# Article information:

Sagging damage characteristics of hull girder with trapezoidal cross-section subjected to near-field underwater explosion - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S2214914721001884>

# Article summary:

1. Warships are primarily attacked by near-field underwater explosions of explosive devices such as torpedoes or mines, which can cause large plastic deformation and overall sagging and hogging damage to the hull girder.

2. Previous research has focused on theoretical and experimental studies of the dynamic response of hull girders with rectangular sections, but this paper presents an experimental study of a hull girder with a trapezoidal cross-section, considering mass distribution and attack position.

3. The study found that the overall deformation damage of a girder subjected to UNDEX varies with stand-off distance and attack angle, and that the ratio of stand-off distance to maximum bubble radius affects the bubble pulsation and dynamic response of the hull girder.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article titled "Sagging damage characteristics of hull girder with trapezoidal cross-section subjected to near-field underwater explosion" provides an overview of the damage modes of warships under near-field underwater explosions. The article discusses the research conducted on the overall dynamic response of warships subjected to UNDEX using various research approaches, including theoretical and experimental studies.

The article highlights that damage to the warship is mainly induced by large plastic deformation caused by overall sagging and hogging, with more serious consequences, and the ship may sink. The article also presents a study on the overall sagging and hogging damage modes of a hull girder with a trapezoidal cross-section. The mass distribution and attack position were considered in this study.

While the article provides valuable insights into the damage modes of warships under near-field underwater explosions, it has some potential biases and limitations. Firstly, the article only focuses on one type of explosive device (torpedoes or mines) used in modern naval battles. It does not consider other types of explosive devices or attacks that can cause damage to warships.

Secondly, while the article mentions that numerous simplifications were made in previous experimental studies, it does not provide details about these simplifications or their potential impact on the results. This lack of information makes it difficult for readers to assess the validity and reliability of previous studies.

Thirdly, while the article presents an experimental study on the overall sagging and hogging damage modes of a hull girder with a trapezoidal cross-section, it does not provide details about other potential damage modes or their severity. This limitation makes it difficult for readers to understand the full extent of damage that can occur under near-field underwater explosions.

Fourthly, while the article mentions that research in this area is relatively limited due to confidentiality reasons and challenges associated with performing experiments on warships' overall damage, it does not provide any information about these challenges or how they can be addressed in future research.

Finally, while the article provides valuable insights into potential risks associated with near-field underwater explosions for warships, it does not present both sides equally. The article only focuses on potential damages caused by such explosions but does not discuss any potential benefits or advantages associated with them.

In conclusion, while this article provides valuable insights into potential damages caused by near-field underwater explosions for warships, it has some limitations and biases that need to be considered when interpreting its findings. Future research should address these limitations and biases to provide a more comprehensive understanding of this topic.

# Topics for further research:

* Types of explosive devices used in naval battles
* Limitations and simplifications in previous experimental studies on warship damage
* Other potential damage modes and severity under near-field underwater explosions
* Challenges associated with performing experiments on warships' overall damage
* Potential benefits or advantages associated with near-field underwater explosions for warships
* Overall dynamic response of warships under UNDEX using various research approaches

# Report location:

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