

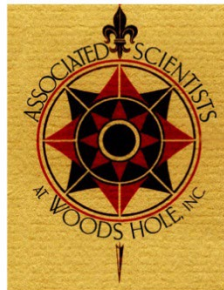
**Monitoring Endangered Right Whales
in Coastal Waters of Northeast Florida
by a Volunteer-Based Citizens Network**

2023–24 Season

Annual Report to:

Volunteers, Colleagues, Collaborators, and Sponsors

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Preface

During the 2024 season, there was a hint of good news. Earlier, during the period 2015 to 2021, an increase in mortalities was reported, along with modest calf production. This resulted in a downward trajectory for the population estimates. However, at the annual meeting of the North Atlantic Right Whale Consortium, 24–25 October 2023, the estimate for the year ending 31 December 31, 2022 was given as 356 (+7/-10), The downward trajectory may have bottomed out, and indeed the trajectory could be flat. If births exceed mortalities in the coming years, we can cautiously look for the estimates to increase, possibly suggesting a rebound. To date, in 2024, there were 20 calf births and five mortalities. The arithmetic may provide a positive result. The population status report at the Consortium meeting on 23 October 2024 indicated a slight upward trend, with the current population estimate as 372 (+11/-12).

As for the Marineland Right Whale Project study area, Ponte Vedra Beach to New Smyrna Beach, while there were several sighting responses, there were no identified right whales, and thusly, none reported to the Catalog. Inspection of the overall sightings for the season (whalemap.org) shows that the majority of sightings were to the north of us, from Amelia Island, Florida, on up to North Carolina.

The volunteer program continued strong with dedication and high return rates. Outreach and public education events, along with the mentoring of two students, were successful.

1.0 Introduction

The Marineland Right Whale Project was initiated in 2001 and completed its 24th field season in March 2024. It is one of about a dozen programs and organizations extending from Canada to Florida dedicated to the science and conservation of the North Atlantic right whale, *Eubalaena glacialis*.

As we entered the 2024 season, we hoped for the best—a strong calf count with perhaps an increase. In the 2024 season (defined as November 2023 through April 2024), 20 calves were born. There were noteworthy spots. Female catalog #1301, *Half Note*, 41 years of age, had her 8th calf, with only a two-year interval between this and her previous calf. (Sadly, she has lost seven of her eight calves.) At the other end of the spectrum, several females 16-17 years of age, had their first calf. First-time mothers were recorded with enthusiasm, as evidence of additional reproductive females being brought into the population. A sobering note, however, is that the average calving interval was 7.5 years—a number that continues to be greater than the 3.5-year interval recorded during better times.

The education and outreach component included mentoring of Kyriaki (Kiki) Gavriil, Byram Hills High School, Armonk NY, in the Authentic Science Research Program, and Sofia Abolfathi, a film and journalism student at the University of Florida in Gainesville.

2.0 Methods

2.1 Overview

During the course of 24 seasons, the volunteer sighting network has evolved, and refinements and innovation have been incorporated. In its present form, a number of interrelated components have proven essential to success:

- Dedicated survey teams
 - * Mobile
 - * Stationary (Community/Condo)
- Opportunistic sightings
- Right Whale Hotline
- Response teams
- Drone photos and videos
- Timely and effective communication with volunteers and collaborators
- Education and outreach
- Collaboration
- Data processing, analyses, synthesis, and presentation

The volunteer handbook, which provides essential information on right whale biology and survey protocols, is posted on the website: www.aswh.org.

2.2 Study Area and Sectors

The study area, monitored with a combination of a shore-based sighting network and the complementary drone flights, is in the near-shore waters of northeastern Florida between Ponte Vedra Beach (latitude 30°10' N) and Canaveral Seashore (28°56'N), within 5 nautical miles (nmi) of the coast (Figure 1). This ~70nmi section is subdivided into seven sectors, each ~10 nmi in latitudinal extent). The shore-based monitoring extends south to Ponce Inlet (29°04'N), while some opportunistic monitoring extends farther south to Canaveral Seashore. (Note, in 2023, an additional sector to include Ponte Vedra was added to the north end of our monitoring area.)

2.3 Sighting Protocols

Sightings, photo documentation, and data collection are based on interrelated sources and responses. The initial sightings are made almost exclusively from the shore. The response, extended observations, and photographs may be from the shore, or air (drone), or a combination. Throughout, there are standardized search effort and data collection protocols. This includes

photo documentation and photo-identification, which are essential to monitoring and data collection. The results are optimized through communication, collaboration, and by utilizing multiple platforms.

2.4 Shore-Based Lookouts

As described, the study area is divided into seven sectors. A shore-based volunteer sighting network works with experienced scientists. The volunteer sighting network includes two components: 1) scheduled, and 2) opportunistic observers. The scheduled observers, typically teams of two to four volunteers, are of two types: a) mobile and b) stationary. The mobile teams meet at 0800 hr at a designated point and travel by vehicle to a series of lookout stations where a 15-minute search is conducted at each. At the end of the series (typically five stations per team), they reverse the search and end back at the starting point.

The stationary teams (typically based in shore-front condos or housing communities) maintain lookouts from dune walkovers, or the balconies of shorefront buildings. In both cases, most watches are concluded by 1200 hr.

The opportunistic observers are residents and/or workers who have been provided information and the sighting-report hotline number; they report sightings made during the course of normal recreation or work. Opportunistic observers include, for example, the Volusia County Beach Patrol. (Wallet-size phone cards are widely distributed.)

The 200+ member volunteer sighting network and its several components provides effective coverage of our ~ 70 nmi section of coastal habitat (Figure 2).

2.5 Response Teams

A central location (the office in Marineland) is manned during daylight hours and is linked to the central call-in hotline maintained by the Marine Resources Council. When a sighting is reported, a response team that includes experienced scientists and volunteers is deployed. The response team carries portable GPS units (Garmin 12XL or similar) and digital cameras with long lenses (*e.g.*, Canon EOS 60D with a Canon EF 600-mm image-stabilized f 4.0 telephoto lens fitted with either a 1.5 or 2.0 Canon tele-extender). On many occasions, the response includes a drone and drone operator.

Standardized protocols are followed for data collection. Bearings are measured using binoculars with built-in compasses (*e.g.*, Nikon OceanPro 7X50 Model #7441). Ranges are

estimated visually by experienced observers based on calibration and training trials. Data and sighting sheets are standardized and reviewed for quality control. Whenever possible, whale locations are recorded by the GPS function of the drone; otherwise they are estimated from shore.

2.6 Unmanned Aerial Systems (UASs)

Since the 2016 season, drones (unmanned aerial systems or UASs) replaced the airplane that we flew from 2007 through 2017. The MRWP currently has two drones, one DJI Phantom 3 Pro, and a DJI Phantom Pro 4 v.2. In addition, four volunteers operate a DJI Phantom Pro 4 v.2, a DJI Phantom 3, and a DJI Mavic 2 Pro. With a total of five drones and five operators, the plan is that for any given sighting event, at least two will be available. All drones are registered with the Federal Aviation Administration (FAA). As we are considered to be a commercial operation (*e.g.*, includes scientific research) under CFR 14, Part 107, three of our operators have an FAA Remote Pilot Certificate. Four of our operators are listed in our NOAA/NMFS research permit, #26562.

Because of the proximity of several coastal airports to our study area, we have applied for, and received, FAA airspace waivers for Northeast Florida Regional (SGJ), Flagler (FIN), and Ormond (OMN) airports. (This waiver provides for operations within five nautical miles of the airport). In addition, we have the AirMap app on our mobile phones to utilize the Low Altitude Authorization Capability (LAANC) and provide for operation within five nmi of Daytona Beach International (DAB). In the future, we will apply for authorization for New Smyrna Beach (EVB). The Canaveral Seashore National Park is closed to drone operations, making this section of the coast unavailable.

