Report on the status of Narrow-ridged finless porpoise bycatch and stranding based on interviews with local fishermen, residents, local governments, and maritime police

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1. Background

The narrow-ridged finless porpoise (*Neophocaena asiaeorientalis,* NRFP) is highly populated in the Yellow Sea, inhabiting the marine areas of Korea, China, and Japan. In Korea, it is the most frequently observed cetacean species and also the most commonly found deceased. Between 2011 and 2016, the NRFP population in the West Sea declined by nearly 70%, prompting the Ministry of Oceans and Fisheries (MOF) to designate it as a marine protected species in 2016. The NRFP was subsequently listed as endangered on the IUCN Red List in 2017. In China, it is classified as a second-level endangered species, receiving less attention than the critically endangered freshwater Yangtze porpoises.

In 2020, a resolution promoting collaboration among Yellow Sea nations for NRFP conservation was adopted at the IUCN World Conservation Congress and is now in effect. Bycatch has been identified as the greatest threat to NRFP survival, as supported from data collected by the Cetacean Research Institute (CRI), a national research institution. MOF has made significant efforts to address this issue; however, concerns remain that official bycatch and stranding reports are underestimated. To obtain accurate data, surveys and interviews were conducted with fishermen, local residents, local government officials, marine police, and NGOs in the NRFP-concentrated areas of Korea's West and South Seas. These findings are anticipated to identify issues and aid the development of future NRFP conservation strategies.

2. Current Research

1) Habitat research

Research on the basic ecology and biology of the narrow-ridged finless porpoise is conducted by the Cetacean Research Institute (CRI). CRI performs regular sighting surveys, aerial surveys, necropsy studies, and acoustic surveys, compiling data on stranded and bycaught NRFPs. Additionally, the Haerang Technology and Policy Institute, a private entity, has been conducting annual sighting surveys on population and distribution since 2020, incorporating drone surveys into their methodology in 2022. Compared to CRI, Haerang's operations are smaller in scale and focus on different regions each year.

The Marine Animal Ecology and Conservation Research Institute (MARC) conducts studies in Yeosu, South Sea, using underwater acoustic survey equipment to measure the presence and frequency of NRFPs based on click counts and detections per minute (DPM). The 2023 results indicated a significant decrease in both click counts and DPM compared to 2022, suggesting potential changes in habitat or population dynamics.

Hallyeohaesang National Park conducts sighting surveys from boats at least once per quarter. Additionally, a monitoring camera has been installed on Choyangdo Island in Sacheon for continuous observation. The porpoises are most frequently observed in spring and autumn, with the highest number of sightings occurring during low tide at neap tide.

< Daily Occurrence Frequency of NRFPs in the Choyangdo Region>[1]

