INTRODUCING ALTERNATE OF DOLPHIN OIL AMONG THE BIN COMMUNITY FISHERMEN

A PROGRESS REPORT

Report prepared by

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Introduction:

Cetaceans are known to co-exist with the human for thousands of years. Historically, geographically and culturally they are significant to human society. Cetaceans including whales and dolphins are hunted for its meat, oil and other body parts which are of medicinal and cultural importance (Pelletier 1980). Dolphin species such as bottlenose dolphins (*Tursiops truncatus*) and Pantropical spotted dolphin (*Stenella attenuata*) are hunted for its meat which is used as bait in Colombia. Dolphin drive hunting described by Mitchell (1975) where dolphins are driven from the deeper water to the shallow water by fishing vessels and are kept in an enclosure for extracting its meat (Kishiro & Kasuya 1993). This practice is also followed for dolphinariums by local fishermen in Japan and Solomon Island (Dawbin 1966). Marine dolphin species such as Indo-Pacific bottlenose dolphins (*Tursiops aduncus*), Indo-Pacific humpback dolphins (*Sousa chinensis*), Spinner dolphin (*Stenella longirostris*), Irrawaddy dolphin (*Orcaella brevirostris*) and Dugong (*Dugong dugong*) are the common species found along the East Malaysian coasts. Indigenous dugong fishery for its meat is preferable traditional seafood by the people of Torres Strait in Australia (Marsh *et al*. 1997). The use of dolphin as bait, and in some cases for human consumption, is widespread (Goodall *et al*. 1988, Vidal 1992, Félix & Samaniego 1994, IWC 1994, Reeves & Leatherwood 1994, Romero *et al.* 1997, López *et al*. 2003, Baker *et al*. 2006), but in some places an occasional take has rapidly become a common practice due to the likely efficiency of dolphin meat as bait (Trujillo & Gómez 2005). Intentional killing of the Amazon River dolphin (*Inia geoffrensis*) by fishermen has also been reported from Amazon River due to competition for prey species (Loch *et. al.* 2009) and also use of tuxuci dolphin (*Sotalia fluviatilis*) for cultural and religious purposes in the Amazon river of Brazil (Alves *et.al.* 2008).

Similar problem is also exists for the Gangetic dolphin (*Platanista gangetica gangetica*), an endangered species of river dolphin, found in the Ganges-Brahmaputra-Meghna and Karnaphuli River systems of India, Nepal and Bangladesh (Anderson 1878, Kasuya & Haque 1972, Jones 1982, Mohan 1989, Reeves & Brownell 1989, Shrestha 1989 & Reeves *et al.* 1993). This species is listed as Schedule I under Wildlife Protection Act of 1972 (any possession of its body parts without any authorized permission is highly offendable). It is also categorized as Endangered by IUCN (Klinowska, 1991) and has also been listed in Appendix I of CITES. The species has been declared as the state aquatic animal of Assam in 2008, and subsequently in 2009 it was declared as the national aquatic animal of India.

Gangetic dolphins are harvested throughout its distributional range for its oil, meat and other body parts which are of ‘’medicinal and cultural’’ importance. Dolphin oil is used as medicine in India and Bangladesh which are believed to cure rheumatism, nervous disorder, aphrodite and also for curing asthma (Pelletier 1980, Choudhary *et. al*. 2006). Usage of

dolphin oil as a fish attractant especially for two catfishes, (*Eutropiichthys vacha* and *Clupisoma garua*) has gain popularity in the Ganges River in Bihar, parts of the Ganges in West Bengal and few parts of Assam (Motwani & Srivastava 1961, Mohan & Kunhi 1996, Smith *et al.* 1998, Bairagi 1999, Wakid 2010).

