

Atlantic Marine Assessment Program for Protected Species: 2015-2019

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Atlantic Marine Assessment Program for Protected Species: 2015 - 2019

[month / year]

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DISCLAIMER

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ABOUT THE COVER

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ACKNOWLEDGMENTS

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List of Abbreviations and Acronyms

BOEM	Bureau of Ocean Energy Management
CSE	Council of Science Editors
DOI	US Department of the Interior
ESP	Environmental Studies Program
ESPIS	Environmental Studies Program Information System

1 Heading 1 Style

Do not modify the style definitions in this template. Add a new style only if absolutely necessary.

1.1 Heading 2 Style

This is the Normal style. Heading styles in this template are all followed by the Normal style in the next paragraph. Spacing between headings and paragraphs is already set. Heading styles are kept together with the following paragraphs to prevent awkward page breaks.

1.1.1 Heading 3 Style

See a sample table in **Table 1**. Use the Table Title style to automatically include the table title in the List of Tables. Table Column Head style is formatted for the column headers, and table text styles come in two sizes: Table Text (10 pt) and Table Text Smaller (9 pt).

Table 1. Sample table

Column header 1	Column header 2	Column header 3	Column header 4
Row 1			
Row 2			
Row 3			

1.1.1.1 Heading 4 Style

Use Headings 1–6 for the main body of the report. Headings 1–3 are listed in the Contents.

Use Headings 7–9 for the appendix or appendices. Heading 7 is listed in the Contents. Headings 8 and 9 may be used if needed.

1.1.1.1.1 Heading 5 Style

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- List paragraph style automatically selected for bullets and ordered lists
- List paragraph style automatically selected for bullets and ordered lists

1.1.1.1.1.1 Heading 6 Style

Figure 1 included below. Figure Caption style is automatically included in the List of Figures. Figure Notes style is provided for additional information.



Figure 1. Katrina iris

A hybrid of bog-tolerant African irises *Dietes veleta* and *Dietes bicolor*, the Katrina Iris was developed in New Orleans just after Hurricane Katrina. Sale proceeds benefit wetland restoration.

2 Synthesis and Summary

Ddd

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9 Ecosystem Research

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10 Data Databases and Outreach

Dd

11 References

[Note: Use an author-date system for references. The examples below are in the recommended *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers 8th Edition* (CSE 2014) format. For an online list of citation format examples in this format, see the Scientific Style and Format Citation Quick Guide (CSE c2014).]

[CSE] Council of Science Editors. 2014. *Scientific style and format: the CSE manual for authors, editors, and publishers*. 8th ed. Chicago (IL): University of Chicago Press. 722 p.

CSE. c2014. Scientific style and format citation quick guide. Chicago (IL): University of Chicago Press. [accessed 2017 May 15]. <http://www.scientificstyleandformat.org/Tools/SSF-Citation-Quick-Guide.html>.

Appendix A: Heading 7 Style

A.1 Heading 8 Style

Normal style

A.1.1 Heading 9 Style

Normal style

Appendix B: Sample Table in Landscape Orientation

Table B-1. Sample table in landscape orientation with data in columns aligned on the decimal.

Station	chl c2	Pheo-phorbide	peridinin+isomer	Pyropheo-phorbide	19-but fuxocantoin	fuxocanthin	prasinocanthin	19-hex fuxocanthin	zeaxanthin	chl b	chl a	Pheo-phytin
	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²	mg/m ²
23	0.16	2.36	0.45	11.77	0.07	3.80	0.13	0.00	0.05	0.23	4.44	0.19
24	0.11	1.30	0.23	1.38	0.01	2.39	0.00	0.00	0.01	0.13	2.37	0.00
25	0.23	14.77	1.27	33.18	0.72	3.53	0.10	0.02	0.05	0.89	5.63	0.00

B Appendix X. List of papers and talks resulting from work during 2015 – 2019.