The protocol for drone use in the course of our work is as follows: When a sighting is reported, a response team is deployed. This will typically include one or more drone operators. An assessment will be made as to weather and sea state conditions, as well as the distance from shore to the whale(s)—*i.e.*, is it reasonably within range? This will determine our response options. If warranted, a drone will be deployed to first obtain high-quality identification photos and second, to record video that will contribute to behavioral studies. As detailed in our NOAA/NMFS permit, operators and assistants wear vests identifying them to the public as researchers. In many cases, images will be sent to members of the FWC Team for assessment in decisions about darting and boat/aircraft deployment. Likewise, if conditions or distance preclude a drone launch, this information will be relayed so that FWC has the option of deploying their aircraft for photo-ID.

2.7 Monitoring for Human-impacted Individuals

In the field and during photo archiving and analysis, particular attention is paid to noting and documenting human-impacted individuals. Impacts or potential impacts include ship/boat collisions, fishing gear entanglement, and harassment by boaters, paddle boarders/surfers, and jet skiers.

Data and photo documentation are submitted to NOAA law enforcement, the Whale-Vessel-Interaction database maintained by FWC, as well as the database and photo catalog maintained by the New England Aquarium, Boston, Massachusetts.

2.8 Phone Notification System

The phone notification system, which was implemented several years ago, has proven to be a success. The system was temporarily discontinued in 2020–21 due to the pandemic to avoid groups gathering at a sighting location. The system has resumed. We contract with One Call Now, an automated telephone messaging service, to facilitate fast, efficient, and complete notification of survey team members during whale sightings. After importing the team members' names and contact numbers, One Call Now allows us to create a voice message and deliver it to certain sectors, or, to the entire list, within 20 minutes. Volunteers either answer the call live and hear the message, or, the service leaves a voice mail. Having the opportunity to see right whales is a high-priority goal, both as a reward for the volunteers' assistance, and, to help new volunteers establish their right-whale sight image for better detection/species identification during surveys and follows. An additional function of the phone network is to advise volunteers on weather conditions and changes to the survey schedule.

2.9 Sea-Surface-Temperature (SST)

Sea-surface temperature (SST) satellite images are received daily from the Naval Oceanographic Office, Stennis Space Center, Mississippi. The images are based on Advanced Very High Resolution Radiometer (AVHRR) reflective measurements interpolated, averaged, and analyzed within a 10 km (~5 nmi) grid. The SST value is ground-truthed with drifting buoys. The error estimate for the images with reference to the buoys is described as ± 0.5 degrees. In parallel, for a nearshore fine-grain measurement, we use the SAUF1 National Data Buoy Station at the end of the St. Augustine Pier. Data are posted on the National Data Buoy Center website (Station SAUF1-St. Augustine, Florida), and are available for download.

2.10 Outreach and Education

Engaging citizens and community is an important part of our core mission. Training and orientation sessions are given to volunteers and potential volunteers prior to and at the beginning of the season. As the season progresses, updates with information and results are scheduled. We also give public talks, and respond to media requests, both print and television. We also partner with other organizations, *e.g.*, the Marineland Dolphin Adventure in Marineland, Florida, and the Blue Ocean Society, in Portsmouth, New Hampshire.

The outreach and education component continued with the mentoring of Kiriaki Gavriil, Byram Hills H.S., Armonk, New York, in her Authentic Science Research Program. In 2024, we also worked with Sofia Abolfathi, a film and journalism student from the University of Florida in Gainesville.

2.11 Data and Photo Analysis, and Submission

As is the custom, the right whale data and photos are submitted to the database and photo catalog maintained by the New England Aquarium. If humpback whale data and photos are taken, they are submitted to FWC, and subsequently to the Center for Coastal Studies, Provincetown, Massachusetts.

3.0 Results

3.1 Sighting Effort

Cautions resulting from the COVID-19 pandemic were diminished this season, and lookouts and monitoring continued. The shore-based dedicated lookouts were active from Thursday, 4 January, through Saturday, 9 March 2024. The network included ~ 200 volunteers monitoring a 70-nautical mile section of coastline from Ponte Vedra Beach to New Smyrna Beach (**Figure 2**). Conservatively estimated, 3,000 hours of volunteer sighting effort took place. The survey area added an additional team to Area 1N, the Turtle Shores group. The weather and sighting conditions generally appeared cool, gray, and windy—and we opined that conditions were poorer than average. This is borne out by the survey effort summary (**Figure 3**).

3.2 Right Whale Sightings 2023-24

3.2.1 Overall Sighting Summary

In the 2023-24 SEUS season, the Marineland Right Whale Project and our partner organization, the Blue World Research Institute, received and responded to nine right whale sightings (Table 1, Figure 4). Of these, only one (3 February, off Melbourne, by BWRI) resulted in photography that provided for individual identification. Another sighting on 16 January just south of Marineland was identified as a mother-calf pair, but without individual identification. Several sighting responses (4, 18, and 19 February and 2 March) resulted in vigorous searches but without verification. On two other occasions, the responses yielded false alarms (*e.g.* a wood box or a tree trunk).

This season included one beachcast animal—a dwarf sperm whale, *Kogia sima*, that came ashore just north of the St. Mary’s Beach ramp, Butler Beach.

3.2.2 UAS Assisted Sightings

The use of shore-launched drones has considerably enhanced the efficacy of the shore-based sighting network. However, in this season, circumstances precluded any drone results from the Marineland Right Whale Project. On the other hand, our partners, the Blue World Research Institute team, documented the 2023 calf of *Pilgrim*, #4340, (a yearling) on 3 February off Melbourne—the only identified right whale for the season.

3.2.3 Human Impacts

No human impacts were reported in our area in the 2024 season.

However, a number of injuries and mortalities did take place (Figure 5).

3.3 Sea Surface Temperature

As has been our practice for more than a decade, daily sea-surface temperature plots were obtained from NAVOCEANO, Stennis Space Center, Mississippi. Water temperature data were also downloaded from the NOAA National Data Buoy Center monitoring site on the St. Augustine pier. Analyses are underway.

3.4 Collaboration with the Florida Fish and Wildlife Conservation Commission Team

We collaborate and communicate with other groups on a near-daily basis. This includes the Florida Fish and Wildlife Conservation Commission team. This collaboration includes several components, among them the genetic sampling of calves.

3.5 Professional meetings and participation

The MRWP provided summary information for a presentation at the Southeast U.S. right whale implementation team (SEIT) meeting on 1-2 May 2024. We, including Julie Albert of the Blue World Research Institute, gave presentations in the Community Engagement session on Day Two of the Forum meeting. There was no fall meeting.

In advance of the 2024-2025 season, we attended the annual meeting of the North Atlantic Right Whale Consortium, 23-24 October 2024, in Providence, Rhode Island.

3.6 Training and Public Outreach

As the constraints surrounding the COVID-19 pandemic diminished, we were able to return to our usual three volunteer sessions: a season opener and training, a mid-season review, and a season-end summary and review (Table 2).

We gave a number of talks between November 2023 and March 2024, as well as a television interview with First Coast News (Table 2). We had a display at the Marineland Market on 2 March 2024 (Figure 6). We also continued to support the right whale display at the Flagler Beach Museum.

Sharing images, videos, and results with our volunteers is central to the program. To this end, we prepared a summary video for the 2024 season, *2024 Volunteers* (runtime 7 minutes). This is on the YouTube channel of the Marineland Right Whale Project.