In Assam, the meat of the species is being used to extract oil, which is being used as fish bait by Bin community fishermen (Wakid, 2005). For this reason, the dolphin oil has a good market value, which encouraging its killing in Brahmaputra river system. Based on the secondary information it is estimated that annually 35-45 dolphin carcasses are required to meet the requirement of dolphin oil bait fishing. On the otherhand, there is about 635 dolphins in the entire Brahmaputra river system (Wakid et al., 2014). Therefore, requirement of 35-45 dolphins annually for dolphin oil bait fishing is a big threat for the long term survival of this endangered species of river dolphin in Brahmaputra river system.

To reduce/prevent this dangerous threat, the Gangetic Dolphin Research and Conservation Initiative (GDRCI) of Aaranyak investigated the issue in details and found that about 150 fishermen from the Bin community, spreading in total 4 areas of Assam, with main concentration in Dhubri and Tezpur-Singri, are involved in this dolphin oil bait fishing. GDRCI

Fig-1: Dolphin oil bait fishing in Brahmaputra River near Tezpur

also investigated the socio-economic conditions of all these fishermen. The Project Leader of this Project who is also the Head of GDRCI-Aaranyak contacted with Prof. R. K. Sinha of Patna University (India), who developed and successfully trialled an alternate of dolphin oil, made from fish scraps, to train a few Bin community fishermen from Assam in this alternate oil preparation and use. Finally in October, 2012 GDRCI trained total 5 Bin community

fishermen in alternate oil preparation and use in Ganges with the help of Prof. R. K. Sinha fishermen team.

Fig-2: Alternate oil bait preparation and use training to Bin community fisherman of Assam by the same community fishermen in Ganges (Patna) in October, 2012

Fig-3: Alternate oil bait successful trial by Bin community fishermen in Brahmaputra River in December, 2012

Fig-4: Neria fish caught from alternate oil bait during the trial

After this successful trial in Brahmaputra River, we conducted the training of identified Bin community fishermen in alternate oil preparation and use in March, 2013. Total

Fig-5: Bin community fishermen participants in alternate oil bait training in Dhubri in March, 2013

90 Bin fishermen from 4 different areas of Assam were trained in this alternate oil bait preparation and use in March, 2013.

Fig-6: Alternate oil bait preparation training to Bin community fishermen in Dhubri, in presence of Fishery Department and Forest Department officials.

Fig-7: Final product of the alternate oil bait (black portion)

After this training, we encouraged the fishermen to use this alternate oil bait for Neria fish catch. However, due to lack of adequate raw materials (fish scraps), the fishermen were unable to use it, since preparation of this alternate oil bait required good amount of fish scraps, which are really scras in small town viz., Dhubri. To solve this problem and to continue the good spirit of the inetretsted Bin fishermen, we initiated the preparation of the alternate oil in Guwahati through collecting and then processing fish scraps from the fish market and then supply them to the Dhubri and Tezpur – two main dolphin oil bait fishing area of Assam, from December, 2013 onwards.

This Report is describing the initial progress of alternate oil bait supply to the Bin community fishermen.

Progress so far (Dec, 2013-Feb, 2014):

Two Bin community youths, namely Santosh Choudhury and Sijay Bin worked as part time staff to the project, whose main duty are to prepare the alternate oil after collecting fish scraps from Guwahati fish market and then distribute in Dhubri and Tezpur Bin community fishermen, who are identified as engaged in dolphin oil bait fishing.

In December, 2013 total 36.25 litres of fish oil had given to 60 Bin fishermen belonging to 21 fishing boats. They caught total 323.5 kg of Neria fish with a total income of Rs. 59,630/-. In January, 2014 total 42.75 litres of fish oil had given to 57 Bin fishermen belonging to 26 fishing boats. They caught total 268 kg of Neria fish with a total income of Rs. 69,200/-. In February, 2014 total 46 litres of fish oil had given to 68 Bin fishermen belonging to 36 fishing boats. They caught total 299 kg of Neria fish with a total income of Rs. 58,000/-. In total in last 3 months (Dec, 13-Feb, 14) total 125 kg of alternate oil had given to 127 fishermen of 36 fishing boat, from where they caught 890 kg of Neria fish and earned total Rs. 1,86,830/-.

