



# Smart Contract Security Audit Report

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## Fish

November 2022

Security Status



[www.hacksafe.io](https://www.hacksafe.io)



# Audit Details



## Audited project

Fish



## Deployer address

0x1cb757f1eb92f25a917ce9a92ed88c1ac0734334



## Client contacts

Fish Team



## Blockchain

Polygon



## Website

<https://polycat.finance/>



# Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.



# Procedure

## **Step 1 - In-Depth Manual Review**

Manual line-by-line code reviews to ensure the logic behind each function is sound and safe from various attack vectors. This is the most important and lengthy portion of the audit process (as automated tools often cannot find the nuances that lead to exploits such as flash loan attacks).

## **Step 2 - Automated Testing**

Simulation of a variety of interactions with your Smart Contract on a test blockchain leveraging a combination of automated test tools and manual testing to determine if any security vulnerabilities exist.

## **Step 3 – Leadership Review**

The engineers assigned to the audit will schedule meetings with our leadership team to review the contracts, any comments or findings, and ask questions to further apply adversarial thinking to discuss less common attack vectors.

## **Step 4 - Resolution of Issues**

Consulting with the team to provide our recommendations to ensure the code's security and optimize its gas efficiency, if possible. We assist project team's in resolving any outstanding issues or implementing our recommendations.

## **Step 5 - Published Audit Report**

Boiling down results and findings into an easy-to-read report tailored to the project. Our audit reports highlight resolved issues and any risks that exist to the project or its users, along with any remaining suggested remediation measures. Diagrams are included at the end of each report to help users understand the interactions which occur within the project.

# Background

HackSafe was commissioned by Fish to perform an audit of smart contracts:

- <https://polygonscan.com/address/0x3a3Df212b7AA91Aa0402B9035b098891d276572B#code>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be understood to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

# Contract Details

## Token contract details for 29.11.2022

Token Type	: DEFI
Contract name	: FishToken
Contract address	: 0x3a3Df212b7AA91Aa0402B9035b098891d276572B
Total supply	: 2,999,952.405361
Token ticker	: FISH
Decimals	: 18
Token Holders	: 11,449
Transactions count	: 14,008,818
Compiler version	: v0.6.12+commit.27d51765
Contract deployer address	: 0x1cb757f1eb92f25a917ce9a92ed88c1ac0734334
Owner address	: 0x8cfd1b9b7478e7b0422916b72d1db6a9d513d734

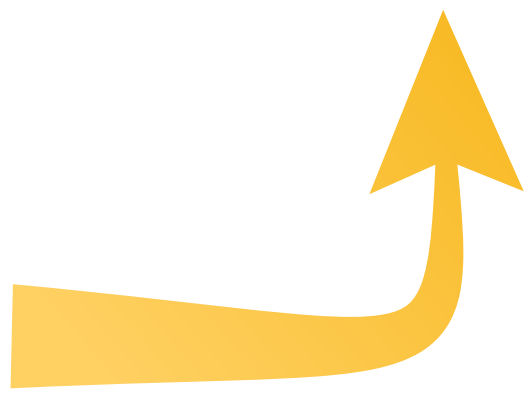


# Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are **“Secure”**. This token contract does contain owner control, which do not make it fully decentralized as owner does have control over smart contract.

Insecure	Poor secured	Secure	Well-secured
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We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 1 low.

