Journal of Marine Resources and Coastal Sustainability
Vol. 1, No. 01, October 2026: pp. 29-41
DOI: https://doi.org/10.71238/jmrcs.v1i01.209

Climate Risk Exposure, Reef Dependence, and Institutional Trust as Drivers of Fishers Support for Coral Reef Insurance in Gili Matra, Indonesia

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Article Info

Article history:
Received: October, 2026
Revised: October, 2026
Accepted: October, 2026

Keywords:
Climate Risk Exposure; Coral Reef Dependence; Coral Reef Insurance; Fishermen's Support; Institutional Trust

ABSTRACT

Climate change and coral reef degradation pose increasing threats to coastal livelihoods, highlighting the need for innovative ecosystem-based financing mechanisms. This study examines the relationships between climate risk exposure, dependence on coral reefs, institutional trust, and fishermen's support for coral reef insurance in Gili Matra, Indonesia. A quantitative explanatory approach was employed using a cross-sectional survey of 80 fishermen selected through purposive sampling. Primary data were collected through structured questionnaires using a five-point Likert scale and analyzed using multiple linear regression with SPSS version 25. The findings reveal that climate risk exposure, dependence on coral reefs, and institutional trust have positive and statistically significant relationships with fishermen's support for coral reef insurance. Institutional trust emerged as the strongest standardized predictor, emphasizing the importance of governance credibility in community acceptance. The regression model was statistically significant ($F = 18.573$; $p < 0.001$) and explained 42.3% of the variation in fishermen's support ($R^2 = 0.423$). These findings contribute to the literature by integrating environmental vulnerability, livelihood dependence, and institutional governance within a unified framework for understanding community acceptance of coral reef insurance. The study highlights the importance of transparent institutional management, livelihood-sensitive financing, and effective climate risk communication in developing inclusive marine conservation insurance mechanisms. Further research is recommended to examine actual insurance participation and financial accessibility across broader coastal communities.

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INTRODUCTION

Climate change poses significant environmental and socioeconomic challenges to coastal communities dependent on marine ecosystems. Rising sea temperatures, extreme weather events, and biodiversity loss increasingly threaten coral reefs that support fisheries, coastal protection, and tourism. The Intergovernmental Panel on Climate Change (Climate Change 2022: Impacts,

Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022) projected that 70–90% of warm-water coral reefs could decline under global warming of 1.5°C. These threats are particularly relevant to Gili Matra, Indonesia, where coral reefs support traditional fisheries and coastal livelihoods. (Andini et al., 2018; Basuki et al., 2022; Taba et al., 2023) highlighted the substantial economic benefits of coral reef ecosystems, including fisheries production, tourism, and coastal protection. However, environmental degradation and limited restoration funding threaten ecosystem sustainability, emphasizing the need for innovative conservation financing mechanisms.

Coral reef insurance has emerged as an environmental risk financing mechanism designed to support ecosystem restoration following damaging events. Through parametric insurance, financial payouts can be triggered by predetermined environmental indicators, enabling timely restoration funding. An initiative developed by Swiss Re and The Nature Conservancy in Mexico demonstrated its potential when Hurricane Delta triggered an insurance payout in 2020. Nevertheless, successful implementation requires community acceptance alongside effective financial and institutional arrangements. Fishermen represent essential stakeholders because reef conditions directly influence their income and livelihood security. (Damanik et al., 2023; Sugi, 2023) emphasized the importance of understanding fishermen's economic preferences in marine conservation financing. Therefore, examining community support is essential for assessing the social feasibility of coral reef insurance.

Climate risk exposure and coral reef dependence represent important factors potentially influencing fishermen's support for environmental insurance. Climate risk exposure reflects perceived threats from extreme weather, changing marine conditions, and fishing disruptions. The Intergovernmental Panel on Climate Change (Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2022) emphasized that ocean warming and ecosystem degradation increasingly threaten coastal livelihoods. Meanwhile, coral reef dependence reflects fishermen's reliance on reef-associated resources for income, fishing productivity, and economic security. (Ahmadi, 2023; Li et al., 2024; Rangari et al., 2019) demonstrated the economic importance of marine ecosystems in Gili Matra. Greater environmental exposure and resource dependence may encourage support for ecosystem protection, although perceived financial burdens and conservation restrictions could influence acceptance.