We continue to work with students. On 1 June 2022, we entered into an agreement with sophomore Kyriaki Gavriil, Byram Hills H.S., Armonk, NY, for mentoring in the Authentic Science Research Program. Kiki worked with us during 18-24 February 2023 at our field site. With the assistance of Florida Fish & Wildlife staff, we arranged for her to visit the survey aircraft and the FWC field station. The review and interactions continued, and on Wednesday, 5 June 2024, Dr. Hain attended the science symposium and poster session at Byram Hills H.S. where Kiki gave her final presentation (Figure 7).

Also, In the 2024 season, we were contacted by Sophia Abolfathi, a journalism student at the University of Florida in Gainesville (Figure 7), working on her undergraduate capstone project. She met with us and volunteers on 24 February 2024. She published her article, “The Atlantic Sojourner: An Ode to Right Whale #5120” in Gainesville’s *Atrium* magazine.

3.7 Disposition of Data

The submission of data and photographs to the Right Whale Catalog at the New England Aquarium, Boston, Massachusetts, took place on 30 March 2024. Digital archiving of data, images, videos, and reports is continuing. Our intentionally redundant backup system consists of two multi-Terabyte external hard drives.

4.0 Discussion and Conclusions

At the completion of the 24th year of the program, we look both backwards and forwards for the essential program components.

4.1 Foundational Background

The Marineland Right Whale Project has been in operation since 2001. With a hiatus from 2016 through 2020, contracts from the U.S. Army Corps of Engineers, have provided a majority of the cost-share financial support. After several years in development, an updated South Atlantic Regional Biological Opinion (SARBO) was agreed on by the USACE and the SERO/NMFS, and signed off on 17 March 2020.

Specifically, the guiding language is in Appendix F. 2020 SARBO USACE and BOEM North Atlantic Right Whale Conservation Plan, (p. 589)

2.1 Conservation Measures. Established right whale Early Warning System (EWS) U.S. Navy, U.S. Coast Guard, and NMFS for implementing right whale aerial surveys—two decades. (p. 590).

2.4 Volunteer Sighting Network. In addition to the contributions that USACE makes toward the EWS aerial surveys, the USACE Jacksonville District also provides annual funding for the Marineland Right Whale Project volunteer sighting network. The Marineland Right Whale

Project uses shore-based volunteer spotters to look for right whales between St. Augustine and Ponce Inlet, Florida. The Marineland Right Whale Project not only relays additional whale sightings to the EWS system and the New England Aquarium's North Atlantic right whale sighting database, but project staff also provide North Atlantic right whale information to the public. (p. 596).

4.2 Right Whale Calving and Wintering Grounds

The coastal waters of the southeastern United States—principally Florida and Georgia—are the principal calving and nursing ground for the endangered North Atlantic right whale, *Eubalaena glacialis*. The small population currently numbers about 372, with a small number of calves born each year (the average in the recent 10 years has been 12).

Florida's coastline includes 175 nautical miles (nmi) of right whale critical habitat. In the 2023-24 season, as in several preceding seasons, the great majority of aerial survey effort by the states of Georgia and Florida took place in the northern section—the Mandatory Ship Reporting/Early Warning Survey area. South of St. Augustine (about 125 nmi or 70% of the Florida critical habitat), most sighting effort was provided by the Volunteer Sighting Network—a collaboration between Associated Scientists at Woods Hole and the Blue World Research Institute.

This more southerly coverage is important for several reasons, including: a) right whale sightings-per-unit effort (SPUE) values for the area south of St. Augustine are often comparable to those for the more heavily surveyed area to the north, b) characterizing the biology and addressing the mitigation in the more northerly EWS area necessarily includes data from throughout the right whale habitat, c) several channel entrances, with their associated vessel activity, lie in this more southerly area, and d) this area is experiencing rapid coastal development and an increase in human population and warrants careful monitoring. Lastly, observations at the edge (the “outliers”) of a population’s distribution can be useful to measuring variability and change (*e.g.*, climate cycles or change) for a population and its environmental correlates (Greene *et al.* 2009).

The Marineland Right Whale Project continues to be a valuable contributor to right whale science and conservation. The experienced volunteers provide resources, skills, dedication, and experience.

One of the important products of the program is the submission of photographs and data to the Right Whale Catalog (rwcatalog.neaq.org), the collective database and archive maintained by the New England Aquarium, Boston, Massachusetts. During the 24 years of the program, the

number of sightings, and the corresponding photo/data submission has varied widely (Figure 8). The largest number of sightings by the MRWP, 63 in 2010, ranged down to the smallest, 0 in 2017 and 2018. The overall mean was 11 with a median of 10.

Final thoughts:

- * Our collective efforts are aimed at the co-existence of whales and humans.
- * While we study whale behavior, we recognize that it isn't whale behavior that we can/wish to change. Instead, we wish to apply what we've learned about whales, so as to encourage changes in human behavior—leading us back to successful co-existence.

4.3 Roots in Marineland

The early description of right whales in Florida waters goes back at least 75 years, and is largely based on the work of staff and curators at Marineland. The oldest records in the right whale catalog, include 10 from 1957 to 1979 by curator David Caldwell, who collected sightings data and photographs. One of the first published records of right whales in Florida, in the spring, is in Caldwell and Caldwell (1972). A colleague of the Caldwells, Howard Winn at the University of Rhode Island, sought to build on the idea of collecting sightings data and building a sighting network (Winn, 1984). Accumulating evidence on occurrence of right whales in southeastern U.S. waters resulted in searches and sightings of right whales in 1984 by volunteer airline pilots (Brown *et al*, 2007). A subsequent early effort at organization and collaboration took place in 1986 (Neuhauser, 1986), and again incorporated foundational work by David Caldwell at Marineland. A data synthesis led to the establishment of a right whale critical habitat (Kraus and Kenney, 1991). The Marineland Right Whale Project operates in and adjacent to the right whale critical habitat (NMFS 1994, 2016).

4.4 Technology Advance

Beginning about 2019, the use of unmanned aerial systems (UAS's or drones) has considerably enhanced the results of the volunteer sighting network—increasing substantially the number of photo-identifications and behavioral descriptions.

4.5 A Fluid Distribution

As described above, observations at the edge of the distribution have value. The annual sightings tally by the MRWP (Figure 8) shows great variability. In the 2024 season, the number of sightings in our area was greatly reduced. This despite a more typical cumulative sightings

tally by other monitoring teams, as well as a relatively strong mother-calf count. The abundance and distribution were shifted to the north (Figure 9).

With an overall calf count of 20 for the season, what will be the effect? It's basic arithmetic. Births vs. deaths. What could be so hard about that? Well, actually it is hard. The number of births can be reasonably described. However, the number of deaths includes a confounding factor. Pace *et al.* (2021) describe that observed carcasses accounted for only 36% of all estimated deaths during a 27-year period. They concluded that observed carcass counts were poor indicators of numbers of whales dying. Therefore, one of the two terms in the equation is open to uncertainty.

There are other sources of uncertainty. Will this northward shift in 2024 be an anomaly or part of a longer trend? Science and management are challenging.

4.6 The Population Status

Finally, another useful indicator of the status and recovery of the right whale population are the annual calving reports (Figure 10). Variability occurred during decades of monitoring. Strong calving took place in the 2000 to 2011 period. A general decline followed. All involved look to a rebound in the coming season.

4.7 Looking to the Future

Modeling of the right whale population size may provide the “proof in the pudding” (Figure 11). The estimate for the most current year to which the modeling applies is 2023. The estimate as of October 2024 was 372. However, the population trajectory shows a leveling, with the speculation that, as additional data are considered, the trend line may indeed return to an upward slant. On both counts, as the 2024-25 calving season begins, we hope for a population increase and rebound.

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Table 1. Sighting summary 2023-2024 season for the Volunteer Sighting Network, collaborative reports of the Marineland Right Whale Project and the Blue World Research Institute.