B.1 REFEREED/TECHNICAL PAPERS (AMAPPS authors in bold):

1. Batta-Lona PG, Maas A, O'Neill R, Wiebe PH, Bucklin A. 2016. Transcriptomic profiles of spring and summer populations of the Southern Ocean salp, *Salpa thompsoni*, in the Western Antarctic Peninsula region. [Polar Biol. 40: 1261-1276.](#)
2. **Cholewiak D, DeAngelis AI, Palka D, Corkeron P, Van Parijs SM** 2017. Beaked whales demonstrate a marked acoustic response to the use of shipboard echosounders. [Royal Society Open Science: 170940.](#)
3. **Davis GE**, Baumgartner MF, Bonnell JM, Bell J, Berchok C, Bort Thorntom J, Brault S, Buchanan G, Charif RA, **Cholewiak D**, Clark CW, Corkeron P, Delarue J, Dudzinski K, Hatch L, Hildebrand J, Hodge L, Klinck H, Kraus S, Martin B, Mellinger DK, Moors-Murphy H, Nieukirk S, Nowacek DP, Parks S, Read AJ, Rice AN, Risch D, Širović A, **Soldevilla M**, Stafford K, Stanistreet JE, Summers E, Todd S, Warde A, **Van Parijs SM**. 2017. Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014. [Scientific Reports 17: 13460.](#)
4. **DeAngelis A**, Valtierra R, **Van Parijs S, Cholewiak D**. 2017. Using multipath reflections to obtain dive depths of beaked whales from a towed hydrophone array. *J. Acoust. Soc. Am* 142(2): 1078-1087.
5. **Garrison LP**. 2016. Abundance of marine mammals in waters of the U.S. East Coast during summer 2011. Southeast Fisheries Science Center, Protected Resources and Biodiversity Division, 75 Virginia Beach Dr., Miami, FL 33140. PRBD Contribution # PRBD-2016-08, 21 pp.
6. **Garrison LP**, Barry K, Hoggard W. 2017. The abundance of coastal morphotype bottlenose dolphins on the U.S. east coast: 2002-2016. Southeast Fisheries Science Center, Protected Resources and Biodiversity Division, 75 Virginia Beach Dr., Miami, FL 33140. PRBD Contribution # PRBD-2017-01, 37 pp.
7. **Garrison LP**, Rosel PE. 2017. Partitioning short-finned and long-finned pilot whale bycatch estimates using habitat and genetic information. Southeast Fisheries Science Center, Protected Resources and Biodiversity Division, 75 Virginia Beach Dr., Miami, FL 33140. PRBD Contribution # PRBD-2016-17, 24 pp.
8. Kinlan BP, Winship AJ, White TP, Christensen J. 2016. Modeling At-Sea Occurrence and Abundance of Marine Birds to Support Atlantic Marine Renewable Energy Planning: Phase I Report. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Sterling, VA. OCS Study BOEM 2016-039. xvii+113 pp.
9. Jue N, Batta-Lona PG, Trusiak S, Obergfell C, Bucklin A, O'Neill MJ, O'Neill RJ. 2016. Rapid evolutionary rates and unique genomic signatures discovered in the first reference genome for the Southern Ocean salp, *Salpa thompsoni* (Urochordata, Thaliacea). [Genome Biol. Evol. 8: 3171-3186.](#)
10. **LaBrecque E**. 2016. Spatial Relationships among Hydroacoustic, Hydrographic and Top Predator Patterns: Cetacean Distributions in the Mid-Atlantic Bight. PhD thesis. Duke University, Durham, NC.
11. **NEFSC and SEFSC (Northeast Fisheries Science Center and Southeast Fisheries Science Center)**. 2011-2017. Annual reports of work conducted under AMAPPS for each year 2010 - 2017. [Available online.](#)
12. **NEFSC (Northeast Fisheries Science Center)**. 2010 – 2017. Hydrographic conditions of the Northeast continental shelf summaries for each year 2010 - 2017. [Available online.](#)

