Cruise Industry Considerations of Coastal Hazards Resilience for Cruise Ports: A Baseline Survey

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INTRODUCTION

Cruise ports are highly susceptible to coastal hazards. The severity and frequency of these hazards will increase with climate change, but cruise industry capacity, perspectives, and planning for cruise port resilience are not adequately documented in the literature. Industry groups provide an information-sharing network and can guide collaborative hazards resilience efforts.[1,2] This research partnered with the Cruise Line International Association (CLIA) and a Steering Committee (SC) of experts to conduct a baseline survey of the cruise industry's coastal hazards perceptions.[3, 4, 5]

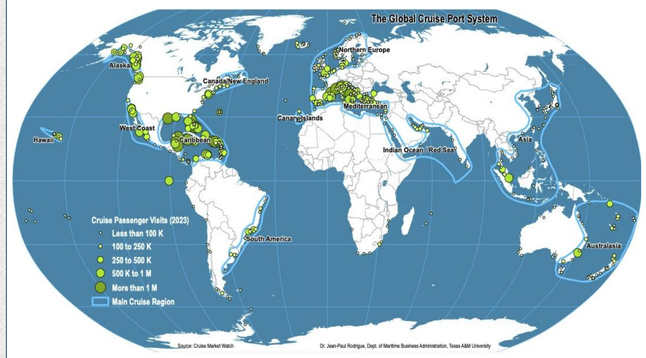

Figure 1. "The Global Cruise Port System," by Rodrigue in Notteboom (2022).

OBJECTIVE

RQ 1 How do coastal hazards **currently** impact the cruise industry's port interests?

RQ 2 What are the cruise industry's concerns about **future coastal hazard impacts** to operations, especially given climate change projections?

RQ 3 What are the cruise industry's **best practices and policies** regarding coastal hazard impacts to cruise ports, destination communities, and operations?

METHODOLOGY

A Steering Committee of 10 cruise industry experts provided feedback on research questions, survey design, survey distribution, and analysis of results to ensure relevance to practice. The survey reached ~600 recipients and received 104 total responses, 89 of which were usable.

Online Survey: 10- 15 minutes, Qualtrics

- **Quantitative**
  - Likert, multiple choice
- **Qualitative**
  - Open response

RESULTS

Respondent Occupational Profile
Our 89 respondents represent an extensive range of cruise industry sectors (e.g., administration, ship and port operations, tour companies), years in the industry (range of 2-44 years), and current roles (Figure 2). The respondent pool captured a diverse suite of perspectives, cultural contexts, and geographic regions.

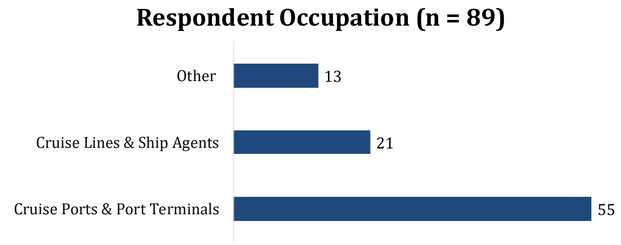

Figure 2. Respondent's employment category in response to Q2.1.

RQ 1 Current Hazard Impacts
Industry practitioners are **most *frequently* impacted by wind events** (77% of respondents affected), and for 45% of respondents, wind caused the most *severe* disruption in the past 10 years. Disruption lasted less than one day (42%) or for several days (47%). Cruise lines were more disrupted by larger storm systems, and cruise ports are more disrupted by non-storm wind events (Figure 3).

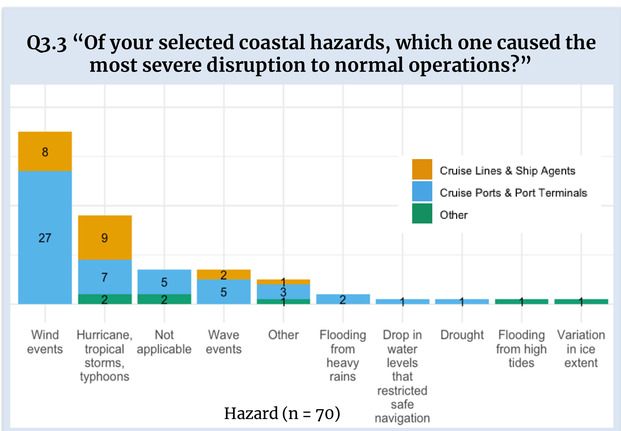

Figure 3. Responses to Q3.3, asking most significant hazard. Statistically significant differences between employment category (cruise ports and cruise lines) and most significant hazard.

RQ 2 Future Hazard Concerns
In terms of sea level rise, under current projections, **97% of respondents predict significant threats** to operations in the next 50 years. Concern is equally distributed across employment type and geographic region. In terms of coastal hazards, 98% of respondents report some level of concern for future impact.

61% believe that **current** impacts need to be better addressed in the cruise industry.
- 4% feel current actions are sufficient.

85% believe that **future** impacts need to be better addressed in the cruise industry.
- 1% feel current, forward-looking actions are sufficient.

RQ 3 Best Practices and Policies
Respondents called for increased collaboration across the industry (Figure 4).

Barriers to hazard resilience: **lack of research, planning uncertainty, politics,** the large scale of the problem, and cost. Illustrative quotation from thematic analysis below.

*"Each of these groups holds **unique knowledge** and resources that, when combined, can create a far **more robust approach to risk reduction** … engaging local communities builds resilience and support for adaptive measures on the ground."*
- Respondent 32, August 2025

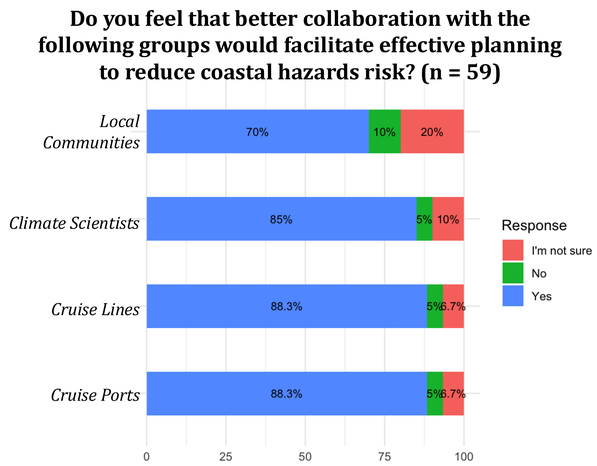

Figure 4. Respondents' level of support for collaboration across different sectors of the cruise industry (Q5.13).

CONCLUSIONS

- **98% of respondents are concerned** about coastal hazards impacting cruise operations in the coming 50 years, and **only 39% feel sufficiently informed.**
- Cruise industry practitioners expect an increase in ship **delays,** infrastructure **damage,** and impacts to operations in the next 50 years from hazards.
- There is broad **agreement** across cruise ports and cruise lines about challenges from coastal hazards.
- Cruise practitioners want more **collaboration** with local communities (70%), climate scientists (85%), cruise ports (88%) and cruise lines (88%).

APPLICATIONS TO POLICY & PRACTICE

1. Add coastal hazards to the agenda at cruise events -- *Respondents felt that current and future impacts needed to be better addressed.*

2. Increase targeted research for localized hazards -- *Respondents did not feel informed about future hazard impacts.*

3. Establish a coastal hazards working group -- *Focus on equitable collaboration between industry practitioners.*

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