<NRFP observed in Choyangdo>

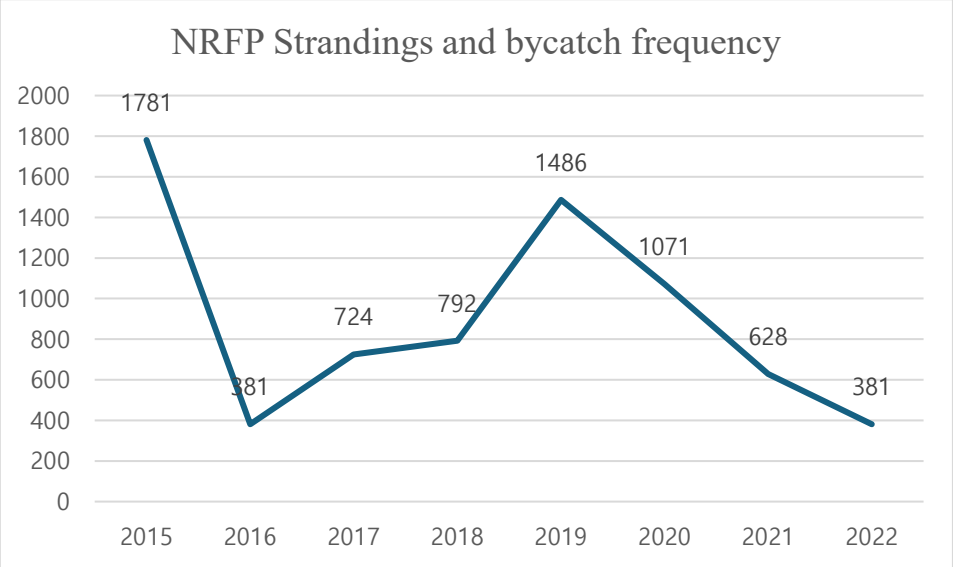
Source: Hallyeohaesang National Park

[1] The frequency of appearance is determined by counting the number of times any individual surfaces. As the same individual may surface multiple times, this data cannot be utilized for estimating population numbers.

Plan Ocean and various universities (Seoul National University, Chungbuk National University, Inha University, Hanyang University, and Jeju National University) conducts necropsies on collected carcasses to analyze causes of death and carry out biological research. These institutions are also engaged in follow-up studies focusing on persistent organic pollutants (POPs) and microplastics.

2) Bycatch and strandings

The figure below outlines reported cases of NRFP bycatch and strandings. Reported cases have noticeably decreased since the species was declared a marine protected species in 2016. This trend can be attributed to three possible explanations: 1) a genuine reduction in the number of NRFP bycatch and strandings, 2) a decrease in incidents due to a reduced population, or 3) a decline in reporting by fishermen.



	Strandings	Set net	Gill net	Pot	Stow net	etc	Sum
2015	146	5	34	3	1,016	577	1,781
2016	22	1	22	0	334	2	381
2017	260	4	29	1	420	10	724
2018	237	1	8	1	523	22	792
2019	289	0	20	1	1,174	2	1,486
2020	375	0	20	2	671	3	1,071
2021	366	2	9	2	245	4	628
2022	371	0	8	0	1	1	381

<Table 1. NRFP strandings and bycatch numbers>

Source: Cetacean Research Institute

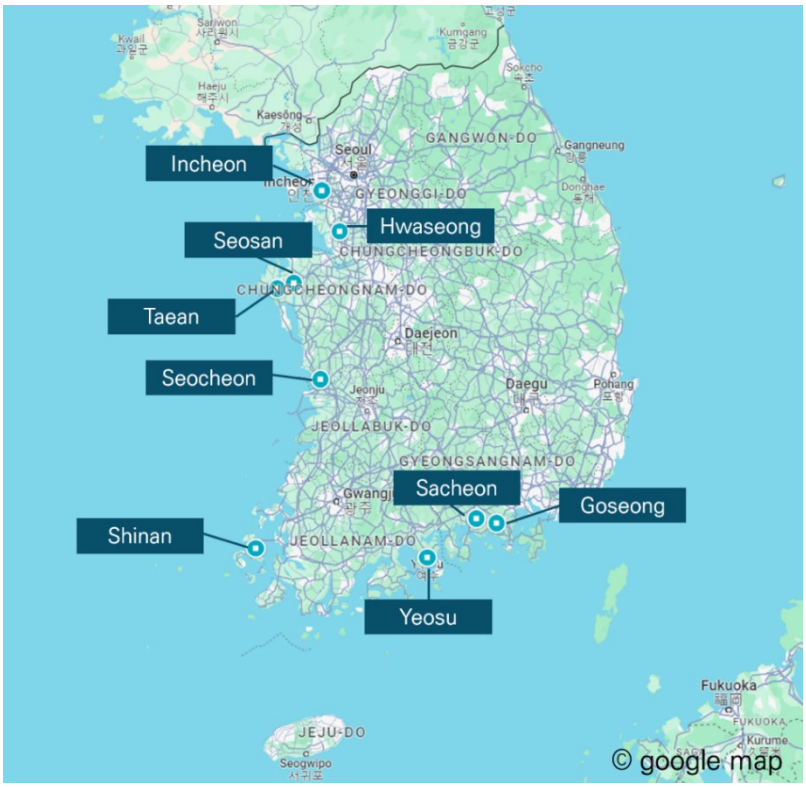
In South Korea, capturing cetaceans is illegal. Additionally, the collection, distribution, and sale of marine protected species are strictly prohibited under the Marine Ecosystem Conservation and Management Act. Before the NRFP was designated as a marine protected species in 2016, it was permissible to sell bycaught NRFPs in the market. Consequently, many fishermen reported bycatch incidents to the maritime police to sell the porpoises. Since the NRFP's designation as a protected species, there has been no economic incentive to report bycatch, which potentially contributes to decreased reporting.