Date	Day	Time ¹	Location	Lat ²	Long ²	RW Class	Hdg	Pager #	Notes (Who sighted, etc.)	Verified?/ Photos?	Provisional ID
1 Jan 24	Mon	13:38	Flagler Beach	29°25.8'	81°03.9'	Revised to MC	STA, N	n/a	Public report to hotline from 3 rd story Flagler, Judy Bowman responded but saw nothing after 1 hr; Julie later discovered probable yearling via Facebook; got original videos from shrimper Jason Vogelsong	Vogelsong videos: unidentified m/c (per Katie Jackson: calf visible at end of video ending in 200)	Unidentified m/c
11 Jan	Thu	13:00	Flagler Beach	29 27.9	81 06.8	Adult	STA	OTHER043	Tony Caruso saw Facebook post on Flagler for Friends by Mike Robbins; relayed to Anita Dodd who asked for more info and relayed to Sara ~17:00; too late in day to respond. FWC posted alert next morning (within 36 hrs, per ACOE protocols)	Facebook video by Mark Robbins	Unidentified single
14 Jan	Sun	13:52	S of Canaveral	28 12.5	80 35.6	1 adult	S	OTHER045	public BWRI for details		
16 Jan	Tues	12:05	Surf Club, Palm Coast	29 38.4	81 11.2	MC	S	VSN001 MRWP	Paula Smith, Surf Club III sighted, called Jim: Jim, Sara, Lorraine responded, verify RW m/c from Linda Weigman's SC III balcony.	M Korchemkin stills from 6 th floor SC I	Unidentified m/c

Date	Day	Time ¹	Location	Lat ²	Long ²	Species/ Class	Hdg	Pager #	Notes (Who sighted, etc.)	Verified?/ Photos?	Provisional ID
19 Jan	Fri	09:27	American Beach, Amelia Is.	30 34.1	81 26.4	MC	S	VSN002 MRWP	7:30 jogger on Amelia Is. called Sara who called Lauri DeGaris in Fernandina Beach; Lauri verified RW m/c	Lisa Conger, NOAA flew drone for ID	#3546, Halo, & calf
19 Jan	Fri	13:53	New Smyrna	28 59.0	80 51.0	1 Adult	S	VSN003 BWRI	BWRI for details	BWRI	Unidentified single
24 Jan	Wed	13:40	Butler Beach, Mary St. beach ramp	29 48.6	81 14.3	Single	STA	FLWS027	12:17 Mike Shannon relayed info from marine radio, "m/c pair by pier". Mike & Cindy Alyea & some Team 1 Wed & Fri searched pier area. FWC plane boxed pier area: Nothing. Katie Jackson reported blows at Mary St. Jim, Sara, Lorraine responded, other vols joined. No pics from 3 drone flights by Sara & Jack Dewhurst. Land photos by Sam Knutson	FWC aerial photos	Yearling, 2023 calf of #1208
3 Feb	Sat	13:47	Near Nautilus, Flagler Beach			?	?	n/a	Response by Judy Bowman, Dale & Peach, Zoe Rauscher, John & Linda Wilson	Not verified	

Date	Day	Time ¹	Location	Lat ²	Long ²	Species/ Class	Hdg	Pager #	Notes (Who sighted, etc.)	Verified?/ Photos?	Provisional ID
3 Feb	Sat		Melbourne	28 02.4	80 32.5	Yearling	S	VSN004 BWRI	BWRI Joel responds	Joel drone video	2023 calf of Pilgrim, #4340
3 Feb	Sat		Butler Beach, N of Mary St. beach ramp	29 47.4	81 15.4	<i>Kogia sima</i>		n/a	Live stranding; public report to FWC; Sharon & Basil Gribbon called MRWP.	FWC euthanizes, transports to JAX Zoo for necropsy and species ID	<i>Kogia sima</i> , beach cast
4 Feb	Sun		St. Augustine pier	29 51.4	81 15.8	MC	S	OTHER069	Text from FWC: Mike & Cindy Alyea, Jack Dewhurst & FWC staff go to pier; see S of pier. Jim, Sara, Lorraine, Carol Logan, other vols & FWC staff spread out S of pier. Nothing further	Public video to FWC	Unidentified m/c
5 Feb	Mon		S. Flagler	29 27.8	81 06.7	Wooden box	S	n/a	Call to hotline from Kool Beenz coffee shop, Flagler Beach. Jim, Sara, Lorraine & Sector 2 vols respond. Sector 3 had seen earlier and dismissed.	Bill Gough photos	
10 Feb	Sat		Ponce Inlet Sunglow Pier	29 08.2	80 57.3	MC	N	VSN005, BWRI	Public call to hotline; Julie sends volunteer to verify. FWC sends plane	FWC plane	#1612, Juno and calf

Date	Day	Time ¹	Location	Lat ²	Long ²	Species/ Class	Hdg	Pager #	Notes (Who sighted, etc.)	Verified?/ Photos?	Provisional ID
17 Feb	Sat	13:20	Ponte Vedra Inn & Club	30 14.6	81 22.4	MC	E	FLWS062	Public report to FWC; Julie Albert & Joel Cohen responded on return from Tybee Is necropsy; FWC staff on site too. Slight glimpse from shore.	FWC plane	#1612, Juno and calf
18 Feb	Sun	10:20	Ormond-by-the- Sea	29 20.1	81 03.5	Single?	S	n/a	Public call to FWC, re post on Ormond BTS Facebook page. Zoe & Laura Rauscher dispatched; meet witnesses who saw "whale.". Sara, Jim, Lorraine, Peggy Jones et al. from Sector 4 search. Rainy, windy, sea state increasing. No joy.	Not verified	
19 Feb	Mon	12:05	St. Augustine pier	29 51.4	81 15.8	Single?	N	n/a	Report by couple from Embassy Suite hotel, relayed by worker at pier gift shop. Mike & Cindy Alyea, Pat Sell, Chuck Guagliardi respond. Search from pier then Anastasia State Park. FWC searches from end of Pope Rd. No joy.	Not verified	

Date	Day	Time ¹	Location	Lat ²	Long ²	Species/ Class	Hdg	Pager #	Notes (Who sighted, etc.)	Verified?/ Photos?	Provisional ID
2 Mar	Sat	11:21	Dondanville Rd., Saint Augustine	29 49.1	81 14.1	MC	S	FLWS072	FWC plane circling a sighting; Jim responds w Valerie Gruhot. Unverified from shore. First time Juno seen without calf (Next day, volunteers on alert for dead calf. Carcass washes up on Cumberland Is.)	FWC plane	#1612, Juno w/o calf
5 Mar	Tue	9:52	Surf Club, Palm Coast			Tree trunk	S	n/a	Mikhail Korchemkin of SC 1 calls to report whale calf; 10:01 sends photos saying it is driftwood. 10:28 Linda Weigman SC III calls in m/c pair; looks again, confirms driftwood. Sara responds for photos/videos.	Mikhail & Sara photos	
16 Mar	Sat	13:30	Turtle Shores, Ponte Vedra	29 59.1	81 18.1	?	NE	n/a	Turtle Shores residents watched for ~1.5 hr. Jacki Matloub and Shea Lox respond. Observers report V-shaped spout, repeated breaching, multiple whales. Mike Sammartino's i-Phone videos show large distant splashes; could be a whale. FWC vessel responds.	Not verified: video inconclusive; no sightings from FWC vessel	

