



# Analysis of Soyprotein as a Fish Meal Substitute: Growth Performance

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## Introduction

- The Significance of Sustainable Alternatives to Fish Meal in Aquaculture
- Reducing pressure on natural fish populations due to fish meal production and overfishing
- How does inclusion of soyprotein affect growth

## Methods

### Search strategy

- Keywords: "soy protein concentrate", "fish meal", "aquaculture", "growth", "nutrition".
- English litteratur, 1999-2023

### Data collection

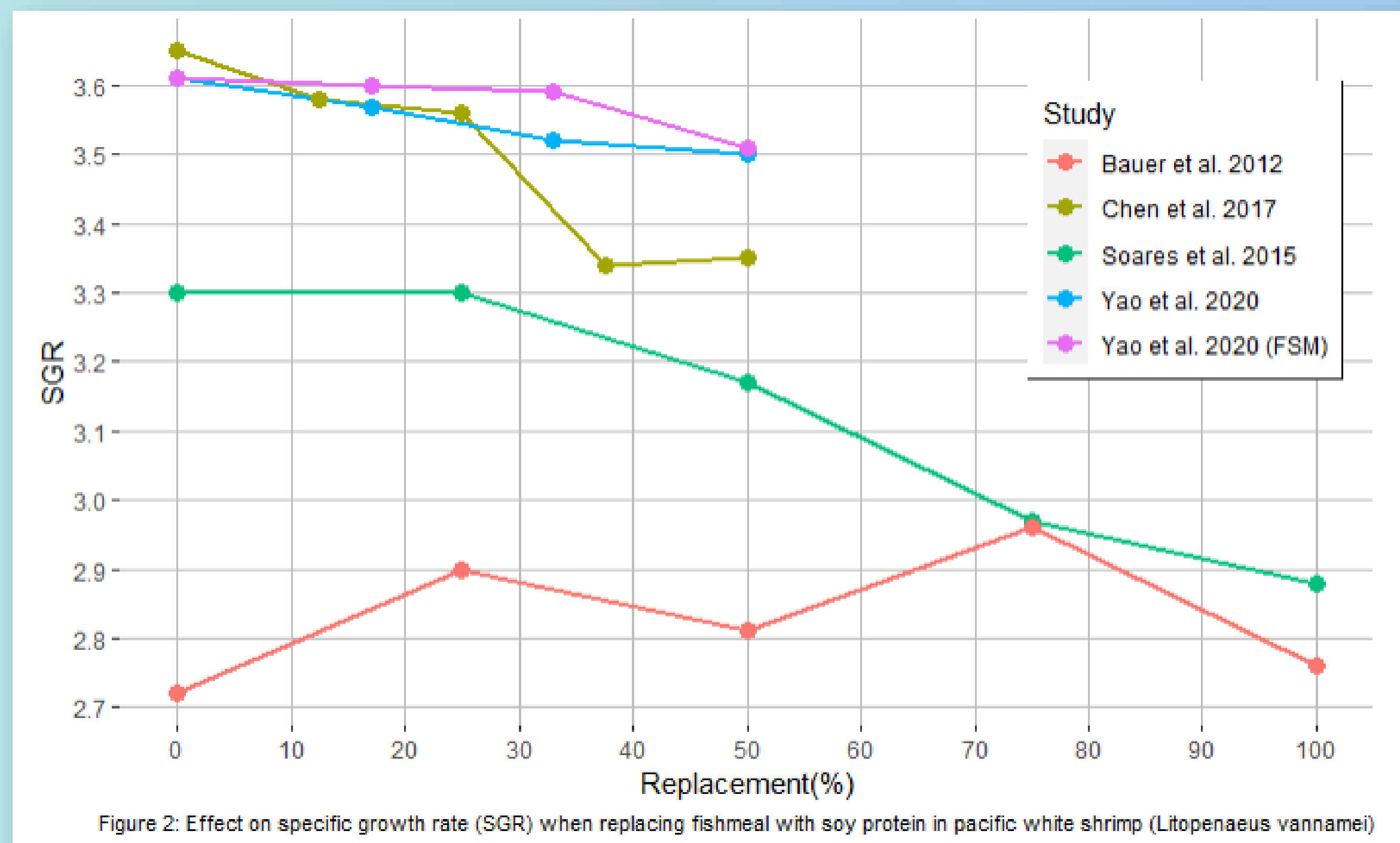
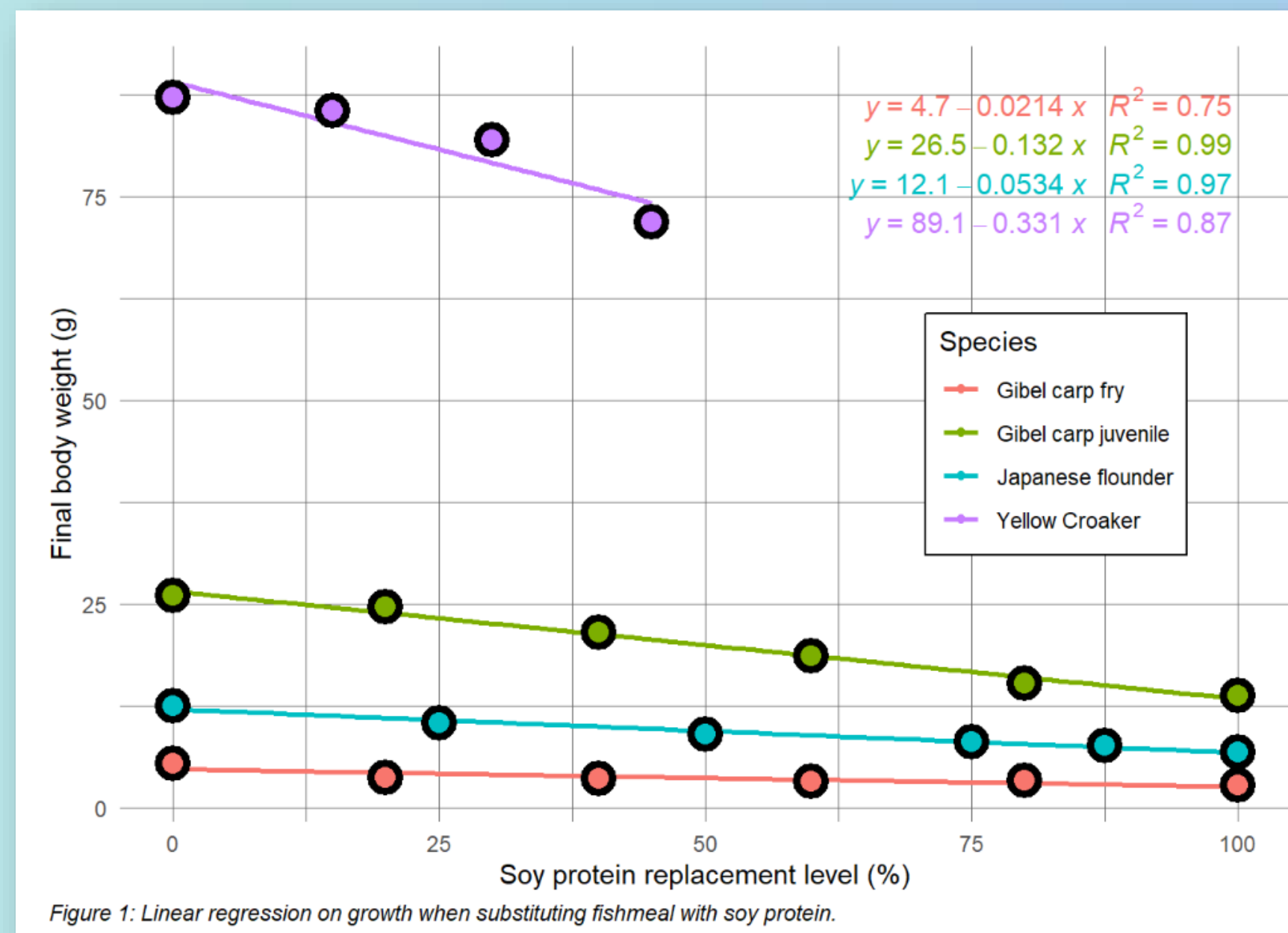
- Manual extraction of relevant data from included papers.
- Criteria: species, life stage, weight, experimental setup, duration, feed variation, nutritional composition.