Fig-8: Sujay Bin in preparation of the alternate oil, made from fish scraps

Fig-9: Sujay Bin with the final alternate oil in fishing boat

Fig-10: Alternate oil is being distributed among Bin community fishermen in Dhubri

Conservation Impact:

From the initial investigation, it appears that per day about 20 litre of dolphin oil is required to meet the requirements of 127 fishermen belonging to 36 fishing boat. Based on the fishing schedule of each of these 127 fishermen, we found that for 3 months duration (Dec, 2013-Feb, 2014), they required about 415 litres of dolphin oil for which 9 adult dolphin carcasses are required, since on an average an adult dolphin carcass can give 45 litre of oil. In the said duration, we gave total 125 litres of fish oil to these 127 fishermen, which is equivalenet to about 3 dolphins. Therefore, from this initial effort, we could save atleast 3 dolphins to be killed for dolphin oil. However, more investigation is required to confirm this finding and currently such investigations are ongoing.

References

Alves, R.R.N. & Rosa, I.L. (2008): Use of tucuxi dolphin *Sotalia fluviatilis* for medicinal and magic/religious purposes in North Brazil. *Human Ecology,* 36:443–447.

Anderson, J. (1879): Anatomical and zoological researches: Comprising an account of zoological results of the two expeditions to western Yunnan in 1868 and 1875; and a monograph of the two cetacean genera, *Platanista* and *Orcella*. Bernard Quaritch, London

Bairagi, S.P. (1999): Oil bait fishery of catfishes in Brahmaputra River affecting river dolphin populations in Assam, India. *Journal of the Bombay Natural History,* 96(3): 424-426.

Baker, C.S., Lukoschek, V., Lavery, S., Dalebout, M. L., Young-un, M., Endo, T. & Funahashi, N. (2006): Incomplete reporting of whale, dolphin and porpoise by catch revealed by molecular monitoring of Korean markets. *Animal Conservation*, 9: 474-482.

Brownwell, R.L., Nowacek, Jr. D.P. & Rallis, K. (2008): Hunting cetacean with sounds. *Journal of Cetacean Resource Management*, 10(1): 81-88.

Choudhary, S.K., Smith, B.D., Dey S., Dey, S. & Prakash, S. (2006): Conservation and biomonitoring in the Vikramshila Gangetic Dolphin Sanctuary, Bihar, India. *Oryx*, 40(2): 189-197.

Dawbin, W.H. (1966): Porpoises and porpoise hunting in Malaita. *Australian Natural History* 15(7): 207-11.

Félix, F. & Samaniego, J. (1994): Incidental Catches of small cetaceans in the artisanal fisheries of Ecuador. *Reprints of International Whaling Commission* (special issue), 15: 475- 480.

Goodall, R. N. P., Galeazzi, A. R. & Lichter, A. A. (1988): Exploitation of small cetaceans off Argentina 1979-1986. *Reprints of International Whaling Commission*, 38: 407-410.

IWC. 1994: Report of the Workshop on Mortality of Cetaceans in Passive Fishing Nets and Traps, La Jolla, California. *Reprints of International Whaling Commission* (special issue), 15: 6-57.

Jones, S. (1982): The present status of the Gangetic dolphin *susu, Platanista gangetica* (Roxburgh), with comments on the Indus *susu, P. minor* (Owen). FAO Advisory Committee on Marine Resources Research, Working Party on Marine Mammals. *FAO Fisheries Series*, 5(4): 97-115.

Kasuya, T. (2007): Japanese whaling and other cetacean fisheries. *Environmental Science Pollution Resource*, 14(1): 39-48.

Kasuya, T. & Haque, A. K. M Animul. (1972): Some information on distribution and seasonal movement of Ganges dolphin. *Science Reprints. Whales Research Institue*, 24: 109-115.

