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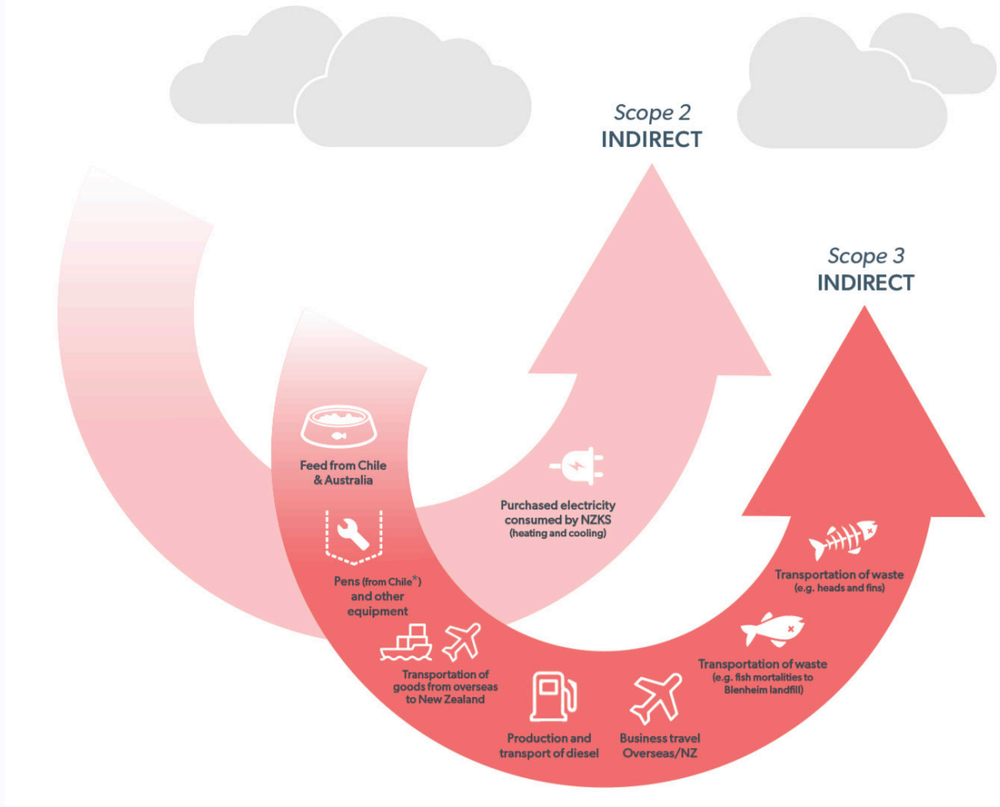
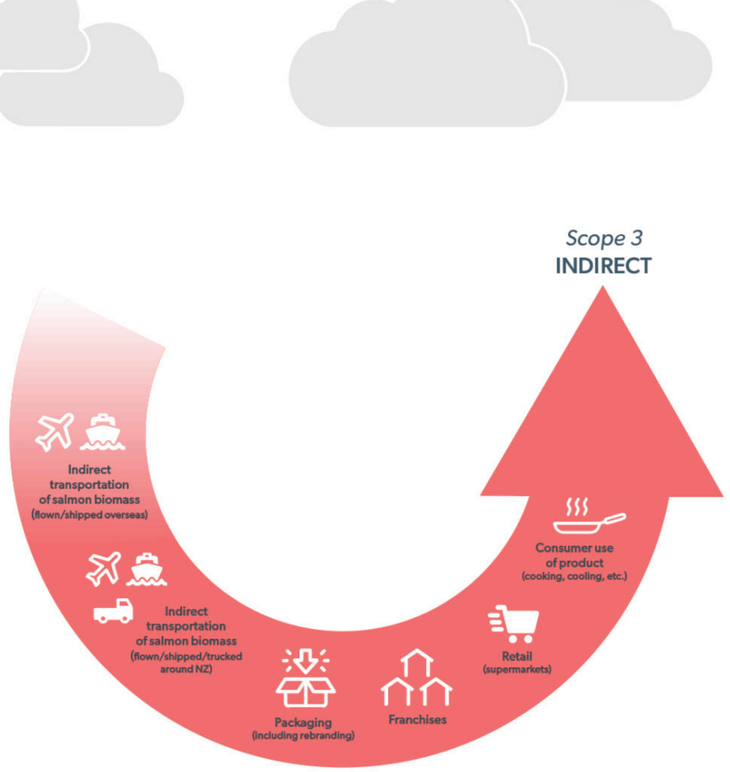
# Infographic 5: A carbon assessment and life-cycle analysis of NZKS's business model

