Technical University of Denmark



Carryover of CH3Hg from feed to sea bass and salmon

Rasmussen, Rie Romme; Håland, Weronica; Larsen, Bodil Katrine; Kotterman, Michiel; Sloth, Jens Jørgen; Marques, António T. ; Granby, Kit

Publication date: 2017

Document Version Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):

Rasmussen, Ŕ. R., Håland, W., Larsen, B. K., Kotterman, M., Sloth, J. J., Marques, A. T., & Granby, K. (2017). Carryover of CH3Hg from feed to sea bass and salmon. Poster session presented at Seafood Safety, Brussels, Belgium.

DTU Library Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.

- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



safety assessment, impact and public perception

www.ecsafeseafood.eu

Carryover of CH₃Hg from feed to sea bass and salmon

Rasmussen RR¹; Håland W¹; Larsen BK¹; Kotterman M²; Sloth JJ¹; Marques A³; Granby K¹ 1) Technical University of Denmark (DTU), 2) Wageningen Marine Research, IJmuiden, The Netherlands, 3) Portuguese Institute for the Sea and Atmosphere (IPMA)

Model. Fish concentration (C_{fish}) as a function of feed uptake, elimination (k_E) and growth dilution

 (k_{G}) , where uptake depends on feed concentration (C_{feed}) , assimilation (α) and feeding rate (F). From fish and feed weight (w), specific growth rate (SRG) and feed conversion rate (FCR) are calculated.

$$\frac{dC_{fish}}{dt} = \alpha \cdot \mathbf{F} \cdot C_{feed} - k_E \cdot C_{fish}$$

$$FCR = W_{feed \ consumed} \ / \ \Delta W_{fish \ gained} \quad [1]$$

$$k_G = SGR = (\ln w_t - \ln w_0)/t \quad [2]$$

$$C_{fish\ growt\ corrected}(t) = C_{fish} \cdot (1 + k_G \cdot t) \quad [3]$$

 $\ln \left(C_{fish} - C_{fish, \, control \, diet} \right) = constant - k_E \cdot t \quad [4]$

correct

$$C_{fish}(t) = \frac{\alpha \cdot F \cdot C_{feed}}{k_E} \cdot (1 - \exp(k_E \cdot t))$$
[5]

estimate



calculate



100 100 125 125 [days] 25 50 /5 25 50 75 100 50 /5 0 125 [days] [days]

Conclusion. Toxicokinetics were modeled. Feed with low levels of CH_3Hg (41-75 ng/g) showed assimilation (α) close to 100% and low elimination (k_F) . Similar results for all diets.

Results.	Hg [ng/g]	Salmon		Sea bass	
Diets	C_{feed}	k _E	α	k _E	α
1) Spiked plastic	64	-4·10 ⁻³	0.69	1·10 -3	1.04
2) Spiked oil + clean pla	stic 74	1·10 -4	0.98	-4·10 ⁻⁴	0.96
3) Spiked oil	75	-9·10 ⁻⁴	0.84	2·10 ⁻⁴	1.08
O 4) Control	41				



calculate

The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement no 311820. This publication reflects the views only of the author, and the European Union cannot be held responsible for any use which may be made of the information