13. **Palka DL, Chavez-Rosales S, Josephson E, Cholewiak D, Haas HL, Garrison L, Jones M, Sigourney D, Waring G (retired), Jech M, Broughton E, Soldevilla M, Davis G, DeAngelis A, Sasso CR, Winton MV, Smolowitz RJ, Fay G, LaBrecque E, Leiness JB,** Dettlof M, Warden M, Murray K, Orphanides C. 2017. Atlantic Marine Assessment Program for Protected Species: 2010- 2014. US Dept. of the Interior, Bureau of Ocean Energy Management, Atlantic OCS Region, Washington, DC. [OCS Study BOEM 2017-071](#). 211 pp.
14. Patel SH, Barco SG, Crowe LM, Manning JP, Matzen E, Smolowitz RJ, **Haas HL**. 2018. Loggerhead turtles are good ocean-observers in stratified mid-latitude regions. *Estuarine, Coastal and Shelf Science* 213: 128-136.
15. Patel SH, Dodge KL, **Haas HL**, Smolowitz RJ. 2016. Videography reveals in-water behavior of loggerhead turtles (*Caretta caretta*) at a foraging ground. *Front. Mar. Sci* 3: 254.
16. Richardson DE, Marancik KE, Guyon JR, Lutcavage ME, Galuardi B, Lam CH, **Walsh HJ**, Wildes S, Yates DA, and Hare JA. 2016a. Discovery of a spawning ground reveals diverse migration strategies in Atlantic bluefin tuna (*Thunnus thynnus*). [PNAS 113\(12\): 3299-3304](#).
17. Richardson DE, Marancik KE, Guyon JR, Lutcavage ME, Galuardi B, Lam CH, **Walsh HJ**, Wildes S, Yates DA, Hare JA. 2016b. Reply to Safina and Walter et al.: Multiple lines of evidence for size- structured spawning migrations in western Atlantic bluefin tuna. [PNAS 113 \(30\): E4262-4263](#).
18. Safina C. 2016. Data do not support new claims about bluefin tuna spawning or abundance. [PNAS 113\(30\): E4126](#).
19. **Soldervilla MS**, Baumann-Pickering S, **Cholewiak D**, Hodge LE, Oleson EM, Rankin S. 2017. Geographic variation in Risso’s dolphin echolocation click spectra. *J. Acoust. Soc. Am.* 142 (2): 599-617.
20. Walter JF, Porch CE, Lauretta MV, Cass-Calay SL, Brown CA. 2016. Implications of alternative spawning for bluefin tuna remain unclear. [PNAS 113\(30\) E4259-E4260](#).
21. **Waring GT**, DiGiovanni RA, **Josephson E**, Wood S, Gilbert JR. 2015. 2012 population estimate for the harbor seal (*Phoca vitulina concolor*) in New England waters. [NOAA Tech Memo NMFS NE 235](#). 464 p.
22. Winship AJ, Kinlan BP, White TP, Leirness JB, Christensen J. 2018. Modeling at-sea density of marine birds to support Atlantic marine renewable energy planning: Final report. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Sterling, VA. [OCS Study BOEM 2018-010](#). x+67 pp.
23. **Winton MV**, Fay G, **Haas HL**, Arendt M, Barco S, James M, **Sasso C**, Smolowitz R. 2018. Estimating the distribution and relative density of tagged loggerhead sea turtles in the western North Atlantic from satellite telemetry data using geostatistical mixed effects models. [Mar Ecol Prog Ser 586: 217-232](#).

B.2 PAPERS IN REVIEW:

1. **Chavez-Rosales S, Palka DL, Garrison L, Josephson E.** Environmental predictors of habitat suitability and occurrence of cetaceans in the western North Atlantic Ocean. *In revision*. Submitted to Scientific Reports.
2. **DeAngelis A, Stanistreet J, Baumann-Pickering S, Cholewiak D.** *In revision*. A description of echolocation clicks recorded in the presence of True’s beaked whale (*Mesoplodon mirus*). Submitted to J. Acoustical Soc. America.
3. **Sigourney D, Chavez-Rosales S, Lance Garrison L, Josephson E, Palka D.** *In review*. Comparison of species distribution models using Bayesian and likelihood frameworks.
4. Virgili A, Authier M, Boisseau O, Canadas A, Claridge D, Cole T, Corkeron P, Doremus G, David L, DiMeglio N, Dunn C, Dunn TE, Garcia Baron I, Laran S, Lewis M, Louzao M,