Kelkar, N., Krishnaswamy, J., Choudhary, S., & Sutaria, D. (2010): Coexistence of Fisheries With River Dolphin Conservation. *Conservation Biology,* 24: 1130-1140.

Kishiro T. & Kasuya T. (1993): Review of Japanese dolphin drive fisheries and their status. *Reprints of International Whaling Commission* 43: 439–452.

Klinowska, M. (1991): Dolphins, Porpoises and Whales of the World. *The IUCN Cetacean Red Data Book*. IUCN, Gland, Switzerland and Cambridge, UK, 429 pp.

Loch, C., Marmontel, M. & Lopes-Simoes, P.C. (2009): Conflicts with fisheries and intentional killing of freshwater dolphins (Cetacea: Odontoceti) in the Western Brazilian Amazon. *Biodiversity Conservation*, 18: 3979-3988.

Lopez, A., Pierce. G.J., Santos, M.B., Garcia, J. & Guerra, A. (2003): Fishery by-catches of marine mammals in Galician waters: results from on-board observations and an interview survey of fishermen. *Biological Conservation*, 111: 25-40.

Mansur, E. F., Smith, B.D., Mowgli, R.M. & Abdullah Abu Diyan, M. (2008): Two incidents of fishing gear entanglement of Ganger River dolphins (*Platanista gangetica gangetica*) in the waterways of Sunderbans Mangrove forest, Bangaldesh. *Aquatic mammals*, 34 (3): 362-366.

Marsh, H., Harris A.N.M. & Lawler, I. R. (1997): The Sustainability of the Indigenous Dugong Fishery in Torres Strait, Australia/ Papua New Guinea. *Conservation Biology*, 11(6): 1375-386.

Mitchell, E.D. 1975: Porpoise, Dolphin and Small Whale Fisheries of the World: Status and Problems. *IUCN Monograph*. IUCN, Morges, Switzerland. 129pp.

Mohan, R. S. L. (1989): Conservation and management of the Ganges River dolphin, *Platanista gangetica,* in India. In Perrin, W. F., Brownell, R. L. Jr., Kaiya, Z. & Jiankang. L., (eds.). *Biology and conservation of the river dolphins* (IUCN Species Survival Commission Occasional Paper, 3: 64-69. Gland, Switzerland: IUCN.

Mohan, R.S.L., Kunhi, K.V.M., (1996): Fish oils as alternative to river dolphin, *Platanista gangetica* (Lebeck) oil for fishing catfish *Clupisoma garua* in the River Ganges, India. *Journal of the Bombay Natural History Society,* 93: 86–88.

Mohan, R.S.L., Dey, S.C. & Bairagi, S.P. (1999): Ganges river dolphin oil bait fishery in the river Brahmaputra and introduction of crude shark liver oil as a substitute. *Zoo's Print Journal*, 14 (8): 89-90.

Motwani, M.P. & Srivastava, C.B. (1961): A special method of fishing for *Clupisoma garua* (Hamilton) in the Ganges River system*. Journal of the Bombay Natural History Society,* 58: 285–286.

Pelletier, C. & Pelletier, F. X. (1980): Report sur l'expedition delphinasia (Septembre 1977–Septembre 1978). *Annales de la societe des sciences naturelles de la charaente maritime,* 6: 647–679.

Read, A.J. (2008): The looming crisis: interactions between marine mammals and fisheries. *Journal of Mammalogy*, 89(3): 541–548.

Reeves, R.R., Smith, B.D. & Kasuya, T. (2000): *Biology and conservation of freshwater cetacean in Asia*. IUCN Species Survival Commission.

Reeves, R. R., Leatherwood, S & Mohan, R. S. L. (eds.). (1993): A Future for Asian River Dolphins: Report from the Seminar on the Conservation of River Dolphins of the Indian Subcontinent, 18-19 August 1992, New Delhi, India. Whale and Dolphin Conservation Society, Bath, U.K.

Reeves, R.R. & Leatherwood, S. (1994): 1994-1998 Action Plan for the Conservation of Cetaceans: Dolphins, Porpoise and Whales. IUCN, Gland, Switzerland and Cambridge, UK. 91pp.