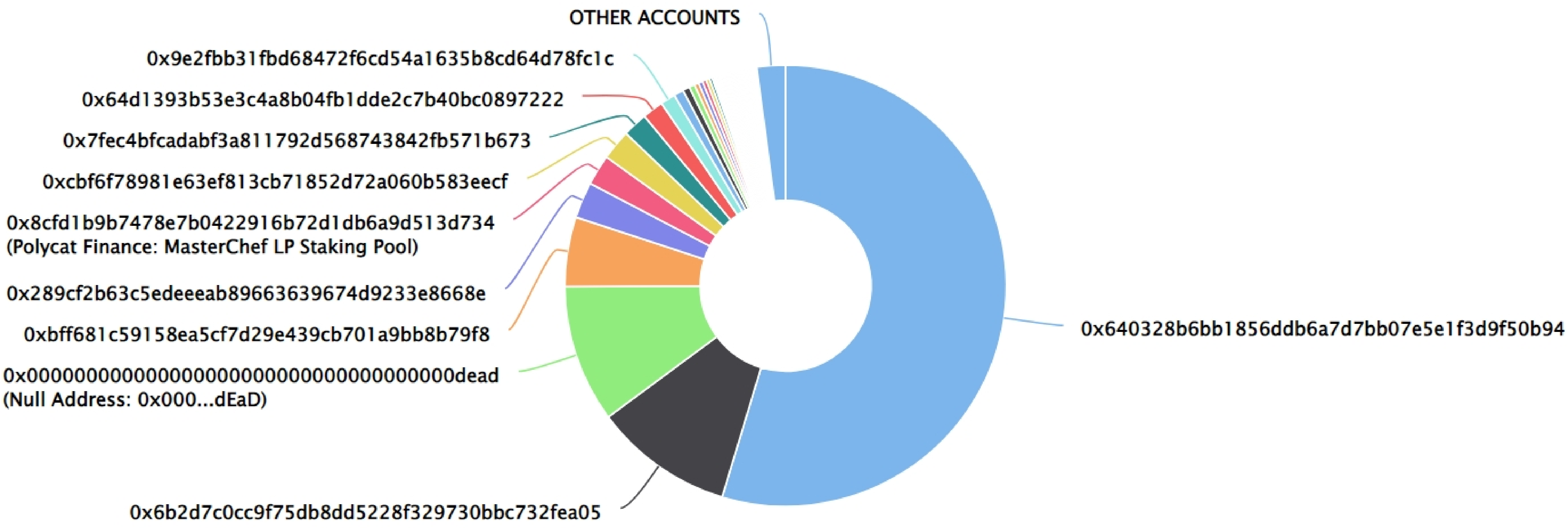
# Fish Distribution

💡 The top 100 holders collectively own 97.90% (2,937,082.95 Tokens) of Fish

💡 Token Total Supply: 2,999,952.41 Token | Total Token Holders: 11,448

Fish Top 100 Token Holders

Source: [polygonscan.com](#)