The National Institute of Fisheries Science(NIFS) conducted an extensive monitoring program from April 2021 to December 2023, observing 30 stow net boats in Seocheon and Boryeong, Chungcheongnam-do. These boats were equipped with finless porpoise escape devices on some of their nets, resulting in approximately 15,000 monitoring sessions. The findings revealed that no porpoises were bycaught in the nets with escape devices, whereas 52 were bycaught in nets without these devices. However, fishermen have shown resistance to using these devices due to concerns of losing their catch through the escape holes. In response, a new escape device without holes is currently under testing. Additionally, efforts are underway to develop a buoy line designed to reduce marine mammal bycatch, and acoustic data is being collected to create an acoustic warning device aimed at preventing marine mammal bycatch.

3. Interviews and surveys

1) Fishermen and local communities

Fishermen and local residents from coastal communities, including Incheon, Seosan, Taean, and Seocheon in Chungcheongnam-do, Shinan and Yeosu in Jeollanam-do, and Sacheon in Gyeongsangnam-do, who frequently interact with the narrow-ridged finless porpoise, were interviewed and surveyed on their perceptions of the species, as well as the current status of bycatch and strandings. A total of 67 fishermen and 25 local residents participated, providing information on fishing areas, methods, and experience levels. They also shared their opinions on the biological and ecological characteristics of the porpoises, causes of mortality, and experiences with bycatch and reporting.



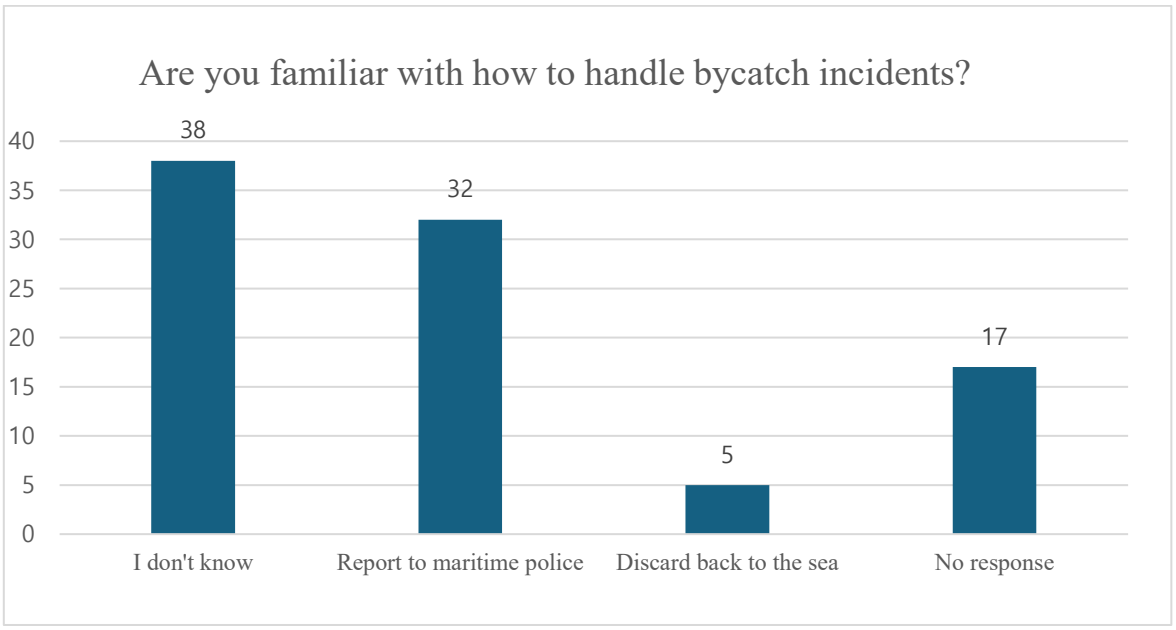
<Interview locations>

Interviews revealed that 59 respondents (64%) possessed basic biological knowledge, such as recognizing the porpoises as air-breathing mammals, and 21 respondents (23%) were aware of their endangered status. Only 6 respondents (7%) did not respond. Detailed knowledge, such as an NRFP reaches reproductive maturity at 5-6 years of age, was largely lacking. This underscores the need for further education on the porpoises' endangered status.

