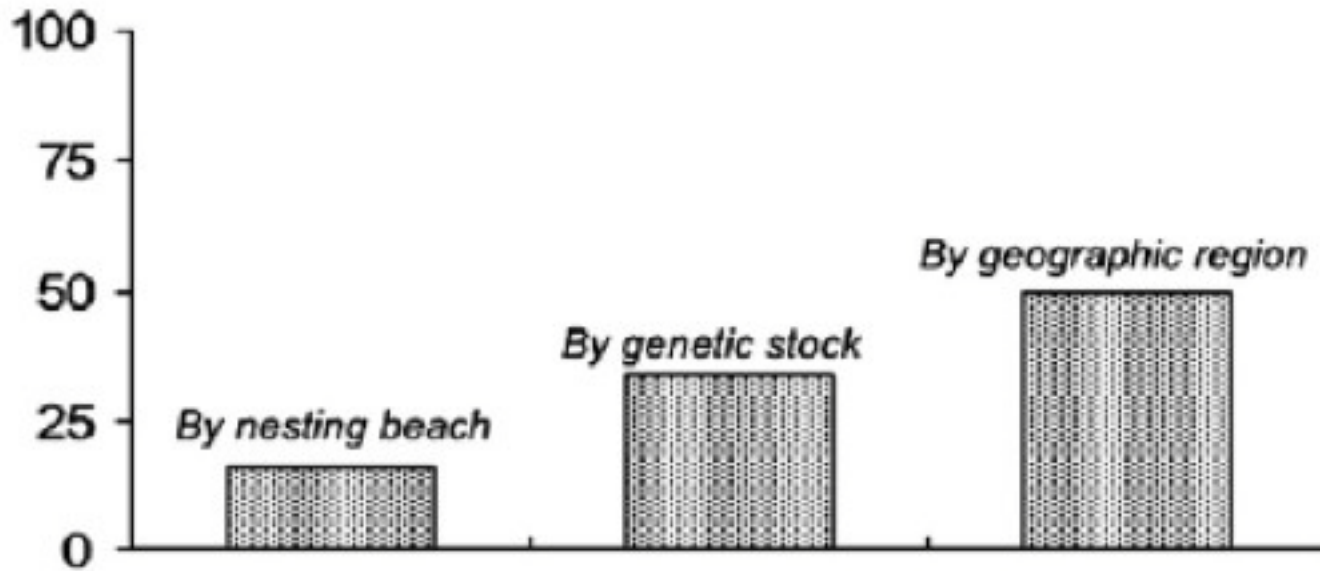# regional management units
and conservation assessments
for marine turtles:
how does the Wider Caribbean fit in?

IUCN-Marine Turtle Specialist Group Burning Issues Working Group

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IUCN-Marine Turtle Specialist Group
Red List member survey
(50 respondents, 23 countries)

what is the appropriate population segment for a regional assessment?

from Seminoff and Shanker (2008)

IUCN Marine Turtle Specialist Group
Burning Issues Workshops, 2008 and 2009

BI Goal:

development of a continually improving, scientifically rigorous set of tools for directing effort and resources to the most important species, locales and threats to sea turtles

**IUCN-SSC MARINE TURTLE SPECIALIST GROUP**

two important achievements:

1) Regional Management Units (RMUs) for all marine turtle species

2) Conservation Priorities Portfolio: Criteria and process for evaluating the conservation status of all RMUs

regional management units (RMUs)

- a geographically explicit population segment based on biogeographical data (e.g. telemetry, genetics, nesting sites) that can be applied to regionally appropriate management issues

- 'nested envelope models' for all spp, globally
  - mtDNA, nDNA, satellite telemetry, tag returns, etc.