Mannocci L, Martinez-Dedeira J, **Palka D**, Panigada S, Pettex E, Roberts J, Ruiz Sancho L, Santos MB, VanCannery O, Vazquez Bonales JA, Monestiez P, Ridoux V. *Accepted*. Combining datasets into a basin wide approach to model habitats of deep divers. Submitted to Journal Global Ecology and Biogeography.

5. Yang T, **Haas HL**, Patel S, Smolowitz R, James MC, Williard A. Blood biochemistry and hematological values for migrating loggerhead turtles (*Caretta caretta*) in the Northwest Atlantic.

B.3 PAPERS IN PREPARATION:

1. **Cholewiak D**, Miller D, DeAngelis A, **Van Parijs SM**. Acoustic abundance estimates of sperm whales (*Physeter macrocephalus*) in northeast U.S. Atlantic waters: a comparison of two methodologies.
2. **Cholewiak D**, Miller D, Brady S, Davis G, Corkeron P, **Van Parijs SM**. Calculating calling density of North Atlantic right whales using passive acoustics: A case study.
3. **Cholewiak D**, Cerchio S, Steele D, Baker S. Visual and acoustic identification of True's beaked whales (*Mesoplodon mirus*) confirmed by eDNA barcoding.
4. **Garrison L** et al. Abundance of cetaceans along the northeastern U.S. coast from 2016 aerial and vessel based visual line transect surveys.
5. **LaBrecque E**, Hench J, **Jech JM**, Lawson G, Halpin P. Patterns and spatial scales of biological scattering in the Mid-Atlantic Bight shelf break region.
6. **LaBrecque E**, Lawson G, **Palka D**, Halpin P. Cetaceans at the Mid-Atlantic Bight Shelf Beak: Fine scale habitat partitioning in a dynamic ecosystem.
7. **Orphanides C**, et al. Examining marine mammal distribution relative to acoustic classification of prey in the water column.
8. **Orphanides C**, et al. Opportunistically assessing right whale prey availability in southern New England wind energy areas.
9. **Palka D**, Warden M. Estimates of availability of cetaceans to visual abundance survey observers.
10. **Palka D**, Abundance of cetaceans along the northeastern U.S. coast from 2016 aerial and vessel based visual line transect surveys.
11. Roberts JJ et al. Updating habitat-based cetacean density models for use by US Navy by incorporating new sightings surveys.
12. **Sigourney D**, **Cholewiak D**, **Palka D**. Integrating passive acoustic data with visual line transect surveys to refine population estimates and estimate availability bias for sperm whales (*Physeter macrocephalus*).
13. Yack T, **Cholewiak D**, and others. Geographic variation in echolocation clicks of six odontocete species.

B.4 CONFERENCE/MEETINGS PRESENTATIONS:

1. Allen CD, **Haas HL**, Smolowitz RJ, Patel SH, Seminoff JA. 2018. Corticosterone Concentrations in Migratory Loggerhead Sea Turtles. Presentation at 38th Annual Symposium on Sea Turtle Biology and Conservation; Japan.
2. **Chavez-Rosales S**, **Palka D**, **Garrison L**, **Josephson E**. 2017. Environmental predictors of habitat suitability and cetacean occurrence in the western North Atlantic Ocean. Poster at Biennial Conference on the Biology of Marine Mammals; Halifax, Nova Scotia; October 2017.
3. **Chavez-Rosales S**. 2017. Atlantic Marine Assessment Program for Protected Species. Presentation at "[Oceanos](#) :WHOI en Español e Português"; Woods Hole, MA; September 2017.

