

| Country           | Date    | Location   | Source        | Population              | Processing type   | Primary species   | Source | Avg. portion, g | Study portion relative to our analysis |
|-------------------|---------|--|---------------|-------------------------|---|---|--------|-----------------|--|
| Kenya             | 2014    | Mfangano Island                                    | 1             | WRA                     | Dried dagaa and cichlids, and fresh or fried tilapia and Nile perch | <i>Rastrineobola argentea</i> , <i>Cichlidae</i>  | FW     | 85              | 207%                                   |
| Kenya             | 2014    | Mfangano Island                                    | 1             | Child (<24 months)      | Dried dagaa and cichlids, and fresh or fried tilapia and Nile perch | <i>Rastrineobola argentea</i> , <i>Cichlidae</i>  | FW     | -               | -                                      |
| Malawi            | 2018-19 | Mangochi District                                  | 2             | Child (6-15 months)     | Small fish (not identified)   | <i>Engraulicypris sardella</i>  | FW     | 3.35            | 37%                                    |
| Uganda            | 2018    | Eastern Uganda                                     | Lydia O'Meara | WRA (NPNL)              | Sun-dried fish  | <i>Rastrineobola argentea</i>   | FW     | 12.75           | 31%                                    |
| Uganda            | 2018    | Eastern Uganda                                     | Lydia O'Meara | Child (12-23 mo)        | Sun-dried fish  | <i>Rastrineobola argentea</i>   | FW     | 2               | 22%                                    |
| Uganda            | 2018    | Eastern Uganda                                     | 3             | Child (12-23 months)    | Small fish with bones   | <i>Rastrineobola argentea</i>   | FW     | 2               | 22%                                    |
| Uganda & Tanzania | -       | Northwestern Tanzania and Central Uganda           | 4             | Child (12-59 months)    | Dried or fried  | <i>Rastrineobola argentea</i>   | FW     | 15              | 167%                                   |
| Zambia            | -       | Lusaka   | 5             | Household               | Fresh, dried, smoked, salted fish.                                  | <i>Claris theodora</i> , <i>Rastrineobola argentea</i> , <i>Limnothrissa miodan</i> , <i>Stolothrissa miodon</i>                              | FW     | -               | -                                      |
| Ghana             | 2022    | Four coastal regions                               | 6             | Child (18-59 months)    | 40 small fish species, primarily fried (43%) or smoked (38%)        | <i>Sardinella aurita</i> , <i>Engraulis encrasicolus</i> , <i>Scomber colias</i>  | M      | 29.5            | 328%                                   |
| Ghana             | -       | National   | 7             | Child (6-23 months)     | -   | -   | M      | 17              | 189%                                   |
| Senegal           | -       | Dakar  | 8             | Adult Men (20-62 years) | No processing indicated.  | <i>Epinephelus aeneus</i> , <i>Sardinella sp.</i>   | M      | 33.17           | 81%                                    |
| Tanzania          | 2015    | Central Tanzania                                   | 9             | Child (6-23 months)     | Whole fish, dried or smoked   | Sardine and tilapia   | -      | -               | -                                      |
| Tanzania          | 2008-09 | Rufiji river floodplain                            | 10            | Household               | Fresh and sundried  | <i>Oreochromis urolepsis</i> , <i>Citharinus congicus</i> , <i>Synodontis rukwaensis</i> , <i>Rastrineobola argentea</i> , <i>Hilsa kelee</i> | FW & M | 86.3            | -                                      |
| Kenya             | 2021    | Southern Kenyan coast                              | 11            | -                       | Dried sardine ( <i>Sardinella gibbosa</i> )                         | <i>Sardinella gibbosa</i>   | M      | -               | -                                      |
| Ghana             | 2023    | Greater Accra, Volta, Central, and Western regions | 12            | Household               | Dried, smoked, or fried   | <i>Sardinella</i> , <i>Engraulis encrasicolus</i>   | M      | -               | -                                      |

**Table S1** | Species composition and portion size of dried fish consumption from studies conducted across East and West Africa. WRA = women of reproductive age. Table is ordered by the ‘Source’ column, indicating fish sourced from freshwater (FW, green) or marine (M, blue) ecosystems

