Dietary L-methionine requirement of juvenile turbot 
(Psetta maxima)

S.F. Klatt 1,2*, A. Susenbeth 1, C. Schulz 2,3

1 Institute of Animal nutrition and Physiology, Christian-Albrechts-Universität zu Kiel, Germany
2 Gesellschaft für marine Aquakultur, Büsum, Germany
3 Institute of Animal Breeding and Husbandry, Christian-Albrechts-Universität zu Kiel, Germany

*e-mail: klatt@aninut.uni-kiel.de

Background & Objectives
- High amounts of protein are required in the diets (~58%) for the juvenile turbot leading to a low protein use efficiency.
- The use of protein and amino acid sources other than fish meal requires precise knowledge of the amino acid requirement.
- Methionine plays an important role, since the risk of amino acid imbalances might be increased when using legume proteins (deficiency) and feather meal or canola protein (oversupply, toxicity).
- The current study aims to determine the methionine requirement as well as the effect of deficient and excess methionine on growth and health parameters.

Materials & Methods
Dose-response-trial (56 feeding days) at a constant Cys-level
- 9 diets differing in the L-Met-concentration (n=3 per treatment) were fed once a day until apparent satiation.
- All diets were kept isoenergetic and isonitrogenous by balancing with nonessential amino acids (glutamic acid, glycine, alanine).
- Tanks (60L) were initially stocked with 12 juvenile turbots (25±3 g body weight), respectively.

Results

Figures: Daily feed intake (% body weight (= BW) d⁻¹), feed to gain ratio and specific growth rate (% BW d⁻¹) of turbot during 56 days at 9 different Met+Cys levels in the diets (feed in DM).

Conclusions
- The optimum methionine (incl. 0.3% Cys) concentration can be defined as 1.4-1.6% in diet dry matter or 2.4-2.8% in protein independent of the parameter used (feed intake, feed to gain ratio, growth).
- Methionine deficiency and oversupply strongly reduces feed intake and growth.
- Physiological parameter recorded in this study as well will provide further information about the toxic effect of a surplus of sulphur amino acids.