



Republic of Namibia
Ministry of Fisheries and Marine Resources

An assessment of lead (Pb) levels in *Hydrocynus vittatus* (African tigerfish) from Kavango River, Namibia

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Ministry of Environment, Forestry and Tourism (MEFT), Namibian Wildlife Lead Poisoning - Birdlife International (BI)
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Lead (Pb) and sources

- Lead (Pb) is a nonessential, highly toxic heavy metal
- Paint
- Batteries
- Mining activities
- Ammunition



The effects of lead

FACT: LEAD IS TOXIC

It is harmful to everyone and

DAMAGES:



BRAIN



KIDNEYS



LIVER



BLOOD



REPRODUCTIVE SYSTEM

Young children

are most vulnerable. Their nervous systems are still developing and they absorb **4-5 times more than adults**, which can cause:

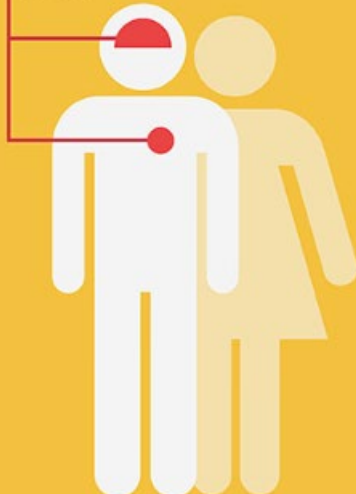
- intellectual disability
- underperforming at school
- behavioural issues



In adults

lead exposure increases the risk of:

- ischaemic heart disease
- stroke



In pregnant women

lead exposure damages many organs but also affects:

- the developing foetus



Lead Poisoning



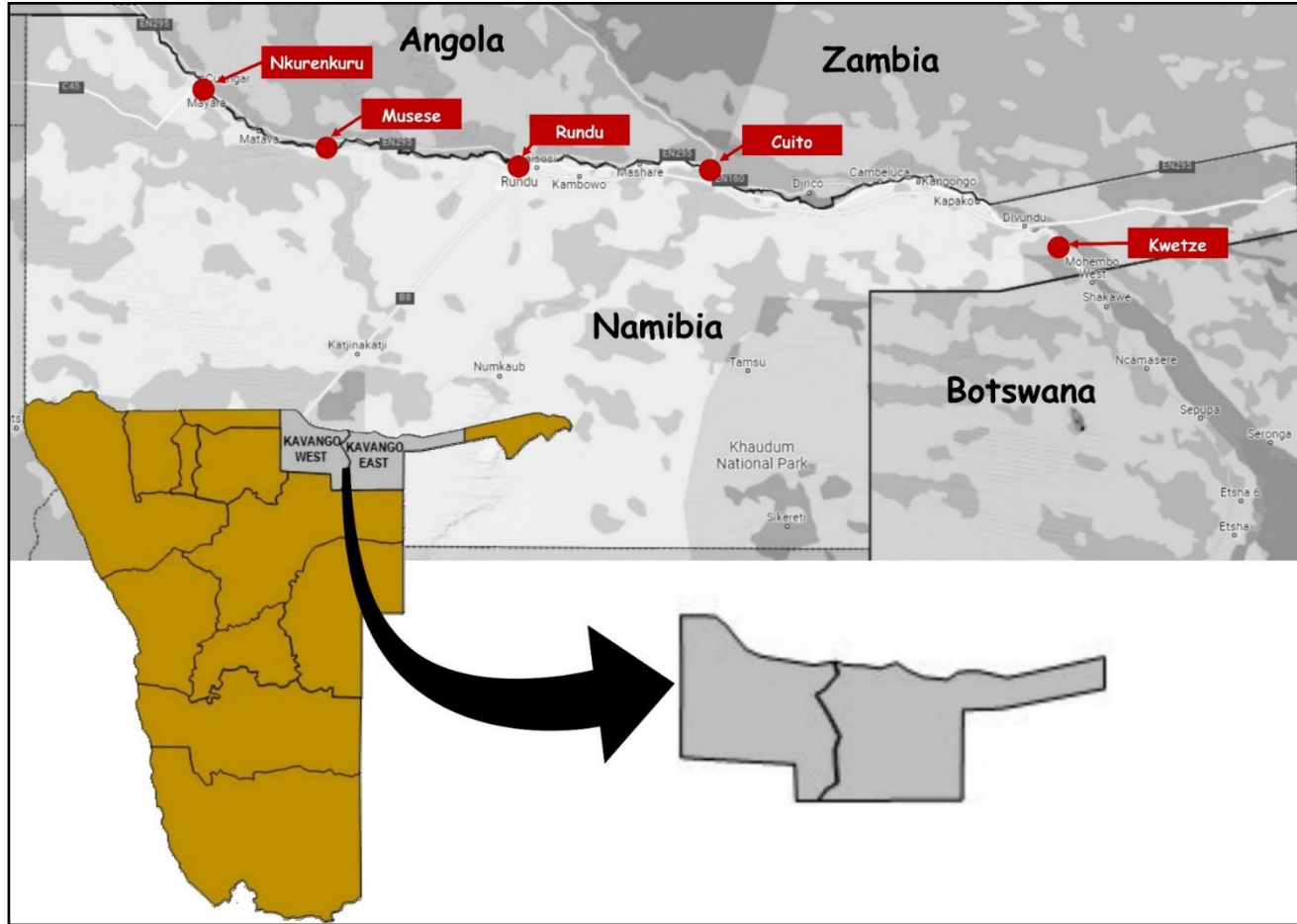
The impact of lead on the ecosystem

- The accumulation of Pb in the tissues of aquatic animals and may become toxic to fish, people when it reaches a substantially high level.
- Birds such as African fish eagle, Kingfishers
- Lead causes renal failure and liver damage in humans (Emmerson, 1973, Luckey and Venugopal, 1977).

- Determine the concentration levels of Pb in the muscle of *H. vittatus* from the Kavango River, Namibia,
 - and compare these levels to the FAO/WHO permissible standards

Materials and methods

Study area



Data collection – 2020 to 2021

✓ The data was collected from different localities along the Kavango River, namely:

- Kwetze
- Quito
- Rundu
- Musese
- Nkurenkuru



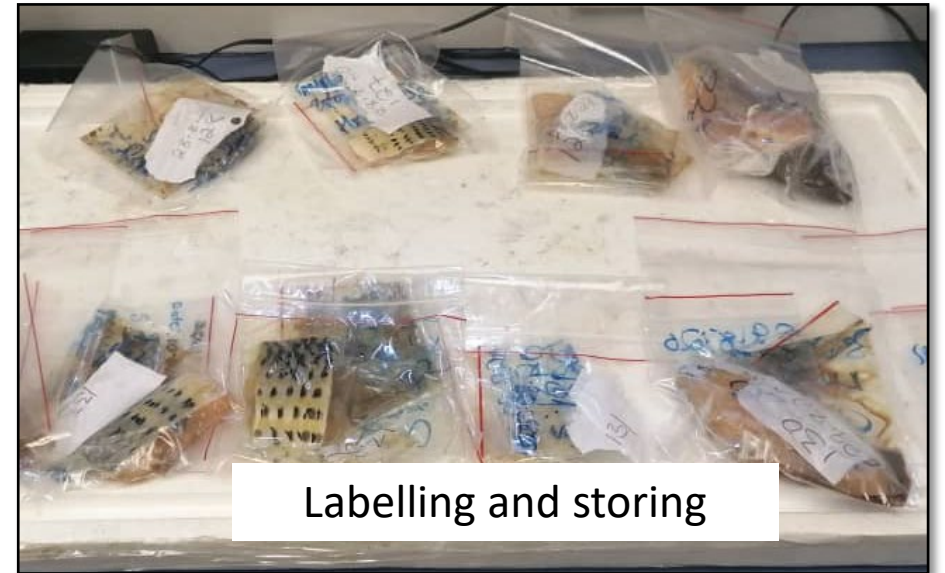
Materials and methods

Sampling Protocol



Materials and methods

Measurement and dissection



- The level of Pb was tested at Analytical laboratory, Windhoek using the ICP-OES Machine .