## Fish Top 20 Token Holders

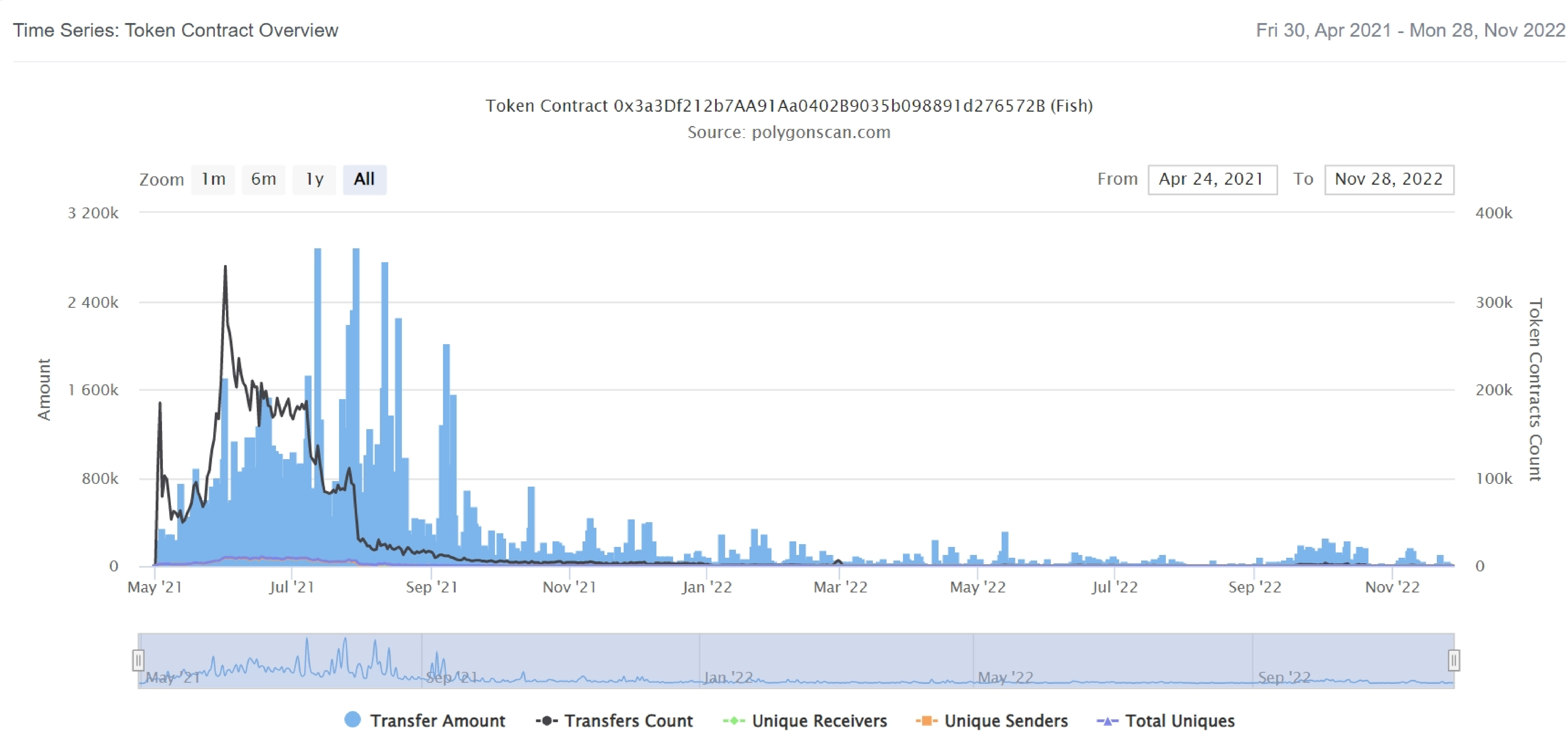
(A total of 2,937,082.95 tokens held by the top 100 accounts from the total supply of 2,999,952.41 token)

Rank	Address	Quantity (Token)	Percentage
1	0x640328b6bb1856ddb6a7d7bb07e5e1f3d9f50b94	1,639,625.840558407801759952	54.6551%
2	0x6b2d7c0cc9f75db8dd5228f329730bbc732fea05	306,435.451169678840343429	10.2147%
3	Null Address: 0x000...dEaD	302,253.373975899150309894	10.0753%
4	0xbff681c59158ea5cf7d29e439cb701a9bb8b79f8	152,728.268422715050640021	5.0910%
5	0x289cf2b63c5edeeab89663639674d9233e8668e	79,378.660302242959780946	2.6460%
6	Polycat Finance: MasterChef LP Staking Pool	67,021.983162079333261978	2.2341%
7	0xcbf6f78981e63ef813cb71852d72a060b583eecf	66,568.047669992821941065	2.2190%
8	0x7fec4bfcadabf3a811792d568743842fb571b673	54,516.760395915115133497	1.8173%
9	0x64d1393b53e3c4a8b04fb1dde2c7b40bc0897222	46,386.273371189049628857	1.5462%
10	0x9e2fbb31fbd68472f6cd54a1635b8cd64d78fc1c	32,981.8358776669455102	1.0994%
11	0xc7080deb5d75d528ba36eb3bec0b4c27797752fa	21,046.503703787100941273	0.7016%
12	0xb34ed85bc0b9da2fa3c5e5d2f4b24f8ee96ce4e9	15,686.960039320488985604	0.5229%
13	0x44825bf3b74695bd72ed247d62dd755e67b7ed87	12,209.43647939939674013	0.4070%
14	0xf8c7977a755e730c2351a40fa97f2449f387e63c	9,647.125243906578365834	0.3216%
15	0x8eabcd9ba957eabbab4b43b68596b3b5ef77650	8,871.124734569083146978	0.2957%
16	0xe63cec53980152f19506ad9191341b2e723748e5	8,654.252264558411027664	0.2885%
17	0x0df9e46c0eaedf41b9d4bbe2cea2af6e8181b033	7,646.668632131126228435	0.2549%
18	0x1933e2f8e4d10e11b72fd9ba7dc4f6f8746f8370	6,370.876743715157526704	0.2124%
19	0x46c8be37ff8cedf09b88e457369033876087197e	4,115.068027110873299523	0.1372%
20	0xda849368c5a78c1c8896a0043e1de84768ee4eef	4,059.283645002801470128	0.1353%



