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Department of Biological Sciences

School of Pure and Applied Sciences (Spas)

Designation: Adjunct Lecturer – Fisheries Ecology / Management; Research Methods & Biostatistics

Academic Qualifications

- PhD. - Fisheries Science (Biology & Oceanography), The United Graduate School of Agricultural Sciences, Kagoshima University, Japan; March, 2012
- M.Sc. - Fisheries Science (Resources and Environment), Graduate School of Fisheries, Kagoshima University, Japan; March, 2009
- M.Sc. - Environmental Science (Limnology & Wetland Ecosystems), UNESCO-IHE, The Netherlands; October, 2003
- B.Sc. – Fisheries (Management & Aquaculture), MOI University, Eldoret, Kenya; October, 1995.
- Kenya Certificate of Secondary Education- Kenya, Kitui High School, Kitui, Kenya; Nov., 1989.
- Kenya Certificate of Primary Education- Kenya, Ngiini Primary School, Kitui, Kenya; Nov., 1985.

Short training / Others

- National Environment Management Authority – Environmental Impact Assessment / Environmental Auditing Lead Expert certification – 2012
- Developments in Water Quality Monitoring, UNESCO-IHE, Butare, Rwanda; October, 2012.
- Promoting African European Research Infrastructure Partnerships), London, UK; October, 2012.
- Expert Training Workshop - FP7 2013 Work Programme in the area of Food, Agriculture and Fisheries, and Biotechnology (FAFB) research, Arusha, Tanzania; August, 2012.
- Marine Explorer GIS training Program, Environmental Simulation Laboratory, Kawagoe, Japan; October, 2008.
- Economic Tools for Ecosystem Conservation, Society for Conservation biology –CSF, Stanford, CA, Aug., 2005.
- Aquaculture Production & Management, Fac. Agriculture, The Hebrew University of Jerusalem, Rehovot, Israel; May/June, 2005.
- Post Graduate Training Course in Limnology (IPGL), Inst. For Limnology, Mondsee, Austria; April/September, 2002.

Research

My main interests centre on: Fish population dynamics and stock assessment; Risk analysis and Fisheries management (decision analysis, adaptive management); Environmental monitoring/Environmental Impact assessment (EIA)/ Environmental Auditing; Marine ecology and Ecosystem modeling / Stable isotope techniques / Trophic analysis/modeling; and Environmental /

Natural resource economics. On fisheries research, I am keen on both the artisanal/small scale commercial fisheries and bottom trawl/seine fisheries.

My Professional experience is mainly derived from my career and research activities comprising the standardization of survey protocols and biomass estimations in deep-water bottom trawl surveys in; Assessment of demersal fish assemblages in fishing grounds with varying oceanographic characteristics and levels of fishery resource management; Modeling catch, effort and price in a commercial bottom trawl/seine shrimp fisheries; Life history parameters as indicators of stock structure; Stable Isotope techniques for trophic analyses of marine fisheries systems and Trophic modeling of the semi enclosed deeper water Kagoshima Bay, southern Japan during 2006-2012. Additionally, over the last 15+ years, my active research in the Malindi-Ungwana Bay fisheries, Kenya and participation in various project including the survey of the East African migrant fishery, the aquarium fisheries and the commercial trawl fishery among others has overwhelmingly equipped me with a wealth of experience for the assessment and management of tropical marine fisheries.

Journals and Papers Presented

Peer Reviewed Journals († Corresponding author)