¹ time typically assigned when verified and photographed

² foreign objects, e.g., wood, tree trunks, included when we made responses

Table 2. Presentations to groups and organizations, 2023-24 season

A: MRWP Volunteer Recruitment/Training/Informational

Date	Presenter	Detail
3 Jan 24	Sara Ellis	Season opener event and volunteer training, Whitney Lab, Marineland, FL (195 attendees)
10 Jan 24	Terran McGinnis Shea Lox	MRWP Team 1 North volunteer training and information session, Guana Tolomato Matanzas National Estuarine Reserve, Ponte Vedra, FL (32 attendees)
10 Feb 24	Sara Ellis Jim Hain	Mid-season update, Whitney Lab, Marineland, FL, (124 attendees)
17 Mar 24	Sara Ellis Jim Hain	End-of-season summary, Whitney Lab, Marineland, FL, (98 attendees)

B: Public Outreach & Education

Date	Presenter	Detail
8 Nov 23	Terran McGinnis	“All about Right Whales”, Main Branch of the St. Johns County Library, Saint Augustine, FL (8 attendees)
12 Nov 23	Frank Gromling	“Nature Big & Small” Center for Spiritual Living, Daytona Beach, FL (12 attendees)
7 Dec 23	Terran McGinnis	“All about Right Whales”, Anastasia Is. Branch, St. Johns County Library, Saint Augustine, FL (25 attendees)
9 Dec 23	Terran McGinnis	“All about Right Whales”, Palm Coast Community Center, Palm Coast, FL (30 attendees)
30 Jan 24	Sara Ellis	Interview with Robert Speta of First Coast News, Jacksonville, FL. Air date 31 Jan (runtime 1:27 min), followed by longer version 3 Feb (2:14 min). www.firstcoastnews.com/article/weather/uptick-in-right-whale-sightings-on-first-coast-sheds-light-on-the-endangered-species-florida-fish-and-wildlife-conservation-commission/77-055ac61b-58bb-4a2e-9b0f-9a2c50bb8626
24 Jan 24	Frank Gromling	“North Atlantic Right Whales”, Cinnamon Beach Recreation Center, Palm Coast, FL (36 attendees)
6 Feb 24	Terran McGinnis	“All about Right Whales”, Virtual Presentation for Florida Master Naturalist Program - Conservation Science Course (25 attendees).
21 Feb 24	Terran McGinnis	“All about Right Whales”, Saint Augustine Yacht Club, St. Augustine, FL (40 attendees)

B: Public Outreach & Education (continued)

Date	Presenter	Detail
2 Mar 24	Jeannie Cardany, Lorraine Cooley, Sue Delegal, Karol Doucette, Bill & Merrideth Gough, Lora Stillman	Right whale information table at the first monthly Marineland Market, Marineland, FL (several hundred attendees) www.marinelandmarket.com
2 Mar 24	Sara Ellis	“North Atlantic Right Whales: How You Can Help”, Gamble Rogers State Park, Flagler Beach, FL (24 attendees)



Figure 1. The 70 nautical mile section of coastline in Northeast Florida is partitioned into seven sectors, each about 10 nmi in latitudinal extent. Monitoring and responses in the area south of Daytona Beach to New Smyrna Beach is shared with our partner, Blue World Research Institute.

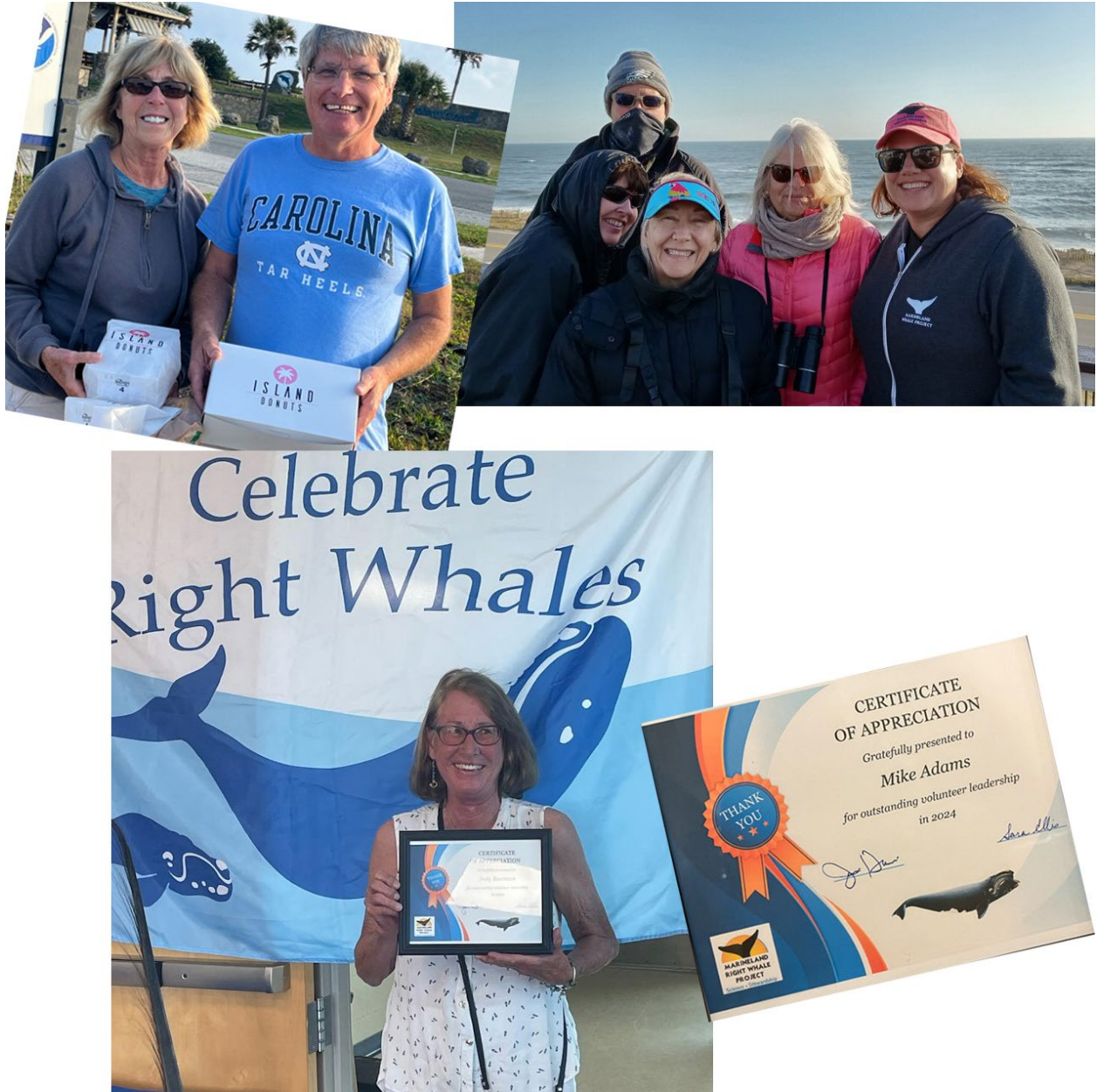


Figure 2. For more than two decades, our volunteers have been capable and dedicated. Above are examples of the day teams, below is Team 4 Leader, Judy Bowman, and (R) an example of the certificates of appreciation awarded to the fourteen hard-working team leaders.