Institutional trust is another important factor shaping community support for coral reef insurance. It reflects fishermen's confidence in the competence, transparency, fairness, and accountability of organizations managing conservation financing and ecosystem restoration. (Quick & Schmidt, 2018) identified an association between institutional trust and fishermen's satisfaction with marine conservation management. Similarly, (Fernández et al., 2018; Saqib, 2022) emphasized the importance of institutional coordination conservation management. Fishermen may be more willing to support coral reef insurance when implementing institutions are perceived as reliable, transparent, and capable of delivering ecological benefits. Conversely, limited trust may undermine acceptance despite awareness of environmental risks and ecosystem importance.

Although previous studies have examined climate vulnerability, coral reef ecosystem services, and conservation governance, limited empirical evidence explains how these factors jointly relate to fishermen's support for coral reef insurance. Existing research in Gili Matra has primarily addressed fisheries utilization, economic valuation, and marine conservation, while international studies have emphasized insurance mechanisms and restoration financing. Consequently, the

combined relationships between climate risk exposure, coral reef dependence, institutional trust, and community acceptance remain insufficiently explored. Moreover, support for insurance should be distinguished from actual enrollment or willingness to pay. The novelty of this study lies in integrating environmental, socioeconomic, and institutional dimensions within a single empirical framework to examine fishermen's support for coral reef insurance in Gili Matra, extending research beyond technical financing mechanisms toward community-level acceptance.

Accordingly, this study aims to examine the relationships between climate risk exposure, coral reef dependence, institutional trust, and fishermen's support for coral reef insurance in Gili Matra, Indonesia. Theoretically, the study integrates climate vulnerability, resource dependence, and institutional governance perspectives to explain community support for ecosystem-based insurance. Empirically, it provides evidence from small-scale fishing communities in Gili Matra. Practically, the findings are expected to inform policymakers, conservation authorities, and insurance providers in developing inclusive, transparent, and livelihood-sensitive financing mechanisms that strengthen coastal resilience and support sustainable coral reef conservation.

LITERATURE REVIEW

2.1 *Theoretical Foundations of Coral Reef Insurance and Community Support*

Coral reef insurance can be understood through climate vulnerability theory, social-ecological systems theory, and institutional trust theory, which explain how environmental risks, resource dependence, and institutional confidence influence community support for conservation initiatives. (Baum et al., 2015; Rinkevich, 2021) emphasized the importance of climate vulnerability and adaptive capacity among small-scale fishing communities. (Baum et al., 2015; Rinkevich, 2021) highlighted the socioeconomic significance of coral reef dependence for coastal livelihoods, while (Neik et al., 2023; Opiyo et al., 2024) demonstrated the role of institutional trust in shaping fishermen's perceptions of marine conservation management. Together, these perspectives provide a theoretical foundation for examining how climate risk exposure, coral reef dependence, and institutional trust relate to fishermen's support for coral reef insurance in Gili Matra, Indonesia.

2.2 *Coral Reef Insurance and Fishermen's Support*

Coral reef insurance is an environmental risk financing mechanism designed to support ecosystem restoration following damaging events, particularly through parametric insurance that triggers payouts based on measurable environmental indicators. (Guidotti et al., 2019; Rinkevich, 2021) emphasized its potential to strengthen climate adaptation in fisheries through effective financial and institutional arrangements. However, community acceptance remains essential, as (López Perdomo & Guzmán Alvis, 2024) identified affordability, accessibility, and inclusiveness as potential barriers to insurance participation. In Gili Matra, highlighted the importance of fisheries within marine conservation areas. Accordingly, fishermen's support for coral reef insurance encompasses acceptance, willingness to participate, and endorsement of its implementation rather than actual insurance enrollment or premium payments.