### Data Synthesis

- Quantitative and qualitative approach to synthesize collected data. Results were presented initially in a quantitative phase, followed by qualitative exploration to enhance understanding. Integration of these findings was emphasized in the discussion.

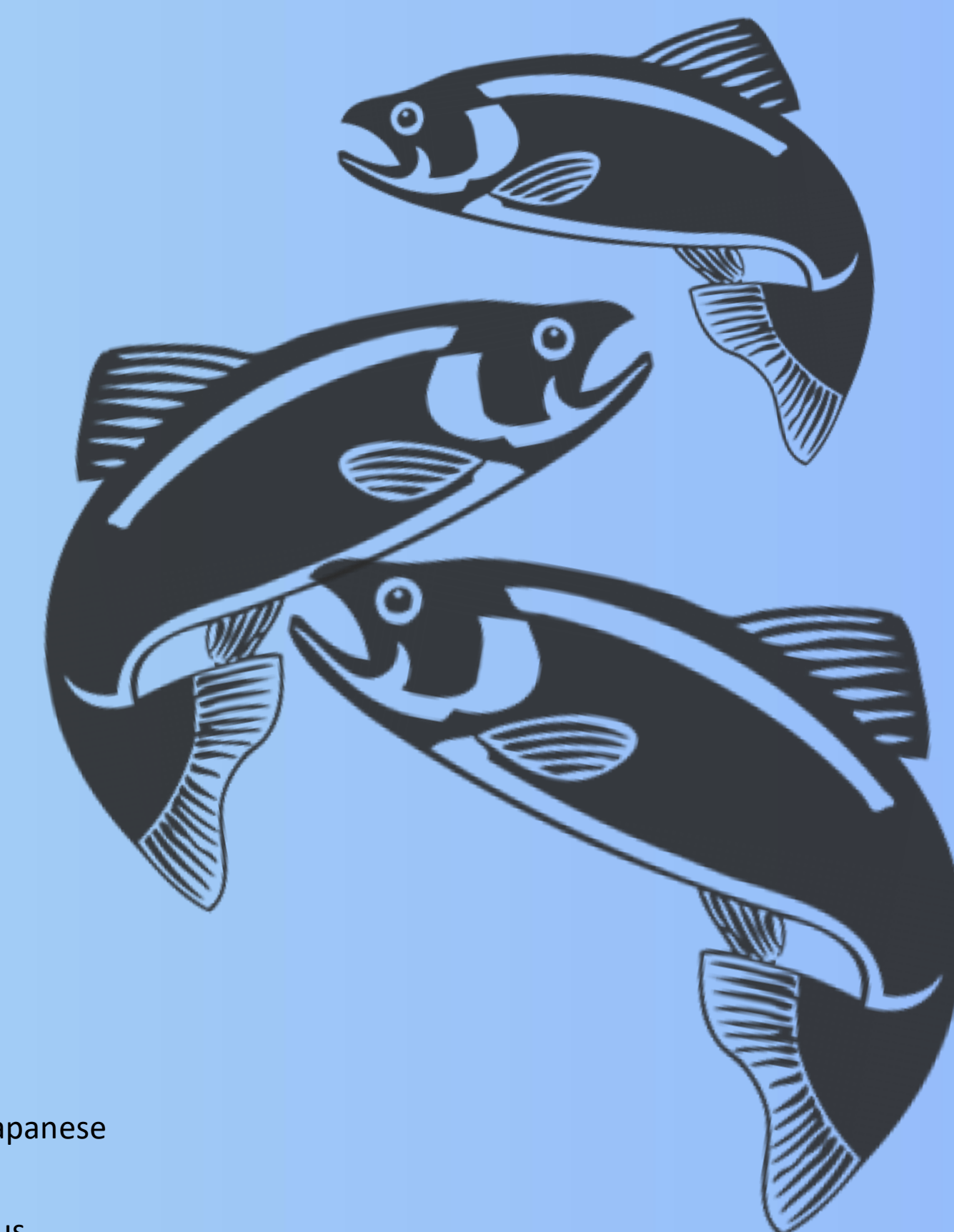
### Quality Assessment

- Studies underwent a quality assessment, considering parameters, bias risk, and publication source. All examined papers demonstrated correct study design with a low overall risk of bias.



## Results

1. **The majority of studies** shows that SPC is a protein-rich ingredient with a well-balanced amino acid profile, making it an effective substitute for fishmeal in aquaculture diets
2. **Partial Substitution Range:** Studies explore partial substitution, ranging from 0% to 100% replacement of fish meal with SPC.
3. **Complete Substitution:** Complete substitution may result in reduced specific growth rates (SGR).
4. **Species-Specific Impact:** Growth performance effects vary based on the species studied.



## References

- Junming, Deng et al. (2006) 'Effects of replacing fish meal with soy protein concentrate on feed intake and growth of juvenile Japanese flounder, *Paralichthys olivaceus* - ScienceDirect', Aquaculture
- Liu, H. et al. (2016) 'Effect of substitution of dietary fishmeal by soya bean meal on different sizes of gibel carp (*Carassius auratus gibelio*): nutrient digestibility, growth performance, body composition and morphometry', Aquaculture Nutrition, 22(1), pp. 142–157
- Xuexi Wang et al. (2023) Partial Substitution of Fish Meal with Soy Protein Concentrate on Growth, Liver Health, Intestinal Morphology, and Microbiota in Juvenile Large Yellow Croaker (*Larimichthys crocea*)