| Ref. | Country       | Survey Name   | Total population   | Population year | N households | Avg. household size | Dried fish categories   | % households |            |            |
|------|---------------|---|--------------------|-----------------|--------------|---------------------|---|--------------|------------|------------|
|      |               |   |                    |                 |              |                     |   | Fish         | Fresh fish | Dried fish |
| 13   | Cote D'Ivoire | Enquête Harmonisée sur le Conditions de Vie des Ménages 2018-2019 | 28,873,034         | 2023            | 12,774       | 4.8                 | Poisson fumé mangni, Autres Poissons fumés  | 87%          | 57%        | 59%        |
| 14   | Malawi        | Fourth Integrated Household Survey 2016-2017                      | 20,931,751         | 2023            | 12,447       | 4.3                 | Dried fish (small, medium, large), Smoked fish (small, medium, large)                                     | 73%          | 22%        | 63%        |
| 15   | Nigeria       | General Household Survey Wave 4 2018-2019                         | 223,804,632        | 2023            | 4,976        | 5.2                 | Fish - smoked, Fish - dried   | 71%          | 16%        | 42%        |
| 16   | Senegal       | Enquête Harmonisée sur le Conditions de Vie des Ménages 2018-2019 | 17,763,163         | 2023            | 7,101        | 9.3                 | Poisson fumé Kethiakh (sardinelle), Autre Poisson fumé (Con fumé, yaboye ou obo fumé, ...), Poisson séché | 91%          | 86%        | 67%        |
| 17   | Tanzania      | National Panel Survey 2014-2015, Wave 4                           | 67,438,106         | 2023            | 3,352        | 5.3                 | Dried/salted fish and seafood   | 75%          | 58%        | 29%        |
| 18   | Uganda        | National Panel Survey 2010-2011                                   | 48,582,334         | 2023            | 2,657        | 7.1                 | Dry/Smoked fish   | 36%          | 17%        | 24%        |
|      |               |   | <b>407,393,020</b> |                 |              | <b>43,307</b>       |   |              |            |            |

**Table S2** | The number of households surveyed in LSMS, dried fish types and % household consuming each fish type, by country. Total population estimates from data.worldbank.org. Some households consumed both smoked and dried, meaning combined processed proportions may exceed 100%.

| Covariate                     | Definition  | Link with fish consumption   | Data source |
|-------------------------------|---|--|-------------|
| Proximity to inland waterbody | Distance from household to nearest large inland waterbody, km                                       | Households nearer to inland fish production sources are likely to have greater physical access to fish and at lower prices, thus associated with higher fish consumption | 19, 20      |
| Proximity to marine coastline | Distance from household to nearest marine coastline, km   | Households nearer to marine fish production sources are likely to have greater physical access to fish and at lower prices, thus associated with higher fish consumption | 19, 20      |
| Proximity to urban centres    | Travel time from household to nearest urban centre via surface transport (based on 2015 data)       | Urban centres likely to have greater availability of fish products, through trade routes, and lower fish prices, thus associated with higher fish consumption            | 21          |
| Wealth                        | Total expenditure on items in the past 3 months (square root and scaled to Purchasing Power Parity) | Dried fish are more affordable than fresh fish and so may be consumed more by poorer households  | LSMS, 22    |
| Household size                | Number of people in household   | Larger households consume more foods and thus may be more likely to have consumed fish in the past 7 days  | LSMS        |
| Household cluster             | Nested intercept of household cluster (defined by country survey)                                   | Non-independence of diet surveys from neighbouring households  | LSMS        |
| Household country             | Country intercept   | Country-level prevalence of fish consumption   | LSMS        |

**Table S3** | Explanatory covariates used in LSMS models of dried and fresh fish consumption. LSMS is supplementary refs. 13-18.

|                         | Calcium,<br>mg | Iron,<br>mg | Zinc,<br>mg | Selenium,<br>µg | Iodine,<br>µg | Vitamin B12,<br>µg | Vitamin A,<br>µg | Vitamin D,<br>µg | Omega-3<br>(EPA + DHA),<br>g | Cadmium,<br>µg | Lead,<br>mg/kg                 | Mercury,<br>µg |
|-------------------------|----------------|-------------|-------------|-----------------|---------------|--------------------|------------------|------------------|------------------------------|----------------|--------------------------------|----------------|
| Children<br>0.5-5 years | 450            | 7.5         | 4.1         | 20              | 110           | 0.8                | 250              | 5                | 0.7                          | 0.32           | 0.05                           | 0.02           |
| Women<br>15-49 years    | 1150           | 30.1        | 11.4        | 55              | 150           | 2.4                | 650              | 5                | 1.1                          | 1.625          | 0.05                           | 0.104          |
| Guideline               | RNI            | RNI         | PRI         | RDA             | RDA           | RNI                | PRI              | RNI              | AI                           | PTMI           | Maximum<br>regulatory<br>limit | TWI            |
| Source                  | 23             | 23          | 24          | 25              | 26            | 23                 | 24               | 23               | 27                           | 28             | 29                             | 30             |

**Table S4** | Nutrient reference values and contaminant limits. Values are the per capita recommended intakes per day (for nutrients), or healthy limits per day, week, or month (for contaminants), for young children and non-pregnant, adult women. Iron requirements assume 10% bioavailability (i.e. diets with moderate phytate concentrations and some meat/fish). Zinc requirements assume an estimated phytate intake level of 900 mg/day (i.e. a semi-unrefined diet). Cadmium and mercury tolerable intakes were estimated for a child of 12.8 kg and adult woman of 65 kg. RNI = Recommended Nutrient Intake, PRI = Population Reference Intake, RDA = Recommended Dietary Allowance, AI = Adequate Intake, PTMI = Provisional Tolerable Monthly Intake, TWI = Tolerable Weekly Intake.

## Dataset Legends

**Dataset S1** | Nutrient concentrations in fresh and processed fish samples.

## Supplementary References

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