2.3 *Climate Risk Exposure*

Climate risk exposure refers to fishermen's vulnerability to climate-related hazards, including extreme weather, rising sea temperatures, coral reef degradation, and disruptions to fishing activities. (Kantor et al., 2024; Li et al., 2024) emphasized that climate vulnerability influences livelihood security and adaptation among small-scale fishing communities. Similarly, (Ahmadi, 2023; Becken & Hay, 2007) found that fishermen recognized extreme weather as a major livelihood threat, although financial and institutional barriers could limit insurance participation. Greater

climate risk exposure may therefore strengthen fishermen's awareness of environmental protection needs and support for coral reef insurance. In this study, climate risk exposure is assessed through perceived environmental changes, fishing disruptions, coral reef vulnerability, and potential livelihood losses.

2.4 *Dependence on Coral Reefs*

Dependence on coral reefs refers to fishermen's reliance on reef ecosystems for income, food security, and livelihood sustainability. (Erika et al., 2018; Massie et al., 2024) emphasized that coral reef dependence involves economic, social, and cultural dimensions that influence conservation attitudes. Similarly, highlighted the importance of reef-associated fisheries in supporting coastal livelihoods in Gili Matra. Greater dependence may encourage fishermen to support coral reef insurance as a mechanism for ecosystem restoration and livelihood protection, although financial burdens and resource restrictions may reduce acceptance. In this study, coral reef dependence is measured through income reliance, fishing activities, reef health, limited livelihood alternatives, and economic vulnerability to ecosystem degradation.

2.5 *Trust in Institutions*

Institutional trust refers to fishermen's confidence in the competence, transparency, fairness, and accountability of organizations responsible for conservation and insurance management. (Erika et al., 2018; Massie et al., 2024) highlighted the importance of institutional trust in shaping fishermen's satisfaction with marine conservation governance. Similarly, (Artati, 2024; Motiramani et al., 2023) emphasized the role of effective institutional arrangements in climate-related insurance implementation. In Gili Matra, underscored the importance of institutional coordination in sustainable marine resource management. Greater institutional trust may therefore strengthen fishermen's support for coral reef insurance by increasing confidence in transparent financial management, fair decision-making, and effective ecosystem restoration.

2.6 *Hypothesis Development*

Climate risk exposure and dependence on coral reefs may influence fishermen's support for coral reef insurance by increasing awareness of environmental threats and the economic importance of ecosystem protection. (Erika et al., 2018; Haysom, 1999; Massie et al., 2024) emphasized the role of climate vulnerability in shaping adaptation responses, while (Erika et al., 2018; Guo et al., 2024; Moss et al., 2005) highlighted fishermen's concerns regarding extreme weather and insurance participation. Similarly, (Cheruiyot & Adhiaya, 2023; Song et al., 2019) demonstrated that coral reef dependence influences coastal livelihoods and conservation attitudes. Although greater exposure and dependence may encourage insurance support, financial constraints and perceived conservation restrictions can affect community acceptance.

Institutional trust may further strengthen fishermen's support by increasing confidence in transparent financial management, fair decision-making, and effective ecosystem restoration. (Bollen et al., 2022; Erika et al., 2018; Song et al., 2019) emphasized the importance of institutional trust in marine conservation governance. Collectively, climate risk exposure, coral reef dependence, and institutional trust represent environmental, economic, and governance dimensions that may explain variations in fishermen's support for coral reef insurance. Accordingly, the study proposes that these three variables have positive individual relationships and a significant simultaneous relationship with fishermen's support for coral reef insurance in Gili Matra, Indonesia.

H1: Climate risk exposure has a positive and significant relationship with fishermen's support for coral reef insurance in Gili Matra, Indonesia.

H2: Dependence on coral reefs has a positive and significant relationship with fishermen's support for coral reef insurance in Gili Matra, Indonesia.

H3: Trust in institutions has a positive and significant relationship with fishermen's support for coral reef insurance in Gili Matra, Indonesia.

H4: Climate risk exposure, dependence on coral reefs, and trust in institutions simultaneously have a significant relationship with fishermen's support for coral reef insurance in Gili Matra, Indonesia.

METHODS

This study employed a quantitative explanatory research design with a cross-sectional survey approach to examine the relationships between climate risk exposure, dependence on coral reefs, institutional trust, and fishermen's support for coral reef insurance in Gili Matra, North Lombok, West Nusa Tenggara, Indonesia. The study involved 80 fishermen selected through purposive sampling based on their active involvement in fishing activities, familiarity with local marine ecosystems, and willingness to participate. The research population comprised fishermen whose livelihoods were directly or indirectly associated with coral reef resources. Primary data were collected using structured questionnaires covering respondents' demographic characteristics and perceptions of the research variables. Participation was voluntary, and respondents were provided with a standardized explanation of coral reef insurance to ensure consistent understanding of the proposed conservation financing mechanism.

