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Poll Results

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Background and Objectives

- Trapping and socioeconomic survey: do not provide information on the spread of crayfish at the national level
- It is clear that the crayfish is spreading rapidly in the Zambean waterbodies, therefore, there is a need to establish a periodic monitoring tool
- Objectives:
  - To determine the extent to which crayfish have spread in Zambian waters
  - To gain additional information related to the spread.

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Methods and Process

- Qualtrics-SM online survey software (https://www.qualtrics.com/core-xm/ survey-software/).
- Poll open to anyone.
- The link sent to provincial Fisheries Department directors and to local fisheries department officers whose contacts were received, conservation organizations, lodge operators and their associations
- Responses were slow to come and periodically, cooperators were reminded and the link sent to additional potential cooperators.

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Sections

- Instructions (with a photo)
- Personal information: contact, occupation, province, location
- Crayfish presence: presence/absence, first sighting/hearing, additional information
- Crayfish disappearance
- Information on crayfish: frequency of sightings, changes in population/size, trapping, consumption and sales

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Responses received

- 105 responses were received, 67 for analysis
- Very encouraging response by Fisheries Department staff
- Majority of the respondents from Southern, Lusaka, and Central provinces

Responder	No	%
Fisheries Department staff	38	61.3
Engaged in tourism industry	6	9.7
Researcher	5	8.1
Environment officer	2	3.2
Other	11	17.7

Southern Lusaka	26.2
Lusaka	24.6
Central	16.9
Western	10.8
Northern	10.8
Luapula	4.6
Northwestern	3.1
Copperbelt	1.5
Eastern	1.5

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Locations for reporting

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Waterbody	Number of repondents
Kariba	13
Lake Tanganyika	4
Itezhi-tezhi, Upper Kafue	3
Kabombo, Kafue, Lower Zambezi, Upper	2
Others (1 each)	9

Presence/absence

- Was present in 87% of locations that report
- In 9% of locations, was not present
- 4.5% reported that they did not know
- Notably, no one reported that it used to be present, but no longer is.

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Population trends reported

- 21% report seeing crayfish on a daily basis, and 26% no more than once a week
- The majority report hearing and observing that populations have increased since first sighting

No more than once in a year	17.0
No more than once in half year	0.0
No more than once in in quarter year	12.8
No more than once a month	23.4
No more than once a week	25.5
Every day	21.3
I don't know	0.0

Heard:	Decreased	Decreased at first, then increased	Increased	Increased at first, then decreased	Stayed the same
Sizes	16.2	5.4	48.6	10.8	18.9
Population	11.4	2.3	72.7	9.1	4.5
Observed					
Sizes	15.0	2.5	47.5	7.5	27.5
Population	11.4	2.3	61.4	18.2	6.8

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Trapping and Consumption

- 70% report that there is trapping in the location
- 57% report that trapping is for sale; 43% report that it's for home consumption
- Equal number (45%) report that home consumption has increased since introduction and that it has stayed the same, 10% reported that home consumption first decreased, then increased (but low n=10)

Sales

- 72% report that since introduction, sales have increased
- 17% report that sales have decreased
- 6% report that sales first increased, then stayed the same
- 6% that sales have stayed the same

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In the words of the respondents: Kafue National Park

- **Encountered first in October 2022 after 8 years of trapping**, although fishers were trapping for years 10 km south.
- I've had a trap put out most of 2022 season mostly for interest to see how many in an area. At least 4+ crayfish every night from a small rudimentary trap. Tend to go into trap early evening.
- I've found the **catfish are able to eat the smaller crayfish**.
- All crayfish I have seen (many) have been in the mouth of **Giant Kingfisher** who are feeding on them a good deal.
- Where the lodge is located is not suitable for crayfish as it is an open body of water and fast flowing; trapping has shown they are there nevertheless.

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In the words of the respondents: Kafue

- **Significant increase in the spread and acceptance.** Previously people thought it brought bad luck in fishing and were not happy due to economic losses (damage to nets and fish). **With increased exploitation & marketing more people are involved in harvest & trade.**

- There has not been any research on the population and morphometrics of crayfish on Kafue River at Ngabwe. **It is highly likely that the Lukanga Swamps (into which the Kafue river drains) are also affected by the crayfish invasion.**

- The farthest I have observed crayfish on the Kafue is in **Chiawa area near the confluence with the Zambezi River; the** population and size dynamics are unstudied on that portion of River.

- Crayfish has been sighted on Lake Itezhi tezhi and Lower Kafue (below the ITT Dam wall) stretching from Namwala , Monze, Mazabuka and Kafue Town.

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In the words of the respondents: Zambezi

- Crayfish has also been sighted in Lower Zambezi, just below the Kariba dam. .
- **Are established in the Lower Zambezi, but have not reached very high population densities.** They have been reported by recreational and artisanal fishers, but not in the numbers that would encourage commercial exploitation as seen in other areas like the Kafue River.
- The only place I have seen them in **high densities in the Lower Zambezi is in irrigation ponds on the Zambezi Chiawa estate**. Not introduced deliberately, but probably entered with water pumped from the Zambezi and Kafue. In high densities in **ponds with cage aquaculture**, why the crayfish likely thrive. there.
- Talking to local fishers it seems they can cause some damage to fish caught in nets.

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In the words of the respondents: Zambezi

- It seems they can cause some damage to fish caught in nets, but **they aren't mentioned as a major issue given the low densities**. I don't think there is much effort spent to catch them specifically, although **people do seem to have become more comfortable with the idea of eating them when caught.**
- I studied the species population dynamics on the **Barotse floodplain** (2018 - 2019). I was based in Senanga. I have worked there from 2005 to 2021. The species is usually reported every year during **rescending waters in lagoons and pools in Many places in Senanga. I found one sample also in Matebele plains**, Sioma district in 2020. Was also seen in Kaoma (+30km away from Zambezi) in 2020.

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In the words of the respondents: Others

Itezhi-tezhi:

•Is spreading **so fast in the lake and only few people involved** in trapping; only in the Game Management Area and dam's spill over gates.

•**None is being trapped in the Kafue National Park** due to restrictions. It is for this reason that there have been an increase in the number of cray fish every day.

Lake Kariba:

•Due to increase in population of **fishers' catches have reduced.**

•**Sinazongwe:** When crayfish **first spreads to an area it is caught in huge amounts** and many fishers complain about spoilage of their fish catch. **It later it reduces in numbers** but it is still caught in the nets. Most fishing communities do not consume and **few have started trading** in it mainly by trapping it or keeping those caught in nets in traps until they accumulate.

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In the words of the respondents: Others

•**Kabompo river**: There has been **some increase** in population of crayfish, and it is spreading rapidly over the years.

•**Mulungushi River**: The spread of crayfish is **rapid and steadily increasing**.

•**Kwandu, Shangombo**: **Since 2015** when the crayfish was discovered by the community, no further research was conducted to determine the population.

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Way Forward

- Poll presents a relatively easy way to track crayfish presence
- Response rate by Fisheries Department officials encouraging
- If can be kept, and wildlife officials and tourism industry can become engaged, number of respondents could be greatly increased
- Propose:
  - Annual surveys to ensure sufficient tracking
  - Simplification of the survey: reduction of questions

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