4. **Chavez-Rosales S, Sigourney D.** 2017. Habitat Density Models for Cetaceans in the Atlantic: A Brief Overview of the AMAPPS Modeling Efforts. Presentation at the Density Modeling (DenMod) workshop; Halifax, Nova Scotia; October 2017.
5. **Cholewiak D, DeAngelis A, Palka D, Corkeron P, Van Parijs SM.** 2017. Beaked whales demonstrate a marked response to the use of shipboard echosounders. Presentation at the 22nd Biennial Conference on the Biology of Marine Mammals; Halifax, Nova Scotia; October 2017.
6. **DeAngleis AI, VanParijs S, Palka D, Cholewiak D.** 2017. Is it truly True's? First description of True's beaked whale clicks. Presentation at the 22nd Biennial Conference on the Biology of Marine Mammals; Halifax, Nova Scotia; October 2017.
7. **Haas H.** 2018. Collaborative Turtle Research in the Greater Atlantic Region. Presentation at the New York Bight Sea Turtle Workshop; New York; 30 January 2018.
8. **Hauff MJ, Llopiz JK, Blanco-Bercial L, Bucklin A.** 2015. Gelatinous prey of fishes: qPCR analysis of an overlooked pathway in mesopelagic foodwebs. Presentation at ASLO Aquatic Sciences Meeting; Grenada, Spain; 22-27 February 2015.
9. **Hernandez C, Richardson D, Rypina I, Chen K, Pratt L, Llopiz, J.** Larval habitat suitability for Atlantic bluefin tuna spawned in the Slope Sea. Poster at Ocean Sciences Meeting; Portland, Oregon; 12-16 February 2018.
10. **Hernandez C, Richardson D, Rypina I, Chen K, Pratt L, Llopez J.** Larval Habitat Suitability for Atlantic Bluefin Tuna Spawned in the Slope Sea. Presented at the summer meeting of the Southern NE Chapter of the American Fisheries Society; 28 June 2018.
11. **Izzi A, Valtierra R, Van Parijs SM, Cholewiak D.** 2015. Using multipath arrivals to obtain three-dimensional localizations for beaked whales on acoustic line transect surveys. Presentation at the 21st Biennial Conference on the Biology of Marine Mammals; San Diego, CA; 13-18 Dec 2015.
12. **LaBrecque E, Lawson G, Halpin P.** 2016. Fronts and fine scale distributions of three cetacean species within the dynamic Mid-Atlantic Bight Shelf break system. Ocean Sciences Meeting; 21 – 26 Feb 2016.
13. **LaBrecque E, Palka D, Lawson G, Halpin P.** 2015. Cetaceans at the shelf break: fine scale habitat analysis of three cetacean species in the Mid-Atlantic Bight. 21st Biennial Conference on the Biology of Marine Mammals; 13 – 18 Dec 2015.
14. **Palka DL.** 2016. Atlantic Marine Assessment Program for Protected Species. Presentation at the [Proceedings to the Atlantic Ocean Energy and Mineral Science Forum](#); Sterling, VA; 16-17 November 2016.
15. **Palka DL.** 2017. Atlantic Marine Assessment Program for Protected Species. Presentation at to the [“Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species”](#); Silver Spring, MD; March 2017.
16. **Palka DL, VanParijs S.** 2018. Update on AMAPPS with focus on work in New York area. Presentation at the First Annual New York Bight Whale Monitoring Workshop; East Setauket, NY; 13 June 2018.
17. **Palka DL, Warden M.** 2017. Accounting for availability bias in line transect abundance estimates. Poster at Biennial Conference on the Biology of Marine Mammals; Halifax, Nova Scotia; October 2017.
18. **Richardson D, Marancik K, Hernandez C, Broughton E, Walsh H.** 2018. Atlantic Tuna spawning off the Northeast US. 2018. Presentation at the summer meeting of the Southern NE Chapter of the American Fisheries Society; 28 June 2018.
19. **Sigourney D, Chavez-Rosales S, Palka D, Lance Garrison L, Josephson E.** 2017. Fitting a species distribution model to line transect data of humpback whales (*Megaptera novaeangliae*) in the western Atlantic using a Bayesian hierarchical framework: Implications for uncertainty.