1. Fulanda, B. and Ohtomi, J., 2011. Effect of tow duration on estimations of CPUE and abundance of the grenadier *Coelorinchus jordani* (Gadiformes, Macrouridae). *Fisheries Research*, 110: 298-304
2. Fulanda, B. and Ohtomi, J., 2011. Determination of effective tow duration for estimation of fish and shellfish abundance in deeper-water bottom trawl surveys. *Fisheries Science*, 77:487-485
3. Fulanda B., Ohtomi J., Mueni, E., Kimani, E., 2011. Fishery trends, resource-use and management in the Ungwana Bay fishery Kenya. *Ocean & Coastal Management*, 54:401-414
4. Cosmas, M., Ndegwa, S., †Fulanda, B., Manyala, J., Kimani, E., Ohtomi, J. and A. Vanreusel, 2012. Bottom shrimp trawling impacts on species distribution and fishery dynamics; Ungwana Bay fishery Kenya before and after the 2006 trawl ban. *Fisheries Science*, 78(2): 209-219
5. Ahamed, F., Hossain, M.Y., Fulanda, B., Salam, A., Faruque, Z.A. and J. Ohtomi, 2012. Indiscriminate exploitation of wild prawn postlarvae in the coastal region of Bangladesh: A threat to the fisheries resources, community livelihoods and biodiversity. *Ocean and Coastal Management* 66: 56-62
6. Hossain, M.Y., M. Mosaddequr Rahman, M.A.S. Jewel, Z.F. Ahmed, F. Ahamed, B. Fulanda and J. Ohtomi, 2012. Conditions- and form-factor of the five threatened fishes from the Jamuna (Brahmaputra River Distributary) River, northern Bangladesh. *Sains Malaysiana*. (Ref: 2011/09/09(301), in press)
7. Hossain, M.Y., M. M. Rahman, B. Fulanda, M. A. S. Jewel, F. Ahamed and J. Ohtomi, 2012. Length-weight and length-length relationships of the five threatened fishes from the Jamuna (Brahmaputra River distributary) River, northern Bangladesh. *J. Applied Ichthyology*, 28(2): 275-277.
8. Hossain, M.Y., M. A. S. Jewel, B. Fulanda, F. Ahamed, S. Rahman, S. Jasmine and J. Ohtomi, 2012. Dynamics of cyanobacteria *Planktothrix* spp. (Oscillatoriales, Phormidiaceae) in earthen fish ponds, northwestern Bangladesh. *Sains Malaysiana* 41(3): 277-284.
9. Jasmine, S., M. Molina, M.Y. Hossain, M.A.S. Jewel, F. Ahamed, B.R. Subba and B. Fulanda, 2011. Assessment of potential and economic viability of freshwater prawn *Macrobrachium rosenbergii* (De man, 1879) polyculture with Indian major carps in NW Bangladesh. *Our Nature*, 9(1): 61-72
10. Fulanda B., Munga C., Ohtomi J., Osore M., Mugo R. & Md. Y. Hossain, 2009. The Structure and Evolution of the Coastal Migrant Fishery of Kenya. *Ocean & Coastal Management*, 52: 459-466
11. Wambiji N., Ohtomi J., Fulanda B., Kimani E., Kulundu N. and M.Y. Hossain, 2008. Morphometric Relationship and Condition Factor of *Siganus stellatus* (Forsskål, 1775), S.

- canaliculatus (Park, 1797) and *S. sutor* (Valenciennes, 1835) (Family; Siganidae) from the Western Indian Ocean Waters of Southcoast Kenya. *J. South Pacific Studies*, 29(1): 1-15
12. Shah MMR, Hossain MY, Begum M., Ahmed ZF, Ohtomi J, Rahman MM, Alam MJ, Islam MA and B. Fulanda, 2008. Seasonal variations of Phytoplankton community structure and production in Related to Environmental factors of the Southwest coastal waters of Bangladesh. *J. Fisheries & Aquatic Science*, 3(2): 102-113
 13. Hossain, M.Y., Ahmed, Z.F., Ohtomi, J., Ibrahim, A.H.M., El-kady, M.A.H., Fulanda, B. and S.K. Chakraborty, 2008. Threatened fishes of the world: Wallago attu (Bloch and Schneider, 1801) (Siluriformes: Siluridae). *Environmental Biology of Fishes*, 82 (3):277-278
 14. Hossain, M.Y., Rahman, M.M., Jasmine, S., Ibrahim, A.H.M., Ahmed, Z.F. Ohtomi, J., El-Kady M.A.H. & B. Fulanda, 2008. Comparison studies on water quality and plankton production between perennial and non-perennial ponds of Bangladesh. *J. Fisheries and aquatic Science*, 3(3):176-183
 15. † Fulanda, B., Ohtomi, J., Mueni, E., Nzuki, S., Muasa, J., Muthama, C. and Md. Y. Hossain, 2007. A Preliminary Assessment of the Green Sea Turtle *Chelonia mydas*, Population and its Foraging Grounds in Kilifi Creek, Kenya. *J. South Pacific Studies*, 28(1): 31-41
 16. Begun M., Hossain, M.Y., Wahab, M.A. Ahmed, Z.F. Alam, M.J., Shah, M.M.R. Ohtomi, J., Jasmine, S., El-Kady, M.A.H. and B. Fulanda, 2007. Effects of iso-nutrient fertilization on plankton production in earthen ponds of Bangladesh. *Pakistan J. Biological Sciences*, 10(8): 1221-1228
 17. Hossain, M.Y., Jasmine, S., Ibrahim, A.H.M., Ahmed, Z.F., Ohtomi, J., Fulanda, B., Begum, M., Mamun, A., El-Kady M.A.H. and M.A. Wahab, 2007. A preliminary observation on water quality and plankton of an earthen fish pond in Bangladesh: Recommendations for future studies. *Pakistan J. Biological Sciences*, 10 (6): 868-873
 18. Liti, D. M., † Fulanda, B., Munguti, J.M., Straif, M., Waidbacher, H. and G. Winkler, 2005. Effects of open-pond density and caged biomass of Nile Tilapia (*Oreochromis niloticus* L.) on growth, feed utilization, economic returns and water quality in fertilized ponds, *Aquaculture Research*, 36(15): 1535-1543.