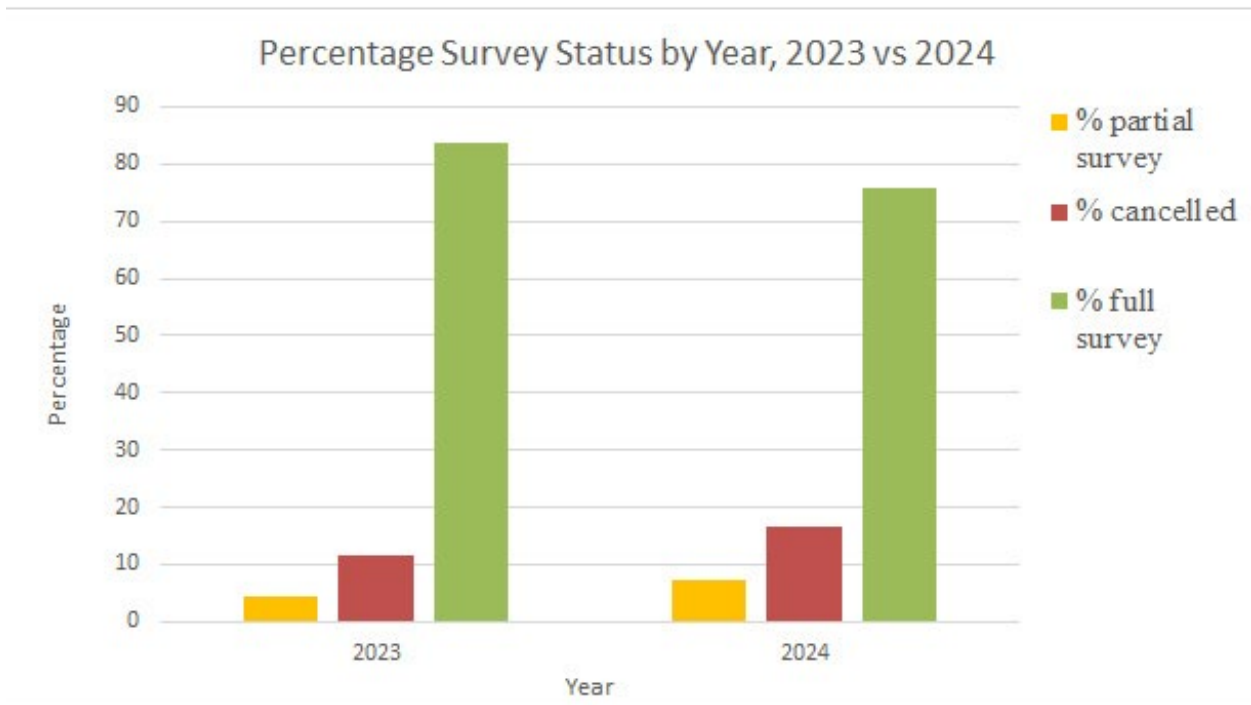
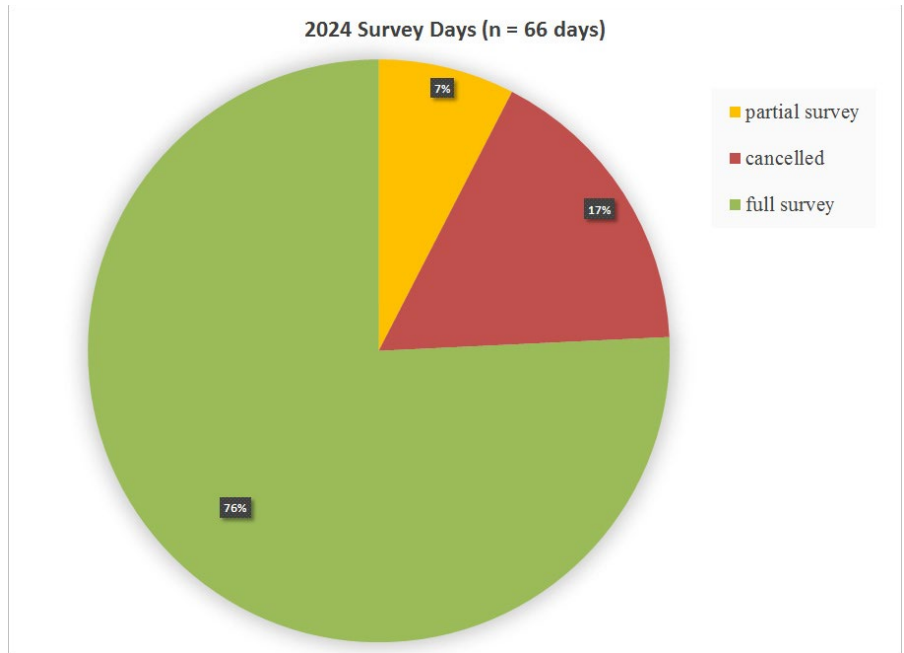


Figure 3. A crude measure of sighting conditions is provided by those days with good weather and good sighting conditions—as indicated by the survey effort. Above: Percentage of good, fair, and cancelled days for the 2024 MRWP survey effort. Below: Comparison of current and previous year.

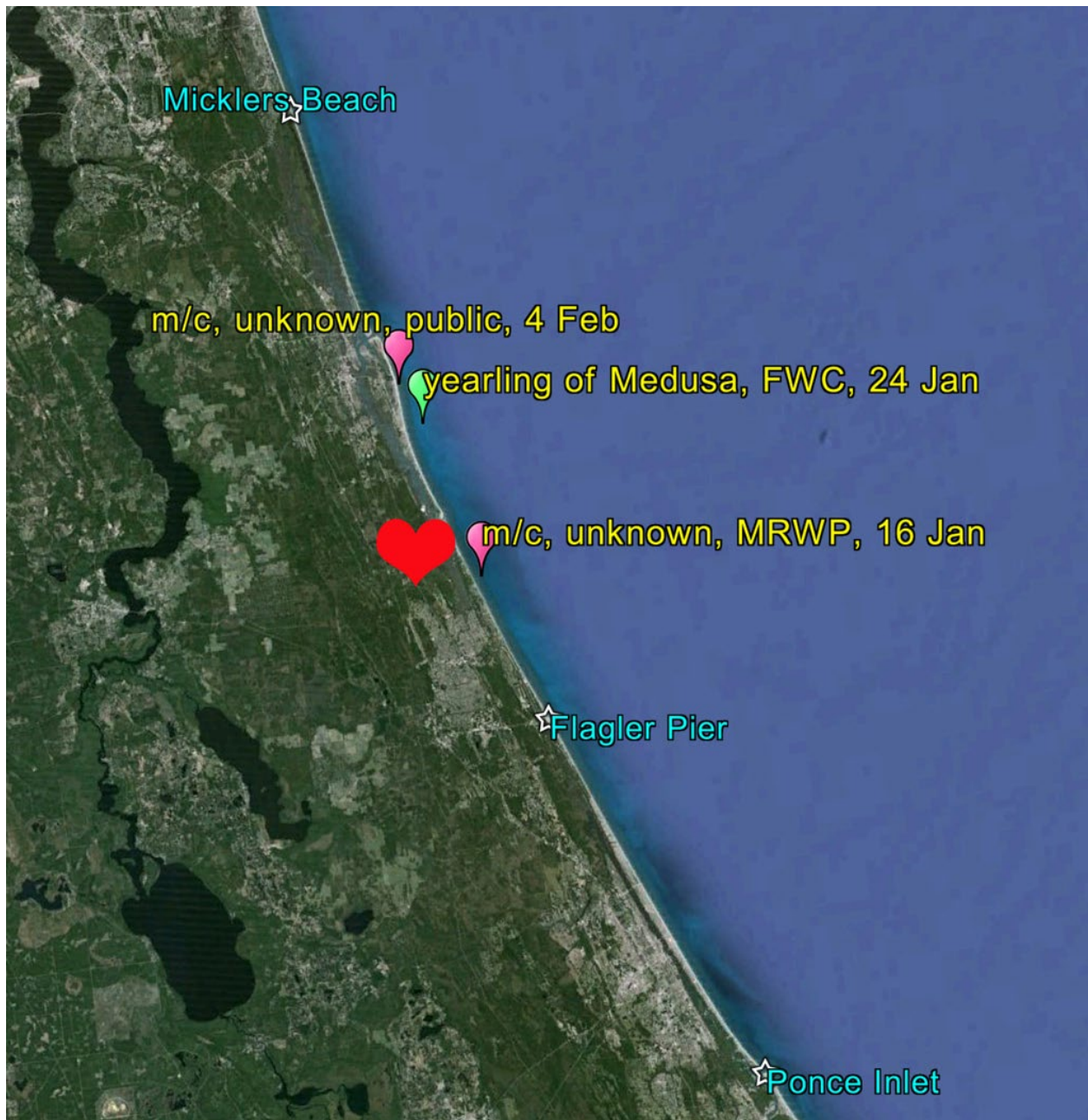


Figure 4. The verified sightings in the Marineland Right Whale Project area were sparse in the 2024 season. The whales were distant and elusive, and did not accommodate identification from shore photos. Our program had no whale sightings south of Marineland (the heart symbol).