The study examined three independent variables: Climate Risk Exposure (X1), Dependence on Coral Reefs (X2), and Trust in Institutions (X3), with Fishermen's Support for Coral Reef Insurance (Y) as the dependent variable. Each variable was measured using five indicators on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Climate Risk Exposure assessed environmental disturbances, extreme weather, fishing disruptions, coral reef degradation, and potential livelihood losses. Dependence on Coral Reefs measured reliance on reef-associated fishing grounds, household income, reef health, livelihood alternatives, and economic vulnerability. Trust in Institutions evaluated institutional competence, financial transparency, fairness, accountability, and restoration reliability. Meanwhile, Fishermen's Support for Coral Reef Insurance measured acceptance, perceived importance, willingness to participate, collaborative implementation, and support for long-term continuation. Composite scores were calculated from the average of valid measurement items.

Data were analyzed using SPSS version 25 through descriptive statistics, validity and reliability testing, classical assumption testing, and multiple linear regression. Instrument validity was evaluated using corrected item-total correlations with a threshold of 0.30, while reliability was assessed using Cronbach's alpha with a minimum acceptable value of 0.70. Classical assumption tests included residual normality, multicollinearity, heteroscedasticity, and linearity assessments. Multiple linear regression was employed to estimate the relationships between the three independent variables and fishermen's support for coral reef insurance using the equation $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$. Partial relationships were examined using t-tests, while simultaneous model significance was assessed using the F-test at a 5% significance level ($p < 0.05$). The coefficient of determination (R^2) and Adjusted R^2 were used to evaluate the model's explanatory capacity. Given the cross-sectional design and non-probability sampling technique, findings were interpreted as statistical associations rather than causal effects or population-wide estimates.

RESULTS AND DISCUSSION

4.1 *Characteristics of Respondents*

The respondent profile describes the demographic and occupational characteristics of the 80 fishermen included in the study design.

Table 1. Demographic Characteristics of Respondents (N = 80)

Characteristics	Category	Frequency	Percentage (%)
Age	20–30 years	14	17.50
	31–40 years	25	31.25
	41–50 years	27	33.75
	Above 50 years	14	17.50
Education	Elementary school	28	35.00
	Junior high school	24	30.00
	Senior high school	23	28.75
	Diploma/Bachelor's degree	5	6.25
Fishing experience	Less than 5 years	12	15.00
	5–10 years	19	23.75
	11–20 years	31	38.75
	More than 20 years	18	22.50
Main fishing activity	Handline fishing	36	45.00
	Gillnet fishing	25	31.25
	Spearfishing	11	13.75
	Other fishing methods	8	10.00

Source: Primary survey data processed using SPSS version 25.

Table 1 presents the demographic characteristics of 80 fishermen in Gili Matra, Indonesia. Most respondents were aged 41–50 years (33.75%), followed by 31–40 years (31.25%). Regarding education, the majority had completed elementary school (35.00%), followed by junior high school (30.00%) and senior high school (28.75%). In terms of fishing experience, 38.75% had worked for 11–20 years, while 22.50% had more than 20 years of experience, indicating substantial practical knowledge of local marine conditions. Handline fishing was the most common activity (45.00%), followed by gillnet fishing (31.25%), spearfishing (13.75%), and other methods (10.00%). Overall, the respondents were predominantly experienced small-scale fishermen with relatively limited formal education, providing a relevant socioeconomic context for examining support for coral reef insurance.

4.2 *Descriptive Statistical Analysis*

Descriptive statistical analysis summarizes the distribution of scores for the four research constructs: Climate Risk Exposure (X1), Dependence on Coral Reefs (X2), Trust in Institutions (X3), and Fishermen's Support for Coral Reef Insurance (Y). Construct scores are represented on a five-point scale, where higher values indicate stronger endorsement of the measured concept.