Book chapters

1. Okemwa G.M, Fulanda, B., Kimani E.N. & J. Ochiewo, 2009. Exploitation of Marine Aquarium Reef Fisheries at the Kenyan Coast. *In: Hoorweg J. & Muthiga N. (eds.), Advances in Coastal Ecology: People, Processes and Ecosystems in Kenya*, African Studies Collection 20: 28-42, Leiden, PrintPartners Ipskamp BV, Enschede, Netherlands.
2. † Fulanda, B., 2003. Shrimp Trawling in Ungwana Bay: A Threat to Fishery Resources. *In: Hoorweg J. & Muthiga N. (eds.), Recent Advances in Coastal Ecology: Studies from Kenya*, African Studies Centre Res. Report 70: 233-242, Leiden, PrintPartners Ipskamp BV, Enschede, Netherlands.

Thesis / Dissertations

1. Fulanda B.M., 2012. Biomass estimation and trophic analysis of fish and shellfish in Kagoshima Bay, southern Japan: Dissertation - Ph.D. Fisheries (Resource & Environmental Sciences), The United Graduate School of Agricultural Sciences, Kagoshima University, Japan [Mentors: Prof. Dr. Ohtomi, J.; Prof. Dr. Masuda, Y.; Prof. Dr. Nishi, R. - Faculty of Fisheries - Kagoshima University, Kagoshima, Japan]
2. Fulanda B.M., 2009. Biomass estimation for fish and shellfish from experimental trawl surveys: case of the semi-enclosed deeper water Kagoshima Bay, southern Japan: Thesis - M.Sc. in Fisheries (Aquatic Resource Science), The Graduate School of Fisheries - Faculty of Fisheries,

- Kagoshima University, Kagoshima, Japan. [Mentors: Prof. Dr. Ohtomi, J.; Prof. Dr. Masuda, Y.; Prof. Dr. Nakamura, H. Faculty of Fisheries - Kagoshima University, Kagoshima, Japan]
3. Fulanda B.M., 2003. Effects of caging and pond stocking density on growth and economic performance of the Nile Tilapia, *Oreochromis niloticus* (L) in fertilized earthen ponds receiving supplementary feeds]. Thesis – M.Sc. in Environmental Science & Technology (Major: Limnology & Wetland Ecosystems), UNESCO-IHE Inst. for Water Education - Delft, The Netherlands. [Mentors: Prof. Dr. Waidbacher H.; Dr. Straif, M. - niversität für Bodenkultur Wien, Abt. Hydrobiologie, Austria; Prof. Dr. Liti, D. - School of Science - Dept of Biological Sciences, MOI University, Kenya]
 4. Fulanda B.M., 1995. Tolerance to salinity changes in the Nile Tilapia *Oreochromis niloticus* L. and the African Catfish *Clarias gariepinus* under laboratory conditions. Thesis - B.Sc. in Fisheries, MOI University, Eldoret, Kenya. [Mentor: Prof. Dr. Muchiri, M. - Mt. Kenya Campus, Moi University]