In response to inquiries regarding intentional captures of NRFPs, 75 out of 77 respondents (97%) reported no such incidents. This high percentage suggests a necessity for refining the investigation processes for reported bycatch to ensure accurate determination of the nature of these captures.

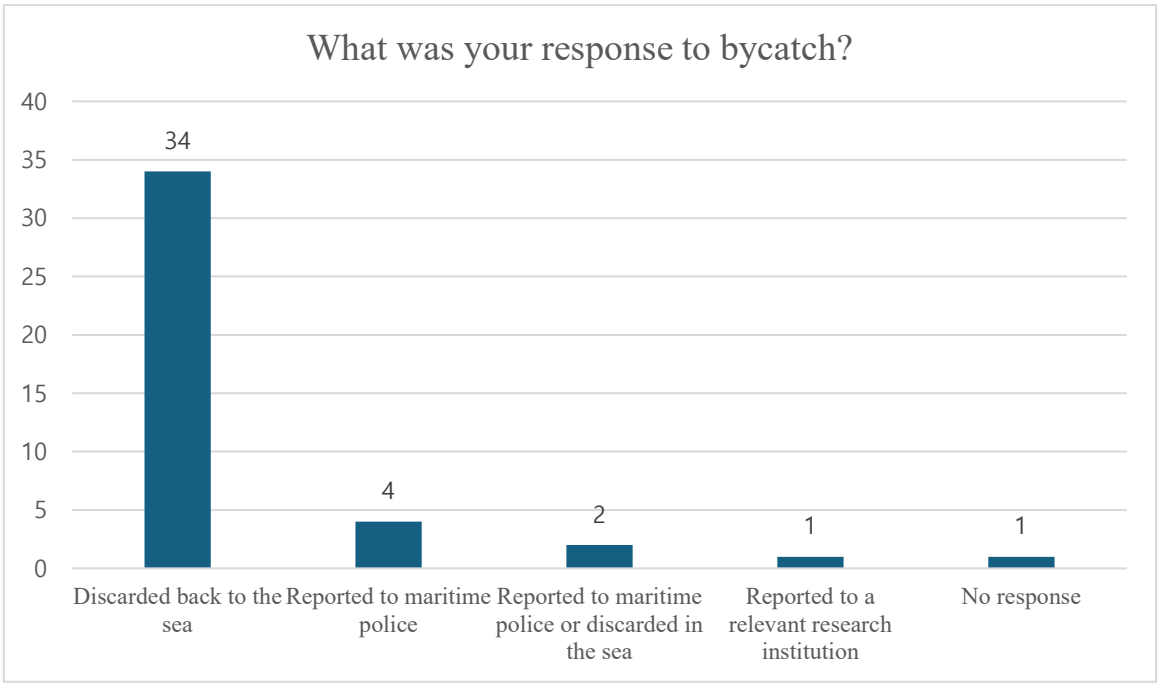
Regarding causes of death, 57 respondents (62%) identified bycatch in fishing nets as the primary cause. Among these, 39 specifically mentioned the use of stow nets and gill nets. Of these 39 respondents, 30 fishermen (77%) had experienced bycatch incidents, indicating a high awareness of bycatch issues among those using certain types of fishing gear (see Table 1).

When inquired about awareness of managing bycatch incidents whilst fishing, 38 respondents (41%) were unsure of the correct procedure. Meanwhile, 32 respondents (35%) indicated that they would report the incident to the maritime police.