This infographic forms part of the McGuinness Institute's OneOceanNZ project. For references see www.mcguinnessinstitute.org/publications/infographics

## A: A carbon assessment – Exploring Scope 1, 2 and 3 for New Zealand King Salmon's business model

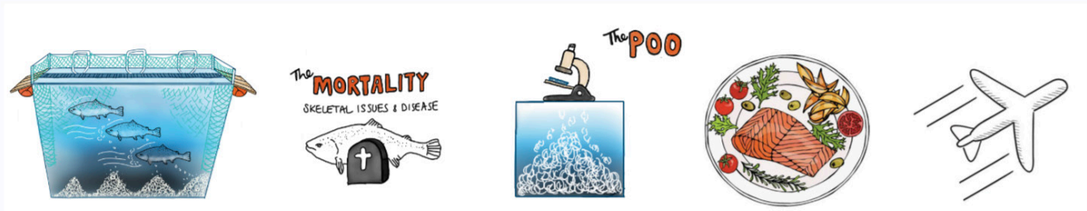







## B: Life-cycle analysis – Exploring New Zealand King Salmon's business model

**Upstream activities** → **Reporting company** → **Downstream activities**


| | SALMON FEED | IMPORTS | FEED VOLUME | DIESEL UPWELLING SYSTEMS | HARVESTED BIOMASS | MORTALITY | FAECES | SALES VOLUME | OVERSEAS |
|---|---|---|---|---|---|---|---|---|---|
| 2023 | FY2019 (p. 42) | Feed largely from Tasmania, Australia. FY2023 (p. 7) | **18,616 t (est)** FY2023 (pp. 10, 85)** | Cool water is pumped up to the surface of farm pens. FY2019 (p. 10) | **6834 t** (Live weight) FY2023 (p. 85) | **4381 t (est)** **$25.9 m (cost)** FY2023 (p. 85)*** | **3723 t (est)** (20% of feed)**** | **5837 t** FY2023 (p. 9) | **3443 t (59%)** Major countries include Australia, Japan and the US. FY2023 (pp. 13, 91) |
| 2019 | FY2019 (p. 42) | Feed from Chile and Australia. Pens from Chile. FY2019 (p. 86)* | 19,593 t FY2019 (p. 13, 85)** | Cool water is pumped up to the surface of farm pens. FY2019 (p. 10) | 9013 t (Live weight) FY2019 (p. 82) | 2954 t (est) $17.5 m (cost) FY2019 (pp. 13, 82)*** | 3919 t (est) (20% of feed)**** | 7520 t FY2019 (p. 12) | 4060 t (54%) FY2019 (p. 59) |

**Assumptions and estimates**

* Imports: See FY2019 (p. 86); FY2023 (p. 7). See also Winter, C. (8 January 2015). Chilean firm wins King Salmon contract. Stuff. Retrieved 13 June 2023 from www.stuff.co.nz/business/farming/aquaculture/64750652/chilean-firm-wins-king-salmon-contract

** Feed volume in tonnes: [Total live weight harvested + mortality (est, see ***)] x Feed conversion ratio (FCR) (FY2023, pp. 10, 85: [6834 t + 4381 t (see very estimated figure in *** below)] x 1.66 = 18616 t) (FY2019, p. 13).

*** Mortality in cost and tonnes: [Feed volume p.a. divided by FCR] - harvest volume p.a. (FY2019, p. 13: [19593 t / 1.8] - 7931 t = 2954 t). 2023: We have used FY2019 figures to estimate the relationship between cost of mortality and tonnes of mortality. (FY2023: [2019 $17,465,000 cost / 2954 t = $5,912 cost of mortality per t, then 2023 $25,943,000 cost / 2019 $5,912 cost of mortality per t = 4381 t (a rough estimate)). Note: We could not find feed volume in either FY2022 or FY2023, and we could not rely on FY2021 (as it was a seven-month financial year) or FY2020 (as the financial results were significantly impacted by COVID-19).

**** Faeces: NZKS BOI June 2012 Wybourne: 'Skretting expects that about 20% of the dry matter consumed is excreted as faeces, for NZ King Salmon current salmon diet range'. Faeces estimate based on 20% of feed volume (FY2023: 18616 (pp. 10, 85) (est, see **) x 0.2 = 3723) (FY2019, p. 13: 19,593 x 0.2 = 3919)