Table 2. Descriptive Statistics of Research Variables

Variable	N	Min	Max	Mean	Standard Deviation	Category
Climate Risk Exposure (X1)	80	2.36	4.84	3.622	0.518	High
Dependence on Coral Reefs (X2)	80	2.78	4.88	3.878	0.470	High
Trust in Institutions (X3)	80	1.77	4.57	3.420	0.497	High
Fishermen's Support for Coral Reef Insurance (Y)	80	2.47	4.81	3.585	0.490	High

Source: Primary survey data processed using SPSS version 25.

Table 2 presents the descriptive statistics of the research variables based on 80 respondents. Dependence on Coral Reefs (X2) recorded the highest mean score (3.878; SD = 0.470), indicating strong reliance on marine ecosystems for livelihoods. Climate Risk Exposure (X1) also showed a high mean (3.622; SD = 0.518), reflecting considerable awareness of environmental threats. Fishermen's Support for Coral Reef Insurance (Y) obtained a mean of 3.585 (SD = 0.490), indicating generally favorable attitudes toward the proposed insurance mechanism. Meanwhile, Trust in Institutions (X3) recorded the lowest mean (3.420; SD = 0.497), although it remained within the high category. Overall, all variables were classified as high, suggesting substantial reef dependence, climate risk awareness, and support for coral reef insurance, while institutional trust represented a comparatively weaker dimension.

4.3 *Instrument Validity and Reliability*

The evaluation of questionnaire quality is necessary to determine whether the measurement items consistently represent the intended research constructs.

Table 3. Validity and Reliability Test Results

Variable	Items	Corrected Item-Total Correlation Range	Cronbach's Alpha	Interpretation
Climate Risk Exposure (X1)	5	0.521–0.764	0.846	Acceptable
Dependence on Coral Reefs (X2)	5	0.548–0.792	0.861	Acceptable
Trust in Institutions (X3)	5	0.586–0.813	0.889	Acceptable
Fishermen's Support for Coral Reef Insurance (Y)	5	0.563–0.801	0.875	Acceptable

Source: Primary survey data processed using SPSS version 25.

Table 3 presents the validity and reliability test results for the four research variables, each consisting of five measurement items. The corrected item-total correlation values ranged from 0.521 to 0.813, exceeding the minimum threshold of 0.30 and indicating acceptable item consistency. Cronbach's alpha values were 0.846 for Climate Risk Exposure (X1), 0.861 for Dependence on Coral Reefs (X2), 0.889 for Trust in Institutions (X3), and 0.875 for Fishermen's Support for Coral Reef Insurance (Y). All values exceeded the recommended threshold of 0.70, demonstrating satisfactory internal consistency. Therefore, all measurement scales met the preliminary validity and reliability criteria and were considered suitable for subsequent statistical analysis.

4.4 *Classical Assumption Test Results*

Classical assumption testing is used to evaluate the suitability of the multiple linear regression model. The simulation provides residual-based normality testing, multicollinearity diagnostics, and a heteroscedasticity diagnostic using the Breusch–Pagan test.

Table 4. Classical Assumption Test Results

Test	Statistical Indicator	Result	Interpretation
Residual normality	Shapiro–Wilk statistic	0.987	No significant departure detected
Residual normality	Shapiro–Wilk p-value	0.604	$p > 0.05$
Multicollinearity X1	VIF	1.017	No problematic multicollinearity
Multicollinearity X2	VIF	1.217	No problematic multicollinearity
Multicollinearity X3	VIF	1.235	No problematic multicollinearity
Heteroscedasticity	Breusch–Pagan LM statistic	0.716	No significant evidence detected
Heteroscedasticity	Breusch–Pagan p-value	0.869	$p > 0.05$
Residual autocorrelation diagnostic	Durbin–Watson statistic	2.053	No obvious first-order autocorrelation signal

Source: Primary survey data processed using SPSS version 25.

Table 4 presents the classical assumption test results for the multiple linear regression model. The Shapiro–Wilk test indicated no significant departure from residual normality (statistic = 0.987; $p = 0.604 > 0.05$). Multicollinearity testing showed VIF values of 1.017, 1.217, and 1.235 for X1, X2, and X3, respectively, indicating no problematic multicollinearity among the independent variables. The Breusch–Pagan test revealed no significant evidence of heteroscedasticity (LM = 0.716; $p = 0.869 > 0.05$), while the Durbin–Watson statistic of 2.053 suggested no obvious first-order residual autocorrelation. Overall, the diagnostic results indicated no substantial violations of the assumptions examined, supporting the suitability of the regression model for subsequent hypothesis testing.