<Awareness on bycatch response procedures>

When asked if they had personally experienced bycatch of NRFPs, 40 respondents (43%) reported affirmatively. Among these, 11 respondents (28%) indicated they catch up to three porpoises annually. In terms of actions taken post-bycatch, only 4 respondents (10%) reported the incidents to the maritime police, and 1 respondent (3%) reported to a research institution, while 34 respondents (85%) discarded the porpoises back into the sea. This indicates that, despite awareness of reporting requirements, compliance remains low.



<Bycatch response method>

When asked about the most dissatisfactory aspects of the reporting process, 20 out of 30 respondents (67%) cited the cumbersome and time-consuming procedures. Additionally, some respondents mentioned the long waiting time for the maritime police to arrive, and some believed that reporting was unnecessary.

Following a request for feedback on enhancing the reporting process, 62 respondents (67%) recommended streamlining the procedures to accelerate the process. Additionally, 28 respondents (30%) suggested offering appropriate compensation for reporting.

When asked about their reluctance to install government-recommended porpoise escape devices, 26 stow net fishermen identified several concerns. Among these were the perceived low probability of successful escape due to prevailing currents, the complex and time-consuming installation process, and the belief that the devices would be ineffective as porpoises' fins and tails would still get caught in the escape nets. Widespread doubts about the overall effectiveness of these devices were evident.

Prevalent misconceptions regarding porpoise biology, such as gestation periods, dietary habits, respiratory mechanisms, and mortality causes emphasized the necessity for enhanced awareness and educational initiatives.

Awareness-raising workshops for fishermen and locals were held in Yeosu, Sacheon, Incheon, and Seosan, with over 100 participants. These sessions addressed the biological and ecological characteristics of finless porpoises, research challenges, population decline, and their importance in the marine ecosystem. Positive shifts in perception were noted, with attendees emphasizing the ‘need for appropriate measures by authorities’, ‘importance of reporting deceased porpoises’, increased awareness of the species' protected status, and the ‘necessity of educational initiatives to enhance awareness’.

<Awareness-raising workshop in Yeosu>

<Awareness-raising workshop in Seosan>

< Awareness-raising workshop in Incheon>

< Awareness-raising workshop in Sacheon>

2) Local government and maritime police[2]

Interviews were conducted with local government officials and maritime police who are responsible for managing stranded finless porpoises and carcasses. Discussions with local governments near the West and South Seas focused on disposal methods, data collection, communication with maritime police and the central government, and conservation efforts. Conversations with maritime police centered on the procedures followed once they are called to the scene and the challenges they encounter.

The City of Yeosu has been demonstrating significant commitment to the conservation of finless porpoises. In August, the city council enacted the "Yeosu City Ordinance on Finless Porpoise Protection," establishing a robust legal framework to support various conservation activities. Planned initiatives include comprehensive research on the distribution, feeding habits, and prevention of bycatch of finless porpoises. Additionally, Yeosu intends to establish a center for necropsy research and education. The city is also considering hosting an international conference during the 2026 Yeosu World Islands Expo to foster both domestic and international cooperation in conservation efforts.

In 2019, Goseong County in Gyeongsangnam-do designated approximately 210 hectares of Hai-myeon's coastal area as a marine protected area for NRFP. Following this, the county enacted the "Goseong County Ordinance on the Management of the Marine Protected Area for NRFPs" to support education, public awareness, international cooperation, and the establishment of a Marine Protected Area Center. Despite these initial efforts, progress has since stagnated. Consequently, residents are advocating for a renewed focus on conservation and the development of ecotourism initiatives.

[2] Certain local government entities and the Coast Guard have been anonymized for privacy.

Local governments have expressed difficulties in managing finless porpoise carcasses, including high costs and challenges in securing disposal services as well as the notable reluctance among fishermen to report strandings to the maritime police, underscoring the need for improved reporting systems that involve private organizations. Another concern was the lack of experience and knowledge in a few areas regarding the appropriate procedures for handling carcasses. Furthermore, some areas show interest in conservation but fail to implement the necessary efforts. In contrast, regions that are keen to implement conservation strategies have shown an emphasis on the cause as an ecotourism opportunity. For instance, Daeeijakdo in Incheon has installed promotional paintings and sculptures of finless porpoises to raise awareness.