Conference Proceedings / Course and Project Reports

1. Fulanda, B., Y. Yamasa and J. Ohtomi, 2012. Distribution structure of demersal fish and shell assemblages in semi-enclosed deeper water Kagoshima Bay, southern Japan. *Nippon Suisan Gakkai-Kyushu*, 28th January, 2012, Kagoshima, Kagoshima Japan.
2. Fulanda, B. and J. Ohtomi, 2011. Spatial-temporal distribution of Molluscan fauna in Kagoshima Bay, southern Japan. *Nippon Suisan Gakkai Autumn Meeting*, 28 Sept - 02 Oct, 2011, Nagasaki, Japan
3. Fulanda, B. and J. Ohtomi, 2011. Effect of tow duration on estimation of abundance of the grenadier *Coelorrhinus jordanii* (Gadiformes, Macrouridae). *Nippon Suisan Gakkai*, 27-31, March, 2011, Tokyo, Japan.
4. Ohtomi, J. and Fulanda, B., 2010. Preliminary study on spatiotemporal distribution of Penaeid shrimps in the semi-enclosed deeper-water Kagoshima Bay, southern Japan. Proc. 7th International Crustacean Conf., June 20-25th, 2010, Qingdao, China.
5. Fulanda, B. and J. Ohtomi, 2010. Brachyuran fauna associated with shrimp fishery in the semi-enclosed deeper-water Kagoshima Bay, southern Japan. Proc. 7th International Crustacean Conf., June 20-25th, 2010, Qingdao, China
6. Fulanda B. & J. Ohtomi. 2008. Biomass Estimation for demersal fishes from experimental trawl surveys: case of the semi-enclosed deeper water Kagoshima Bay, southern Japan. Proc. 5th World Fisheries Conference, Oct 20-24th, Yokohama, Japan (publ. electronic media).
7. Ohtomi J., Akaishi K. & B. Fulanda, 2008. Spatiotemporal distribution of crustacean species in the semi-enclosed deeper water Kagoshima Bay, southern Japan. Proc. 5th World Fisheries Conference, Oct 20-24th, Yokohama, Japan (publ. electronic media).
8. Hossain, M.Y., Z.F. Ahmed, J. Ohtomi & B. Fulanda, 2008. Reproductive biology of the Asian Striped catfish *Mystus vittatus* in the Mathabhangha River, southwestern Bangladesh. Proc. Aquaculture America 2008, Orlando, Florida. World Aquaculture Society, 9-14 Feb. 2008.
9. Fulanda, B. M. & Munga, C.N., 2006. A preliminary survey of the structure and dynamics of the coastal migrant fisheries in Kenya. WIOMSA/MARG-I/2006-08. 47pp.
10. Fulanda B., 2005. Coastal Aquaculture in Kenya; History, Status and the Way Forward in Aquaculture Production & Management, Country Reports, Hebrew University, Rehovot, Israel. May 14th-June 9th, 2005.
11. Fulanda B., G. Mwatha, R. Mugo, E. Mueni an& M. Mutisya, 2005. Some biological characteristics of the Ungwana bay Penaeid shrimps fishery; a need for new research and management strategies, 4th WIOMSA Symposium, Grand Baie Mauritius. 29th Aug-2nd Sept, 2005.
12. Fulanda B., Waidbacher H., Liti D. and Straif M., 2005. Growth, Yields and Economic Performance of Nile Tilapia (*Oreochromis niloticus*) in Integrated Cage cum Earthen Pond culture

Systems, Sagana, Kenya In New Challenges In Pond Aquaculture, Univ. of South Bohemia, České Budějovice, Czech Republic, April 26th – 28th, 2005. Pg 39-40.

13. Fulanda B., 2005: Key Marine and Coastal Biodiversity Areas in Kenya: a Preliminary Analysis, 4th WIOMSA Symposium, Grand Baie Mauritius. 29th Aug-2nd Sept, 2005.
14. Fulanda B. and M. Otieno, 2000. Kenya's Coastal and Marine Resources; Ungwana Bay shrimp Trawling & Intertidal Developments at Consultative Forum- Marine & Coastal Resources, 26th, April 2000, National Museum Society, Malindi, Kenya.

Others:

Recent / Current Research Projects

- 2012-todate: Deep-water crustacean longline trap survey in Kenya (SWIOPF project); Spatial mapping of the Malindi-Ungwana Bay Fishery (KMFRI fisheries program); Standardization of Survey Protocols for Stock Assessment and Retrospective Analysis in the bottom shrimp trawl surveys in Ungwana Bay, Kenya (Kenya Coastal Development Project – GEF/World bank)
- 2009-2012: Biomass estimation and trophic analysis of fish and shellfish in Kagoshima Bay, southern Japan - Funded by the Japan government (MEXT) (Host PI - Prof. Jun Ohtomi, Kagoshima University).
- 2006-2009: Standardization of survey protocols in deep-water bottom trawl surveys for fisheries stock assessment in Kagoshima Bay, southern Japan - Funded by the Japan government (MEXT) (Host PI - Prof. Jun Ohtomi, Kagoshima University).
- 2005-2006: Characterization of the coastal migrant fishery in Kenya with reference to gears and vessels used, and ownership, demographic factors, migrant activity and resource conservation - Funded by WIOMSA (with Co-PI: Drs. Munga, C., KMFRI).
- Assessment of the exploitation of coral reef fishes for the marine aquarium trade in Kenya - funded by WIOMSA (with PI: Drs. Okemwa, G.)
- 2004-2005: Assessment of population and spatial parameters of marine turtles in key foraging grounds in Northcoast Kenya off the Kilifi Creek (funded by DUKE Marine Lab, with PI: Drs. Musyoka, E.)
- 2000-2004: Research & Development, Sagana Aquaculture Centre, Central Kenya focusing on evaluation of growth rates in Tilapia strains; growth and economics of cage culture of the Nile tilapia; Water quality monitoring and nutrient dynamics in earthen ponds (with host PI – Dr. David Liti, Moi University, Mentor: Prof. H. Waidbacher, BOKU University Austria).
- 1997-2000: Marine and Coastal Aquaculture development – based at Ngomeni Project, Malindi, Kenya (under FD-Kenya). During the same period I was engaged as a lead expert in the following projects community geared towards coastal aquaculture development