- diversity and gap analyses, threat assessments, conservation priority setting

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regional management units

- across all species, globally
- ~3,000 nesting sites (SWOT + literature)
- 86 mtDNA stocks
- 27 nDNA stocks
- 58 RMUs

- all files available at
http://seamap.env.duke.edu/swot

609 nesting sites

16 mtDNA stocks
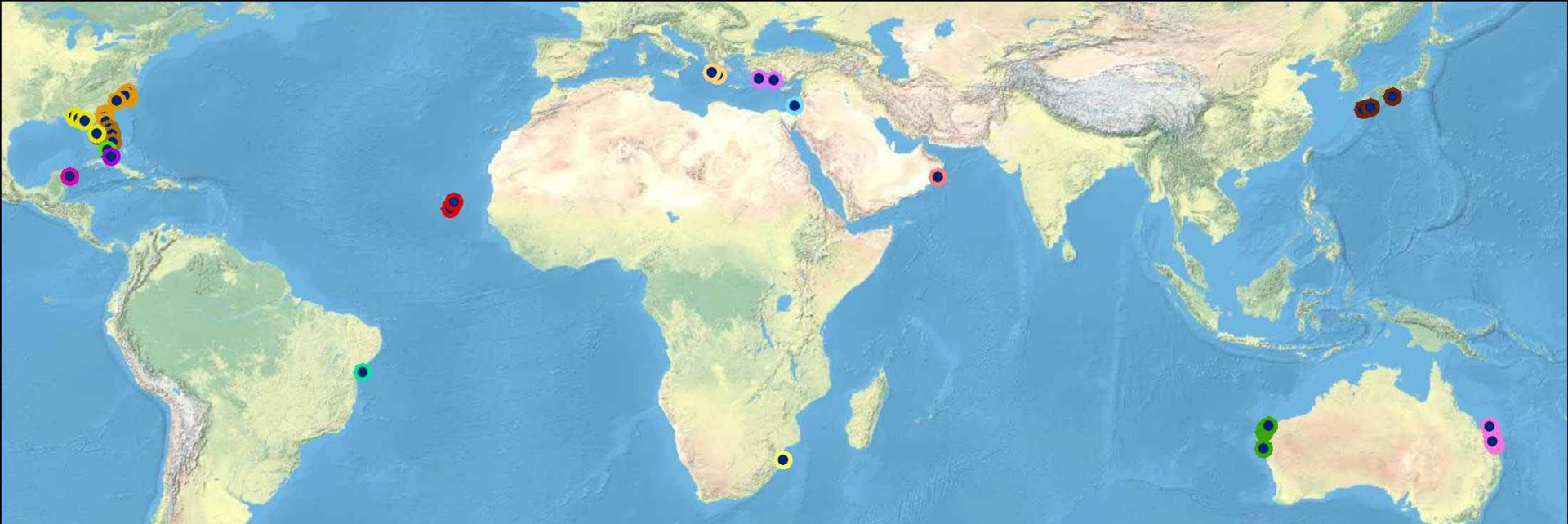
Caretta caretta mtDNA sampled sites by stock

- Atlantic, Northeast
- Atlantic, Northwest (Bahamas)
- Atlantic, Northwest (Dry Tortugas)
- Atlantic, Northwest (Northwestern Florida and Gulf States)
- Atlantic, Northwest (Northern Florida to North Carolina)
- Atlantic, Northwest (Southern Florida)
- Atlantic, Northwest (Yucatan)
- Atlantic, Southwest
- Indian, Northwest
- Indian, Southeast
- Indian, Southwest
- Mediterranean (Greece and the Ionian Islands)
- Mediterranean (Israel)
- Mediterranean (Turkey)
- Pacifc, North
- Pacifc, South

Caretta caretta nDNA Sampled Sites by Stock

- Atlantic, Northwest
- Atlantic, Southwest
- Indian, Southeast
- Mediterranean, Cyprus
- Mediterranean, Greece/Ionian Islands
- Mediterranean, Israel
- Mediterranean, Turkey
- Pacific, South