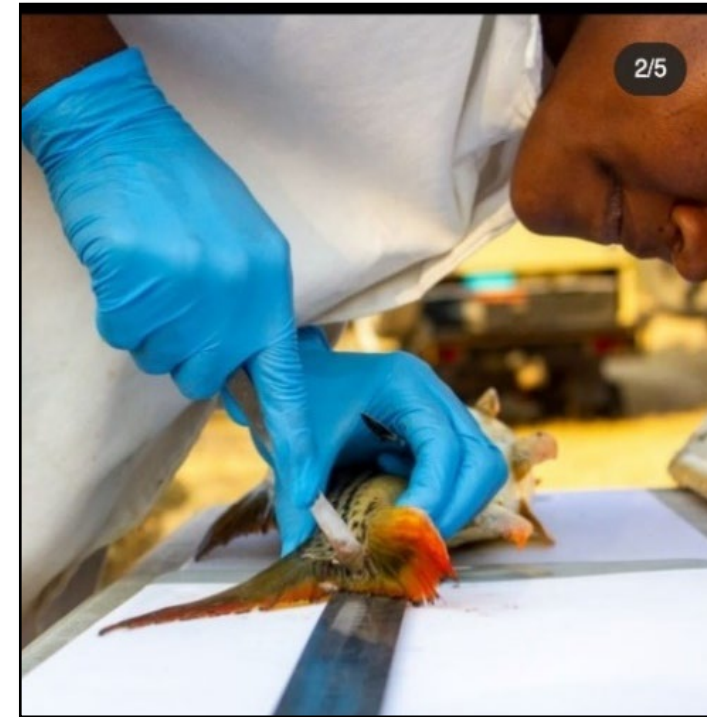
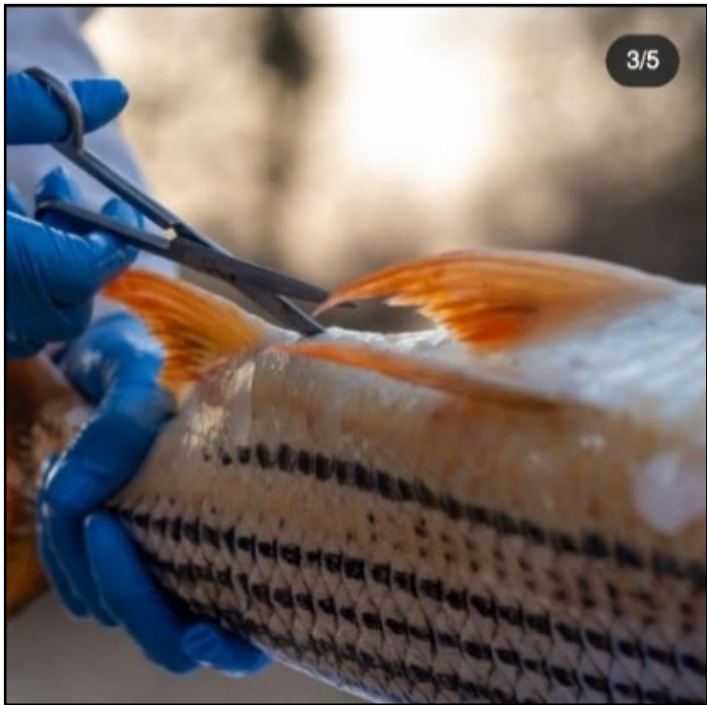


Results (mg/kg)

	Number of <i>H. vittatus</i>	Mean	Standard Deviation	Minimum	Maximum	FAO standards
mAs	45	0.10	0.05	0.03	0.06	0.1
mCd	45	-	-	<LD	<LD	0.05
mCr	45	0.138	0.045	0.1	0.4	0.15
mHg	45	0.202	0.2	0.006	1.229	0.5
mPb	45	0.014	0.009	<Level of Detection	0.04	0.5 and 0.3

FAO/WHO (1984,2011) permissible standard of Pb is 0.5mg/kg and 0.30 mg/kg –in fish.

- Continuous studies on various pollutant are recommended,
- Using various indicator species.







Thank You...
Any Questions?



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