Fisheries Officers Quantitative Analysis

## Role of officers interviewed

The illustration of [Table 1](#tbl-role) indicates that 73% of the surveyed government officers were fisheries officers while only 27% were extension officers. This meant that most of the survey government officers were located in stations where farmers popped in seeking aquaculture information. Extension officers were very few thereby indicating a low level of extension services in the aquaculture sector.

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| Table 1: The Role of government officers interviewed   | Role | **Frequency (%)** | | --- | --- | | Extension officer | 3 (27%) | | Fisheries officer | 8 (73%) | |

## Aquaculture Officers Education Level

Majority of the officers held a bachelor’s degree (82%) with some holding masters degrees and diplomas. The results showed that most of the employed officers had an undergradaute education thereby indicating a significant level of education.

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| Table 2: Education of Level of Government officers in the Aquaculture Sector   | Education level | **Frequency (%)** | | --- | --- | | Bachelor’s Degree | 9 (82%) | | Diploma | 1 (9.1%) | | Master’s degree | 1 (9.1%) | |

## Formal Training in Fish Health

A considerable proportion of officers had received formal training on fish health that included subjects such as fish pathology, parasitology and general fish hygiene.

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| Table 3: Formal fish health training   | Formal fish health training | **Frequency (%)** | | --- | --- | | No | 4 (36%) | | Yes | 7 (64%) | |

## Knowledge on Common fish diseases

A considerable proportion of officers had somewhatfamiliar knowledge on common fish diseases (55%) while only 36% were very familiar with common fish diseases. Interestingly 9% of the officers were not familar at all with common fish diseases.

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| Table 4: Common Fish Diseases Knowledge   | common fish diseases knowledge | **Frequency (%)** | | --- | --- | | Not at all familiar | 1 (9.1%) | | Somewhat familiar | 6 (55%) | | Very familiar | 4 (36%) | |

## Parasites

The fish parasites shown in [Table 5](#tbl-parasites) were the parasites that most of the fisheries could easily identify because they were familiar to them.

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| Table 5: Common Fish Parasites   | **Parasites** | **Frequency (%)** | | --- | --- | | Bacteria | 1 (5.0%) | | Cestodes | 1 (5.0%) | | Clinostomum | 1 (5.0%) | | Dactylogyrus | 1 (5.0%) | | Ichthyobo | 1 (5.0%) | | Leeches | 1 (5.0%) | | Round worms | 1 (5.0%) | | Tape worms | 1 (5.0%) | | Tapeworm | 1 (5.0%) | | 1. Acathocephalans | 1 (5.0%) | | Flukes | 1 (5.0%) | | Fungus | 1 (5.0%) | | Gyro dactyls | 1 (5.0%) | | Leaches | 1 (5.0%) | | Nematodes | 1 (5.0%) | | Protozoas | 1 (5.0%) | | Round worm | 1 (5.0%) | | Tape worm | 1 (5.0%) | | Uronema | 1 (5.0%) | |

## Implementation of Biosecurity

The implementation of biosecurity measures and plans are not among the subjects that most officers had knowledge about because 60% of the interviewed officers only had moderate knowledge 10% were not aware at all while only 30% had enough knoledge on biosecurity measures as illustrated in [Table 6](#tbl-biosecurity).

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| Table 6: Knowledge of the Implementation of Biosecurity   | Biosecurity implementation | **Frequency (%)** | | --- | --- | | Highly knowledgeable | 3 (30%) | | Moderately knowledgeable | 6 (60%) | | Not knowledgeable | 1 (10%) | |

## Tools and Techniques of identifying fish diseases and health issues

As illustrated in [Table 7](#tbl-tools) 90% were of officers interviewed used clinical observation or simply observation as a tool of identifying fish health related issues. In addition only 40% used microscopic examination to investigate fish health concerns while only 20% ever used PCR or any molecular testing methods.

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| Table 7: Tools and Tecchniques   | Tools and Tecchniques | **Frequency (%)** | | --- | --- | | Microscopic examination | 4 (40%) | | PCR testing | 2 (20%) | | Clinical observation | 9 (90%) | |

## Frequency of consultations

The survey sought to determine the frequency at which the officers were consulted by fish farmes. As illustrated in [Table 8](#tbl-consult), most officers indicated that they were consulted occassionally to provide information on fish health while 40% were frequently consulted while very few 10% were rarely consulted. This showed that farmers were actively seeking information from government establishments.

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| Table 8: Consultations from Fish Farmers   | Consultation frequency | **Frequency (%)** | | --- | --- | | Frequently | 4 (40%) | | Occassionaly | 5 (50%) | | Rarely | 1 (10%) | |

## Dissemination of Fish Health Information

The Kenya Aquaculture space is inundated with worshops and seminars and according to [Table 9](#tbl-disse) most dissemination of fish health information takes place during workshops and seminars (67%), followed by online platforms (33%) and lastly on printed materials (11%) which are rare in the public domain. Other sources of information are during farm visits and farmer to farmer exchange of information and finally in organised farmer group trainings and meetings. There are usually collaborations between departments and agencies to enhance the sharing of information.

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| Table 9: Dissemination of Information   | Dissemination of Information | **Frequency (%)** | | --- | --- | | Workshops and seminars | 6 (67%) | | Printed materials | 1 (11%) | | Online platforms | 3 (33%) | |

## Challenges in mitigating the effects of fish diseases and parasites

The challenges faced by government officers are illustrated in [Table 10](#tbl-challenge) below.

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| Table 10: Challenges   | challenges | **Frequency (%)** | | --- | --- | | cestodes | 1 (6.7%) | | insufficient funding on movement to farmers/ extension services | 1 (6.7%) | | nematodes | 1 (6.7%) | | Acathocephalans | 1 (6.7%) | | cost of treatment | 1 (6.7%) | | Few laboratories and lack of analysis/ testing equipment | 1 (6.7%) | | Inadequate materials of reference | 1 (6.7%) | | Lack diagnostic tools and reagents and a specialized lab to ascertain occurrences of the parasites | 1 (6.7%) | | Lack of lab services nearby | 1 (6.7%) | | Lack of sample collection and testing tools | 1 (6.7%) | | Language understanding | 1 (6.7%) | | methods of specific diseases control | 1 (6.7%) | | NA | 1 (6.7%) | | Reaching to them is a challenge | 1 (6.7%) | | Some are asking for feeds and ponds cleaning facilitation from our side | 1 (6.7%) | |

## Specific areas of fish health management

The officers indicated interest in learning common and advanced diseases identification tools and techniques and methods. Information on disease management would be valuable to them and prevention of diases, pests and parasites.

## Feedback from Farmers

Feedback from farmers majorly is verbal when officers meet in farms during research or extension excursions.

## Methods of evaluating success of interverntions

Methods of monitoring and evalauting the success of interventions on fish health are illustrated in [Table 11](#tbl-success) below.

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| Table 11: Assessment of the Success of Interventions   | **M&E** interventions’ success | **Frequency (%)** | | --- | --- | | estimation of the affected fish verses the healthy ones | 1 (10%) | | Feedback during field visit or on phone | 1 (10%) | | Great improvement especially in management of fish farms | 1 (10%) | | Making frequent farm visit | 1 (10%) | | NA | 1 (10%) | | Not quantitave results can be observed | 1 (10%) | | Reduced number of pond fish kills | 1 (10%) | | The management level is average | 1 (10%) | | Well being of the fish | 1 (10%) | | When the affected fish regain normalcy | 1 (10%) | |