# Grizzly Insurance

 Z-FLOOD Analysis

by Zesty.AI

## Abstract

Zesty.Ai’s innovative flood assessment tool, Z-FLOOD, aimed at assisting insurance companies in comprehending the flood-related risks associated with each property under consideration for insurance coverage. Z-FLOOD has demonstrated remarkable predictive capabilities, enabling the establishment of two critical risk metrics:

1. **Flood Occurrence Score:** This metric quantifies the probability of a property being susceptible to flooding, with scores ranging from 1 (indicating minimal risk, such as properties atop mountains) to 10 (reflecting significant risk, such as those situated adjacent to rivers).
2. **Flood Damage Score:** Z-FLOOD also assigns a score to assess the potential damage a home might experience in the event of a flood. Scores range from 1 (indicating low risk, such as homes elevated on pillars) to 10 (representing high risk, such as residences with deep basements).

Grizzly Insurance, a potential client of Zesty.ai, has collaborated with our organization by sharing their insurance policy portfolio for testing Z-FLOOD's effectiveness. Z-FLOOD was utilized to evaluate all policies within Grizzly Insurance's portfolio providing comprehensive flood risk assessments.

As Grizzly Insurance considers the adoption of Z-FLOOD, this analysis endeavors to illuminate the potential value and benefits that the tool could offer. Through careful examination and quantification, the following aspects will be addressed:

* The transformation of Grizzly Insurance's existing portfolio with the incorporation of Z-FLOOD.
* The multifaceted advantages that Grizzly Insurance stands to gain from integrating Z-FLOOD into their operations.
* A meticulous exploration and quantification of the positive impact that Z-FLOOD could have on Grizzly's profitability and overall financial performance.
* Strong case for Grizzly insurance to adopt Z-FLOOD software in its operations.

This analysis aims to provide Grizzly Insurance with a comprehensive understanding of the tangible benefits and potential outcomes associated with adopting Z-FLOOD, ultimately guiding their decision-making process and contributing to their risk assessment and underwriting strategies.

## Grizzly Insurance Portfolio Analysis and Impact of Z-FLOOD

**Grizzly Insurance Portfolio Stats:**

Properties Insured = 173,979

Net Insured Value= $88,202,144,840 (approx. 88 billion)

Average Insured Value= $506,973

Net Annual Premium= $209,933,678 (approx. 209 million)

Average Annual Premium= $1,207

Average Insured Claim Value (20%) = $101,395

Average Premium to Average Claim Ration = 0.01121

Average Premium to Insured Value Ration = 0.00224

Note:

* We do not have geographical data of the properties to have further geotagged analysis of the portfolio.

**Grizzly Insurance Portfolio with Z-FLOOD:**

Flood Occurrence Score = 3.81

Flood Damage Score = 6.75

Net Risk Score (Occurrence Score x Damage Score) = 28.01

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Flood occurrence score* | *Flood damage score* | *Insured value* | *Policy Annual Premium* |
| Flood occurrence score | 1 |  |  |  |
| Flood damage score | 0.41513238 | 1 |  |  |
| Insured value | 0.357770871 | 0.101498968 | 1 |  |
| Policy Annual Premium | 0.541212289 | 0.226658988 | 0.774233297 | 1 |

Table 1 : Correlation Analysis

**Adjusting Premium based on Z-Flood Scores:**

**Limitations**:

* Not knowing the current mechanism used for premium calculation with respect to insured value. We could use relationship equation but that’s not very accurate representation with varied data values.
* Not knowing the company risk policy to understand the acceptable risk range along with respective premium adjustor, so we created a sample policy.

**Sample Risk Policy Used for Predictions:**

* Low risk for risk score between 0 and 40. Using premium adjustor of 0.8.
* Medium risk for risk score between 40 and 70. Using premium adjustor of 1.5.
* High risk for risk score between 70-100. Using premium adjustor of 2.

Average Predicted Annual Premium

(current premium x risk adjustor based on risk policy) = $1,400

Annual Premium Current = $209 million

Annual Premium Predicted = $243 million

**Average Premiums for different risk classes:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No. of. Properties | Current | | Predicted | |
| Annual Premium | Average Premium | Annual Premium | Average Premium |
| Low Risk | 118,630 | 101.78 mil | 858.02 | 81.42 mil | 686.41 |
| Medium Risk | 45,901 | 88.8 mil | 1934.98 | 133.2 mil | 2902.46 |
| High Risk | 9450 | 19.3 mil | 2045.99 | 28 mil | 3068.98 |

Table 2: Graphical Representation of change in Portfolio with Z-FLOOD

**Relationship of premium and risk:**

Table 3: Relationship between current annual premium and risk

## Benefits of using Z-FLOOD

## Quantifying Z-FLOOD's Value to Grizzly's Profitability

## Grizzly Insurance to Adopt Z-FLOOD Analysis

## Conclusion