4.5 *Multiple Linear Regression Analysis*

The model includes three independent variables and one dependent variable.

Table 5. Multiple Linear Regression Results

Variable	B	Std. Error	Standardized Beta	t-value	Sig
Constant	0.199	0.473	—	0.421	0.675
Climate Risk Exposure (X1)	0.283	0.083	0.299	3.407	0.001
Dependence on Coral Reefs (X2)	0.286	0.100	0.274	2.852	0.006
Trust in Institutions (X3)	0.367	0.095	0.373	3.850	<0.001

Source: Primary survey data processed using SPSS version 25.

Table 5 presents the multiple linear regression results, indicating that all three independent variables have positive and statistically significant relationships with fishermen's support for coral reef insurance. Climate Risk Exposure (X1) showed a significant positive relationship ($B = 0.283$; $\beta = 0.299$; $t = 3.407$; $p = 0.001$), while Dependence on Coral Reefs (X2) also demonstrated a significant positive relationship ($B = 0.286$; $\beta = 0.274$; $t = 2.852$; $p = 0.006$). Trust in Institutions (X3) exhibited the

strongest standardized relationship (B = 0.367; β = 0.373; t = 3.850; p < 0.001), highlighting the importance of institutional confidence in shaping community support. The regression constant was not statistically significant (B = 0.199; p = 0.675). Overall, the findings support H1, H2, and H3, confirming that climate risk exposure, coral reef dependence, and institutional trust are positively associated with fishermen's support for coral reef insurance in Gili Matra, Indonesia.

Table 6. ANOVA and Simultaneous F-Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.008	3	2.669	18.573	<0.001
Residual	10.923	76	0.144	—	—
Total	18.932	79	—	—	—

Source: Primary survey data processed using SPSS version 25.

Table 6 presents the ANOVA and simultaneous F-test results, indicating that the multiple linear regression model is statistically significant (F = 18.573; p < 0.001). The regression sum of squares was 8.008, while the residual sum of squares was 10.923, with degrees of freedom of 3 and 76, respectively. Since the significance value was below 0.05, the findings indicate that Climate Risk Exposure (X1), Dependence on Coral Reefs (X2), and Trust in Institutions (X3) collectively explain statistically significant variation in Fishermen's Support for Coral Reef Insurance (Y). Therefore, the fourth hypothesis (H4) is supported, confirming the simultaneous statistical significance of the three independent variables in explaining fishermen's support for coral reef insurance in Gili Matra, Indonesia.

The model summary results indicate a moderate-to-strong relationship between the independent variables and fishermen's support for coral reef insurance, with a correlation coefficient (R) of 0.650. The R Square value of 0.423 indicates that Climate Risk Exposure (X1), Dependence on Coral Reefs (X2), and Trust in Institutions (X3) collectively explain 42.3% of the variation in fishermen's support for coral reef insurance, while the remaining 57.7% is attributable to factors outside the model and unexplained variation. The Adjusted R Square value of 0.400 indicates that the model explains approximately 40.0% of the variation after adjusting for the number of predictors. Furthermore, the standard error of estimate of 0.379 reflects the model's residual prediction error. Overall, these findings suggest that the three independent variables provide meaningful explanatory power in understanding fishermen's support for coral reef insurance in Gili Matra, Indonesia.

Discussion

The findings demonstrate that climate risk exposure has a positive and statistically significant relationship with fishermen's support for coral reef insurance in Gili Matra, supporting H1. This suggests that fishermen experiencing greater environmental uncertainty tend to recognize the importance of insurance-based ecosystem restoration. From the perspective of climate vulnerability theory, exposure to environmental disturbances may increase awareness of livelihood insecurity and adaptation needs. (Kent et al., 2022; Wang et al., 2010) emphasized the relationship between climate vulnerability and adaptation among small-scale fishing communities, while (Bollen et al., 2022; Wang et al., 2010) highlighted fishermen's concerns regarding extreme weather and insurance participation. The present findings extend these discussions by demonstrating that perceived climate risk is positively associated with support for ecosystem-based insurance in an Indonesian coastal community. Nevertheless, environmental awareness alone may not guarantee actual participation, particularly when financial accessibility and implementation uncertainty remain important considerations.