Figure 5a. There were a number of injuries and mortalities this season. The 2024 calf of Catalog #1612 (*Juno*) was sighted on 3 January 2024 off Edisto, South Carolina, with propeller cuts and injuries to its head, mouth, and lip. Photo: Forever Hooked Charters of South Carolina.



Figure 5b. The 2024 calf of #1612 (*Juno*) washed ashore on Cumberland Island National Seashore on 3 March 2024. The carcass was heavily scavenged by sharks. Photo: Georgia Department of Natural Resources taken under NOAA permit #24359.



Figure 6. Outreach and education are a core component of our mission. On 2 March 2024, volunteers successfully interacted with several hundred members of the public at the Marineland Market. (Photos: Bill Gough)



Figure 7. Mentoring of students is an important program component. Upper panel: Kiki Gavriil, a senior at Byram Hills H.S. in New York, gave her presentation on 5 June 2024 at the Regeneron Science Symposium. Lower panel: Sofia Abolfathi, (2nd from left), a journalism student at the University of Florida in Gainesville, interviewed Team 5 volunteers at Winterhaven Park in Wilbur-by-the-Sea on 24 February 2024. The subsequent right whale story, entitled “The Atlantic Sojourner: An Ode to Right Whale #5120”, was published in Gainesville’s *Atrium* magazine.

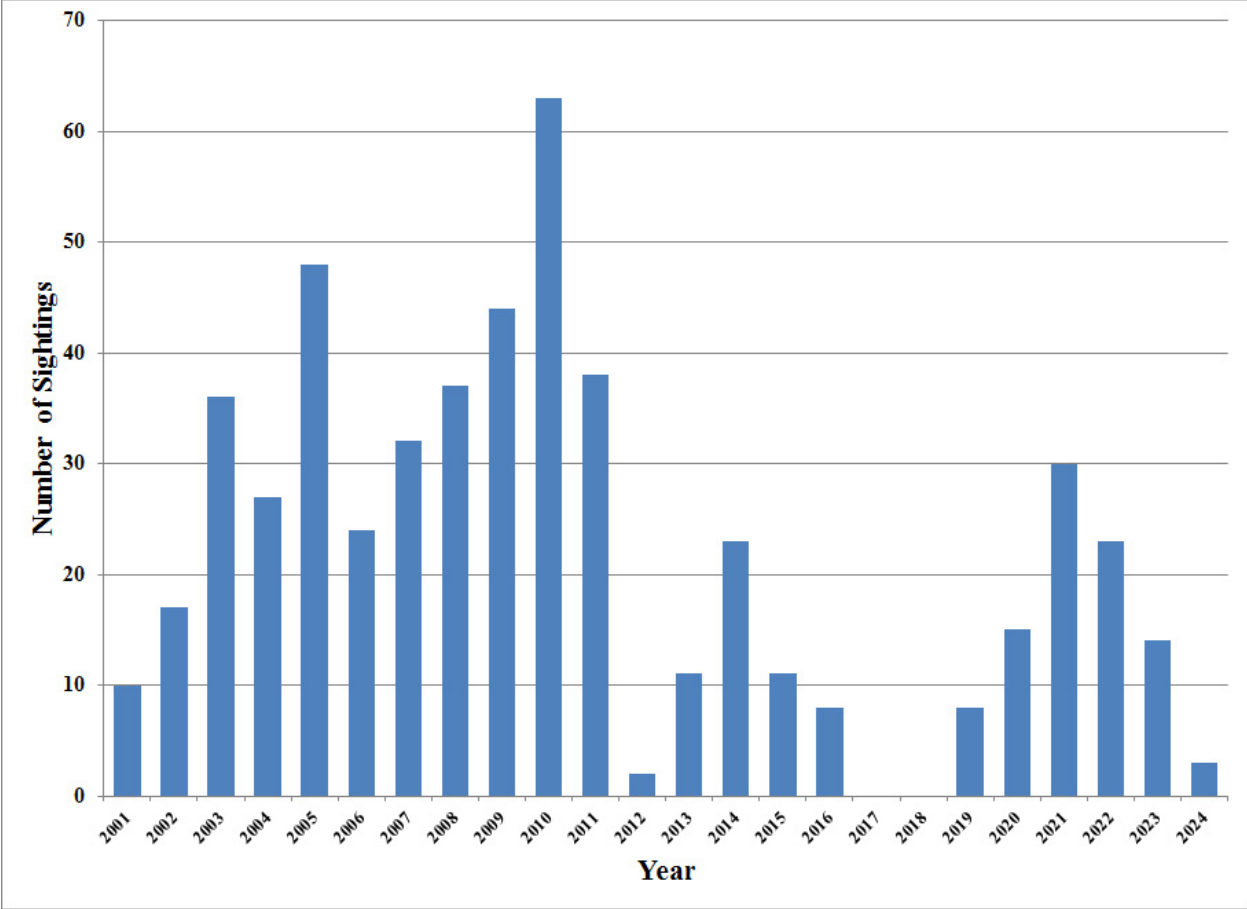


Figure 8. Total annual right whale sightings by the Marineland Right Whale Project, 2001 through 2024.

