastern Cape	'One can never plan enough for a disaster, however, in an event of a disaster resources needs to be available.'
Eastern Cape	'The coastal areas did benefit from lock down. Cleaner beaches, less waste material in the storm water drains. On the other side, vandalism led to increased waste- water treatment pipes, pumpstations that led to deteriorating water quality of estuaries.'
KwaZulu-Natal	'Do not ignore the importance of the surfing and diving industry, which were severely impacted; the socio-economic impact was massive, as there is a whole lot of other industry (and people) that depend on this. Denying beach users access to the resources for a healthy state of body and mind is like cutting off a lifeline. Beach tourism (and in fact all tourism-related industry) was crushed.'
KwaZulu-Natal	'People have a connection to the ocean, when you break that, they don't do very well. The beach and ocean is a spiritual places and place of mental and physical well-being. At a time where people are scared and stressed, they need the ocean.'
Western Cape	'All observations are based on monthly impact monitoring of the Overberg Coastline by the District Municipality'
Western Cape	'COVID-19 Positively impacted on the coastal resources as the human element and impact was removed during the lockdown. All natural Resources birds, fish etc was positively impacted due to no disturbances/ catching of fish and disturbing of natural resources and natural processes.'
Western Cape	'Recovery plans from different sectors must be integrated.'
Western Cape	'The coast is now valued more than before.'

Overall, this survey has provided some useful insights into what was experienced by respondents during the pandemic lockdown on coastal natural resources and socio-economic consequences. Lessons learned need to be incorporated into policy to set the framework conditions to be able to deal with future crises adequately.



COVID Impact on the Coastal Sector in South Africa

Survey for the assessment of the COVID impacts on the coastal sector in South Africa

You are invited to participate in this survey which aims to capture the impacts of the 2020-2022 COVID-19 lockdown on the coastal sector in South Africa.

The survey is being conducted on behalf of the Department of Forestry, Fisheries and the Environment (DFFE) and the German Development Cooperation (GIZ).

The purpose of this survey is:

- To collate the information on a national level, in the awareness/anticipation that the lockdown might have impacted different communities and industries differently along the South African coast;
- To inform DFFE and the GIZ on where there are needs for future research, development and investment such that the coastal sector is in a better position to recover and build resilience in the future.

Your participation is entirely voluntary.

The collated data will be used exclusively for this project. Personal information will not be shared with any other entities.

The information collated from this survey will be made available publicly but no personal information will be provided.

For any questions or concerns regarding this survey, please contact Melanie Lück-Vogel from the CSIR mluckvogel@csir.co.za

mluckvogel@csir.co.za Switch accounts

* Indicates required question

Email *

melavogel@yahoo.com

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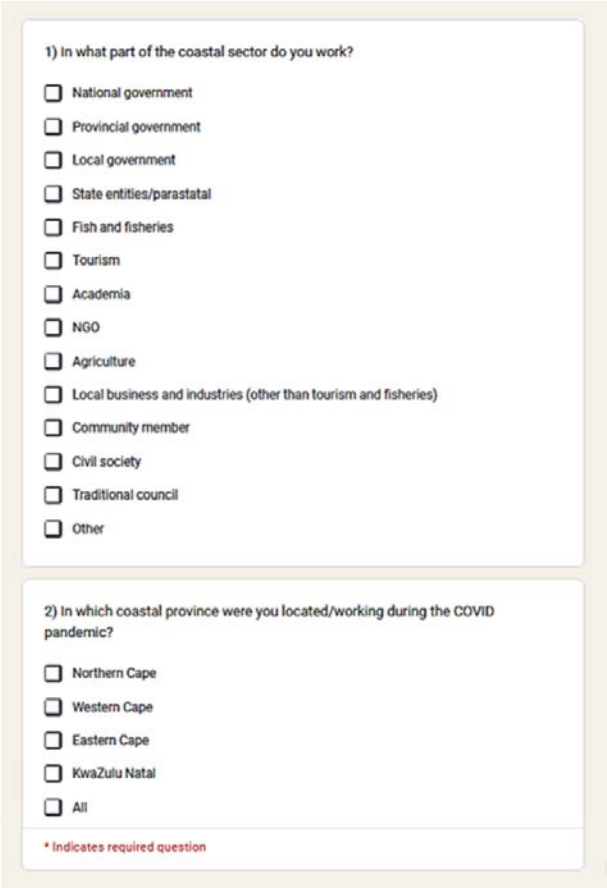

1) In what part of the coastal sector do you work?

- National government
- Provincial government
- Local government
- State entities/parastatal
- Fish and fisheries
- Tourism
- Academia
- NGO
- Agriculture
- Local business and industries (other than tourism and fisheries)
- Community member
- Civil society
- Traditional council
- Other

2) In which coastal province were you located/working during the COVID pandemic?

- Northern Cape
- Western Cape
- Eastern Cape
- KwaZulu Natal
- All

* Indicates required question

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Appendix – Online Survey

Online survey for GIZ Contract No. 83422008

3) Did you observe any changes in the coastal natural resources during the COVID pandemic? (If NO please proceed to Question 8)

- ☐ Yes
- ☐ No

4) Do you think these changes were related to the COVID lockdown? (If YES, please proceed to Question 6)

- ☐ Yes
- ☐ No

5) If NO, what other factors could have caused the observed changes. Please provide you answer in the space provided. (Please proceed to Question 8)

Your answer

6) If YES, what trends on natural coastal resources did you observe during the COVID pandemic? Please mark the most appropriate response for each row below.

	Much improvement	Improvement	Not much improvement	No improvement at all	Do not know
Changes in the coastal macrofauna (e.g. seals, sharks, whales, dolphins)	☐	☐	☐	☐	☐
Changes in coastal bird populations	☐	☐	☐	☐	☐
Changes in dune vegetation	☐	☐	☐	☐	☐
Changes in extreme weather events along the coast	☐	☐	☐	☐	☐
Changes in air pollution along the coast	☐	☐	☐	☐	☐
Changes in litter on the coast	☐	☐	☐	☐	☐
Change in the water quality	☐	☐	☐	☐	☐

9) If YES, what socio-economic changes did you observe. Please mark your response for each row below.

	Agree	Somewhat agree	Disagree	Somewhat disagree	Do not know
Less commercial fishing activities	○	○	○	○	○
Recreational fishing increased	○	○	○	○	○
Off-shore fisheries and associated industries closed down	○	○	○	○	○
Small-scale fisheries and associated activities closed down	○	○	○	○	○
Less total tourists	○	○	○	○	○
More domestic tourists	○	○	○	○	○
Unemployment rates increased	○	○	○	○	○
Less informal traders in the coastal areas	○	○	○	○	○
More people moving to the coast	○	○	○	○	○
More people moving inland from the coast	○	○	○	○	○

10) Did you notice any other socio-economic impacts. Please provide your answer in the space below.

Your answer

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