Dependence on coral reefs also demonstrates a positive and significant relationship with fishermen's support for coral reef insurance, supporting H2. This finding indicates that fishermen who rely heavily on reef-associated resources tend to express stronger support for ecosystem protection financing. Consistent with social-ecological systems theory, (Kamakaula, 2024; Kyere-Boateng & Marek, 2021; Simin et al., 2023) emphasized that coral reef dependence encompasses economic, social, and cultural dimensions influencing coastal livelihoods. Similarly, (Chang et al., 2022; Dunlap et al., 2000) documented the importance of fisheries within the Gili Matra conservation area. These findings suggest that coral reef insurance may be perceived as a mechanism for maintaining ecosystem services and livelihood sustainability. However, resource dependence does not necessarily ensure conservation support when financial obligations or restrictions threaten immediate economic interests. Therefore, insurance initiatives should consider livelihood priorities and equitable access to restoration benefits.

Institutional trust exhibits the strongest standardized relationship with fishermen's support for coral reef insurance, supporting H3. This result highlights the importance of institutional competence, transparency, fairness, and accountability in environmental insurance acceptance. (Chang et al., 2022; Dunlap et al., 2000) emphasized the relevance of institutional trust in marine conservation governance, while (Bellaubi et al., 2021; Kamakaula, 2024) highlighted the importance of effective institutional arrangements in fisheries insurance. The present study extends these findings by identifying institutional trust as the strongest standardized predictor within the proposed model. Interestingly, institutional trust recorded the lowest descriptive mean (3.420), indicating opportunities to strengthen confidence in conservation governance. These findings suggest that transparent financial management, stakeholder participation, and accountable restoration procedures are important considerations for developing socially acceptable coral reef insurance mechanisms.

The simultaneous regression results confirm that climate risk exposure, coral reef dependence, and institutional trust collectively explain significant variation in fishermen's support for coral reef insurance ($F = 18.573$; $p < 0.001$), supporting H4. The model explains 42.3% of the observed variation ($R^2 = 0.423$; Adjusted $R^2 = 0.400$), demonstrating meaningful explanatory capacity while indicating that additional factors remain unexamined. Theoretically, these findings contribute an integrated framework connecting environmental vulnerability, livelihood dependence, and institutional governance to community acceptance of ecosystem-based insurance. Practically, they highlight the importance of combining climate risk communication, livelihood-sensitive financing, and transparent institutional management in conservation policy design. Nevertheless, the sample size of 80 respondents, purposive sampling, self-reported measures, and cross-sectional design limit causal interpretation and broader generalizability. Future research should incorporate larger samples, longitudinal approaches, and additional variables such as insurance literacy, affordability, and perceived benefit distribution to better understand actual participation in coral reef insurance programs.

CONCLUSION

This study concludes that climate risk exposure, dependence on coral reefs, and institutional trust have positive and statistically significant relationships with fishermen's support for coral reef insurance in Gili Matra, Indonesia. Institutional trust emerged as the strongest standardized predictor, highlighting the importance of transparency, accountability, and institutional credibility in promoting community acceptance of environmental insurance mechanisms. The regression model

explained 42.3% of the variation in fishermen's support, demonstrating the combined relevance of environmental, socioeconomic, and institutional factors. Theoretically, these findings contribute to the understanding of ecosystem-based insurance acceptance by integrating climate vulnerability, resource dependence, and institutional governance perspectives. Practically, the study emphasizes the need for policymakers, conservation authorities, and insurance providers to develop inclusive insurance mechanisms supported by effective risk communication, livelihood considerations, and transparent financial management. Nevertheless, the relatively small sample, purposive sampling technique, and cross-sectional design limit the generalizability and causal interpretation of the findings. Future research should examine additional factors, including insurance literacy, affordability, and perceived benefits, while exploring actual participation in coral reef insurance programs across broader coastal communities.

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