# Fish Distribution

## Fish Contract Overview



# Contract functions details

FishToken.sol

FishToken (ERC20, Ownable)

- [Pub] mint #
- modifiers: onlyOwner
- [Ext] delegates
- [Ext] delegate
- [Ext] delegateBySig
- [Ext] getCurrentVotes
- [Ext] getPriorVotes
- [Int] \_delegate
- [Int] \_moveDelegates
- [Int] \_writeCheckpoint
- [Int] safe32
- [Int] getChainId

Address.sol

+ [Lib] Address

- [Int] isContract
- [Int] sendValue
- [Int] functionCall
- [Int] functionCall
- [Int] functionCallWithValue
- [Int] functionCallWithValue
- [Pvt] \_functionCallWithValue

Context.sol

+Context

- [Int] \_msgSender
- [Int] \_msgData

ERC20.sol

+ERC20 (Context, IERC20)

- [Pub] <constructor>
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance



# Contract functions details

- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Int] \_transfer #
- [Int] \_mint #
- [Int] \_burn #
- [Int] \_approve #
- [Int] \_setupDecimals #
- [Int] \_beforeTokenTransfer

IERC20.sol

- + [Int] IERC20
  - [Ext] totalSupply
  - [Ext] balanceOf
  - [Ext] transfer
  - [Ext] allowance
  - [Ext] approve
  - [Ext] transferFrom

Ownable.sol

- +Ownable (Context)
  - [Int] <constructor>
  - [Pub] owner
  - [Pub] renounceOwnership #
    - modifiers: onlyOwner
  - [Pub] transferOwnership #
    - modifiers: onlyOwner

SafeMath.sol

- + [Lib] SafeMath
  - [Int] add
  - [Int] sub
  - [Int] sub
  - [Int] mul
  - [Int] div
  - [Int] div
  - [Int] mod
  - [Int] mod

# Contract functions details

(\$)= payable function  
#= non-constant function



# Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Passed
2.	Missing Input Validation	Passed
3.	Race conditions and Reentrancy. Cross-function race conditions.	Passed
4.	Possible delays in data delivery	Passed
5.	Oracle calls.	Passed
6.	Timestamp dependence.	Passed
7.	Integer Overflow and Underflow	Passed
8.	DoS with Revert.	Passed
9.	DoS with block gas limit.	Passed
10.	Methods execution permissions.	Passed
11.	Economy model of the contract.	Passed
12.	Private use data leaks.	Passed
13.	Malicious Event log.	Passed
14.	Scoping and Declarations.	Passed
15.	Uninitialized storage pointers.	Passed
16.	Arithmetic accuracy.	Passed
17.	Design Logic.	Passed
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Low issue

# Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
High	High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
Low	Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution.



# Security Issues

## ✔ Critical Severity Issues

No critical severity issue found.

## ✔ High Severity Issues

No high severity issue found.

## ✔ Medium Severity Issues

No medium severity issue found.

## ✔ Low Severity Issues

One low severity issue found.

### 1. Old compiler version

- **Description**

Contract has been deployed using too old solidity version.

- **Recommendation**

It is advisable to deploy contract using any of the latest version of solidity

# Centralization

## Owner Privileges :

- Fish Contract:
  - Owner can renounce and transfer ownership.
  - Owner can mint.

This smart contract has some functions which can be executed by the admin (Owner) only. If the admin wallet private key would be compromised, then it would create trouble as smart contract ownership has not been renounced. Following are Admin functions:

- mint
- transferOwnership
- renounceOwnership



# Conclusion

Smart contract contains low severity issues! The further transfer and operations with the fund raised are not related to this particular contract.

HackSafe note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.