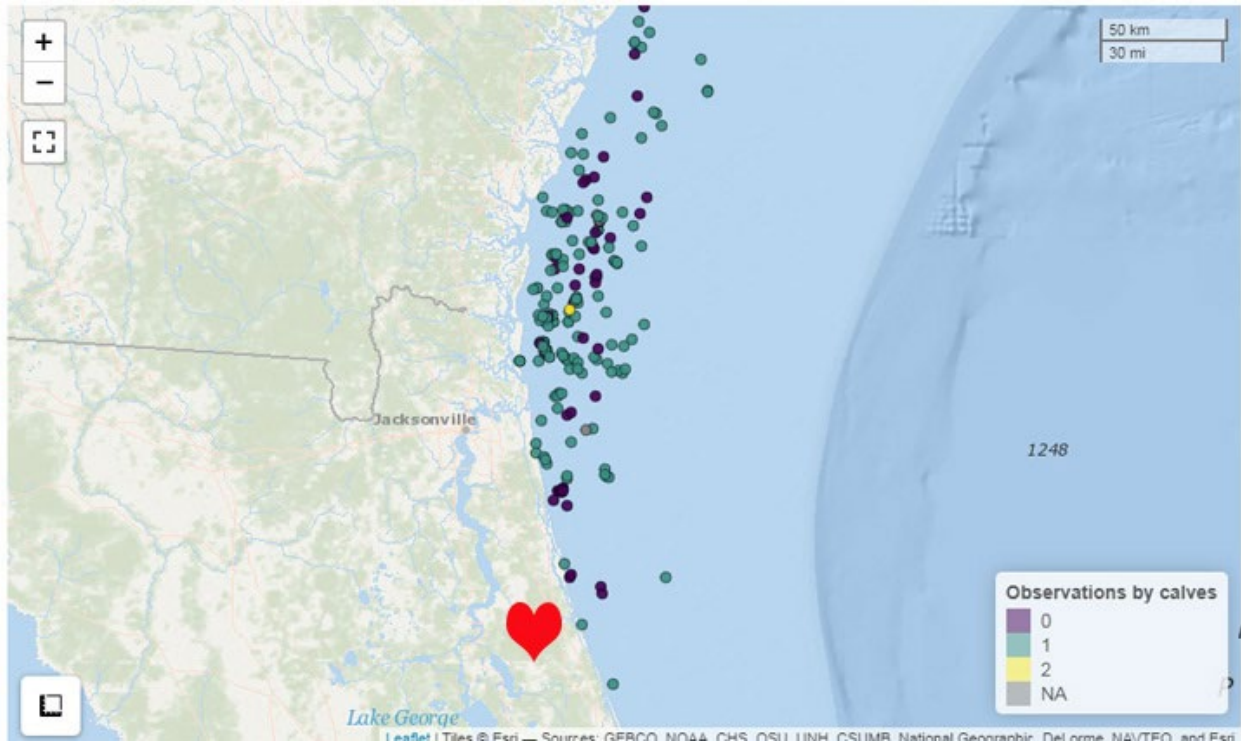


Figure 9. Right whale sightings in the SEUS from all sources. In the 2023-24 season, the majority of sightings were off Amelia Island and northward to the Carolinas. Marineland is indicated by the red symbol. Source: whalemap.org.

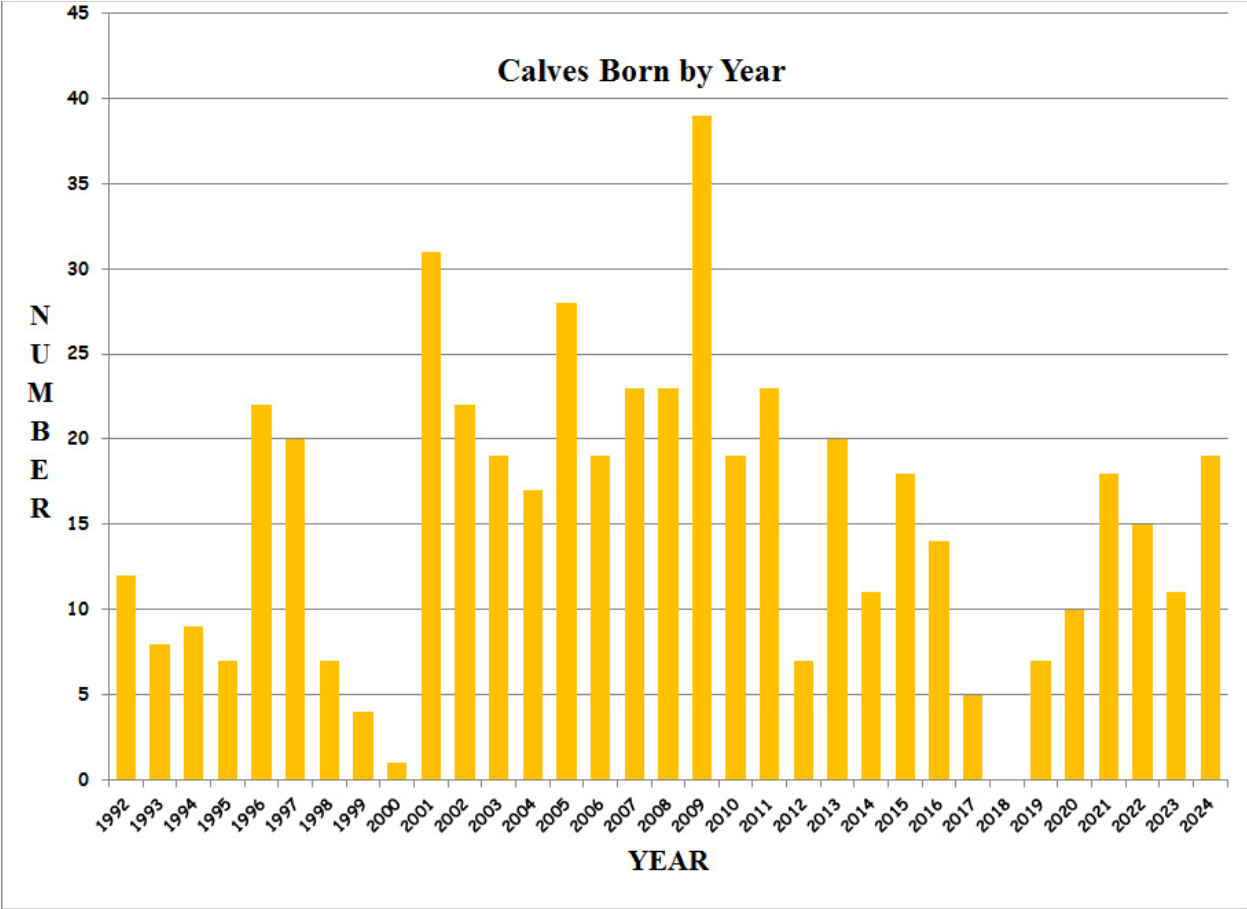


Figure 10. Total annual calf production by North Atlantic right whales, 1992 through 2024. Records compiled by the New England Aquarium. On 1 June 2024, a 20th calf for the season was recorded near the Virginia-North Carolina border (Source: NOAA Fisheries).

North Atlantic Right Whales 1990-2023
as of October 2024

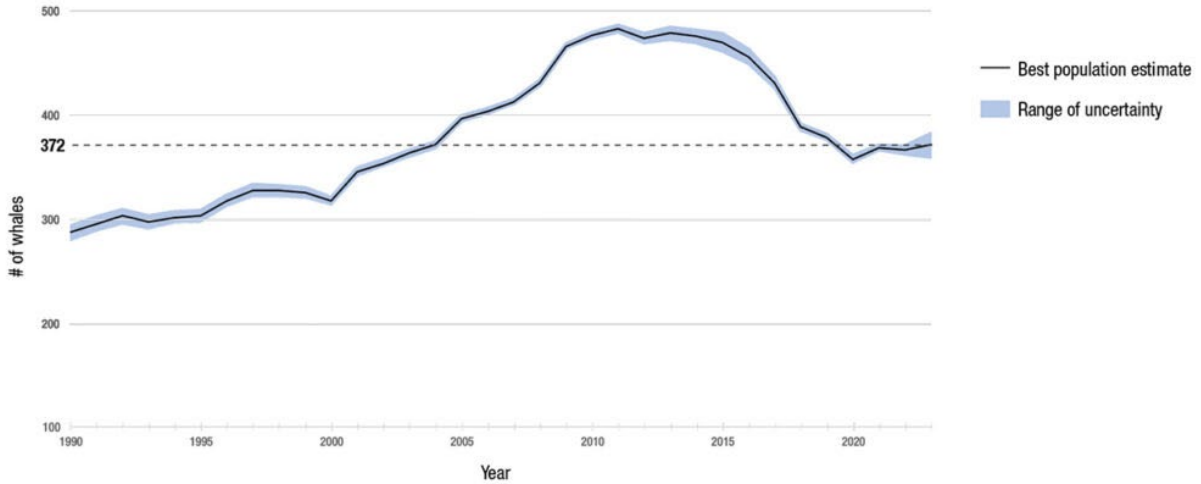


Figure 11 The population trend for the North Atlantic right whale, as of the end of December 2023. The recent years suggest a leveling off of the downward trend. The point estimate for December 2023 is 372 (+11/-12) individuals.

Source:

Linden D. 2024. Population size estimation of North Atlantic right whales from 1990-2023. US Dept Commer Northeast Fish Sci Cent Tech Memo 324. 15 p.