<NRFP sculpture in Daeeijakdo>

<NRFP mural in Daeeijakdo Marine Environment Center>

Currently, the maritime police are the first responders to incidents involving stranded or bycaught marine animals. Their primary duty is to investigate whether marine mammals were intentionally captured. However, interviews revealed they face challenges with species identification, assessing the animals' condition, and determining the appropriate next steps. Despite these challenges, many officers reported that they perform their duties as required and agreed on the need for a more efficient system for immediate assessment and handling of carcasses. Although the maritime police operate 24/7, agencies responsible for carcass disposal have fixed working hours, leading to delays and issues such as odor management. Officers emphasized the need for a dedicated agency or department within local governments to manage the prompt reporting, assessment, and removal of stranded porpoises effectively.

<Maritime police investigating illegal poaching>

Source: NewsOne(2021) Sokcho coast guard recovers six whales, including a Minke, Sacheon Maritime Police (2023)

3) NGO

Numerous coastal regions are home to NGOs dedicated to marine conservation. Comprehensive interviews were conducted with representatives from several key organizations, including the Seosan Environmental Education Center, the Korean Federation for Environmental Movement (branches in Incheon, Yeosu, and Goseong), and the Yeosu Marine Environment Rescue Unit.

The Seosan Environmental Education Center collaborates closely with local communities to promote biodiversity conservation. Recently, they partnered with Plan Ocean to host workshops aimed at raising awareness. Additionally, they have shown interest in expanding their conservation efforts to include NRFP conservation.

The Incheon branch of the Korean Federation for Environmental Movement (KFEM), which previously focused primarily on spotted seals, has now broadened its efforts to include NRFP conservation. Following a meeting with Plan Ocean, they have conducted their own boat surveys and engaged with local fishermen to enhance conservation initiatives.

For years, the Yeosu Marine Environment Rescue Unit has actively monitored areas frequented by NRFPs. They have installed signage, organized educational programs for the public, and worked to encourage the reporting of stranded animals. Furthermore, the Yeosu branch of KFEM is actively pursuing the designation of a marine protected area specifically for finless porpoises.

The Hallyeohaesang National Park, although not an NGO, has gathered extensive ecological data on finless porpoises through regular sighting surveys, collecting numerous photos and videos. This data includes detailed information on their seasonal and tidal patterns and behaviors. Recently, they launched an educational program aimed to raise public awareness for local sand tourists, utilizing their comprehensive data.

<Sign post indicating NRFP sighting area in Yeosu>

Source: Geunho Park (2020)

< Hallyeohaesang NRFP exploration program>

Source: Hallyeohaesang National Park

4. Conclusion

The key stakeholders in the conservation of NRFPs are fishermen, local communities, maritime police, and local governments, all of whom interact closely with these species on a daily basis. Their firsthand knowledge and experience surpass documented information, making them acutely aware of the necessary changes for effective conservation. During our awareness-building workshops, it became clear that there is a significant interest in learning more about this species and a growing concern for marine conservation amongst many.

We believe that ongoing efforts to spread knowledge and raise awareness about the importance of marine biodiversity, combined with extensive research and improved protocols and policies, will create a more robust conservation framework. MOF has expressed its commitment to pursuing these goals, fostering a brighter future for NRFP conservation.

Source

Cetacean Research Institute, CRI
Korea National Park Service Hallyeohaesang National Park
National Institute of Fisheries Science, NIFS

About this report

This report was prepared under Project No. P03885, funded by the IUCN Asia Regional Office, to carry out the assignment titled *"Lead Data Collection on Narrow-ridged Finless Porpoise (NRFP) and Reporting to Support the Implementation of IUCN WCC-2020-Rec-094.*"

The assignment aimed to improve understanding of NRFP bycatch and stranding incidents in South Korea, recognizing that official government statistics may not fully reflect the actual scale of these incidents. Through field surveys and engagement with local coastal communities in key areas of the West and South Seas, the project sought to collect relevant data, identify gaps in existing reporting systems, and raise awareness of NRFP conservation.