Reeves, R.R. & Brownell, R. L. Jr. (1989): Susu *Platanista gangetica* (Roxburgh, 1801) and *Platanista minor* (Owen, 1853): 69-99. In: Hidgway, S.H. & Harrison, R., (eds.). *Handbook of Marine Mammals*, Volume 4, Academic Press, London.

Romero, A., Agudo, A. I. & Green, S. M. (1997): Exploitation of Cetaceans in Venezuela. *Reprints of International Whaling Commission*, 47:735-746.

Sinha. R.K. (2002): An alternative to dolphin oil as a fish attractant in the Ganges River system: Conservation of the Ganges River dolphin. *Biological Conservation,* 107: 253 – 257.

Sinha, R. K. (1997): Status and conservation of Ganges River dolphin in Bhagirathi–Hooghly River systems in India. *International Journal of Ecological Environmental Science* 23: 343–355.

Sinha, R. K. (2004): 'Bait and Watch' Popularization of Alternatives to Dolphin Oil Among Fishermen for the Conservation of the Ganges River Dolphin *Platanista gangetica*) in Bihar. Wildlife Trust of India, New Delhi.

Shrestha, T. N. (1989): Biology, status and conservation of the Ganges River dolphin, *Platanista gangetica*, in Nepal. In Perrin, W. F., Brownell, R. L. Jr., Kaiya, Z. & Jiankang. L (eds.), *Biology and conservation of river dolphins* (IUCN Species Survival Commission Occasional Paper, 3:70-76 Gland, Switzerland: IUCN.

Smith, B. D., Haque, A. K. M., Animul Hussain, M. S., & Khan, A. (1998): River dolphins in Bangladesh: conservation and the effects of water development. *Environmental Management*, 22: 323-335.

Smith, A. M. & Smith, B. D. (1998): Review of status and threats to river cetaceans and recommendations for their conservation. *Environmental Reviews,* 6:189-206.

Smith, B.D., Braulik, G., & Sinha, R. K. (2004): *Platanista gangetica gangetica* ssp. gangetica. In: IUCN 2007. 2007 IUCN Red List of Threatened Species. www.iucnredlist.org.

Trujillo, F. & Gómez, C. 2005: Pesca de Mota Calophysus macropterus. en el Amazonas utilizando delfines como carnada. Capitulo 1. Unpublished report *Fundación Omacha - Corpoamazonía*. 28pp.

Turvey, S.T., Pitman, R. L., Taylor, B.L., Barlow, J., Akamatsu, T., Barrett, L.A., Zhao, X., Reeves, R.R., Stewart, B.S., Wang, K., Wei, Z., Zhang, X., Pusser, L.T., Richlen, M., Brandon, J.R. & Wang, D. (2007): First human caused extinction of a cetacean species? *Biological Letter,* 3: 537-540.

Turvey, S.T., Barrett, L.A., Hart, T., Collen, B., Yujiang, H., Lei, Z., Xingiao, Z., Xianyan, W., Yadong, H., Kaiya, Z., & Ding, W. (2010): Spatial and temporal extinction dynamics in a freshwater cetacean. *Proceeding of the Royal Society*, Online Publication.

Vidal, O. (1992): Los mamíferos marinos del océano Pacifico Sudeste Panama, Colombia, Ecuador, Perú y Chile: diagnóstico regional. *Inf Estud Prog Mar Reg*. PNUMA 142: 1-26

Wakid, A. (2009): Status and distribution of endangered Gangetic dolphin (*Platanista gangetica gangetica*) in the Brahmaputra River with India in 2005. *Current Science*, 97(8): 1143-1151.

Wakid, A. (2010): Initiative to reduce the fishing pressures in and around identified habitats of endangered Gangetic Dolphin in Brahmaputra river system, Assam. Final Technical Report submitted to CEPF. 34 pp.

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