Presentation at the Biennial Conference on the Biology of Marine Mammals; Halifax, Nova Scotia; October 2017.

20. **Sigourney DB, Cholewiak D, Palka D.** Integrating passive acoustic data with visual line transect surveys to refine population estimates and estimate availability bias for sperm whales (*Physeter macrocephalus*). Presentation at the S&T Protected Species Toolbox mini-symposium; San Diego, CA; 1 March 2018.
21. **Van Parijs SM.** 2016. Migratory movements of marine mammals from historic acoustic measurements. Presentation at the [Proceedings to the Atlantic Ocean Energy and Mineral Science Forum](#); Sterling, VA; November 16-17, 2016.
22. **VanParijs SM.** 2017. Atlantic passive acoustic monitoring of soundscapes. Presentation at the “[Best Management Practices Workshop](#) for Atlantic Offshore Wind Facilities and Marine Protected Species”; Silver Spring, MD; March 2017.
23. Virgili AV, Authier M, Cadeira J, Canadas A, Cole T, Corkeron P, Doremus LD, Di-Meglio N, Dunn C, Dunn T, Hammond P, **Josephson E**, Laran S, Lewis M, Louzao M, Luiz L, Mannocci L, Moscrop A, **Palka D**, Panigada S, Pettex E, Roberts J, Santo MB, VanCanneyt O, Vazquez Bonales A, Monestiez P, Ridoux V. 2017. Basin wide approach, combined datasets and gap analyses: Options to overcome the lack of sightings data on rare cetacean species. Focus is on deep divers (beaked and sperm whales). Presentation at European Cetacean Society meeting; Denmark; 29 April – 3 May 2017.
24. **Winton M**, Fay G, **Haas H**, Arendt M, Barco S, James M, **Sasso C**, Smolowitz R. 2017. Estimating loggerhead sea turtle densities from satellite telemetry data using geostatistical mixed models. Presentation at the Southern New England Chapter of the American Fisheries Society.
25. Yang T, **Haas HL**, Smolowitz R, Patel S, James M, Williard A. 2016. Baseline blood biochemical values for the Northwest Atlantic population of loggerhead sea turtles. Poster at the International Sea Turtle Symposium.
26. Yang T, **Haas HL**, Smolowitz RJ, Patel SH, James MC, Williard A. 2018. Blood biochemistry and hematological reference intervals for migrating loggerhead turtles (*Caretta caretta*) in the Northwest Atlantic. Presentation at the Southeast Regional Sea Turtle Meeting; Myrtle Beach, South Carolina.

B.5 STOCK ASSESSMENT REPORTS

1. Hayes SA, **Josephson E**, Maze-Foley K, Rosel, PE, editors. 2016. US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments -- 2016. [NOAA Tech Memo NMFS-NEFSC-241](#). 274 p.
2. Hayes SA, **Josephson E**, Maze-Foley K, Rosel PE, Byrd B, **Chavez-Rosales S**, Col TVN, Engleby L, **Garrison LP**, Hatch J, Henry A, Horstman SC, Litz J, Lyssikatos MC, Mullin KD, Orphanides C, Pace RM, **Palka DL**, **Soldevilla M**, Wenzel FW. 2018. US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2017. [NOAA Technical Memorandum NMFS-NEFSC-245](#).
3. **Waring GT**, **Josephson E**, Maze-Foley K, Rosel, PE, editors. 2015. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2015. [NOAA Tech Memo NMFS NE 228](#). 464 p.

B.6 NEWSLETTERS/BLOGS/NEWS ARTICLES

1. **BOEM (Bureau of Ocean Energy Management)**. 2018. Findings from Atlantic Marine Assessment Program for Protected Species. [BOEM Science Notes June 2018](#).

News press articles on various NEFSC AMAPPS field work 2011 - 2018:

<https://nefsc.wordpress.com/category/amapps/> and

https://www.nefsc.noaa.gov/press_release/pr2018/features/cetacean-survey-gunter-2018/



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