8 nDNA stocks

Caretta caretta RMUs
- Atlantic, Northeast
- Atlantic, Northwest
- Atlantic, Southeast *
- Atlantic, Southwest
- Mediterranean
- Indian, Northeast *
- Indian, Northwest
- Indian, Southwest
- Indian, Southeast
- Pacific, South
- Pacific, North

* denotes putative RMU
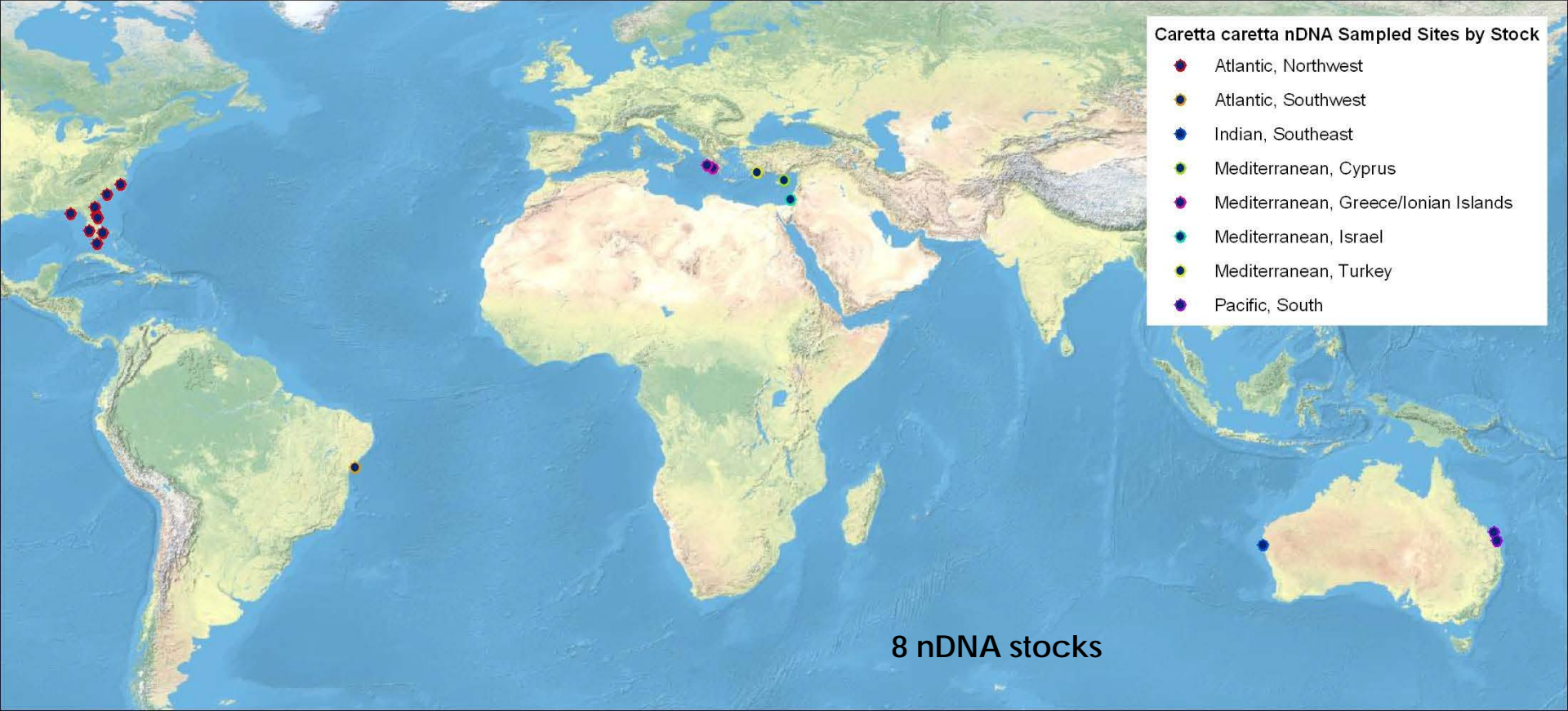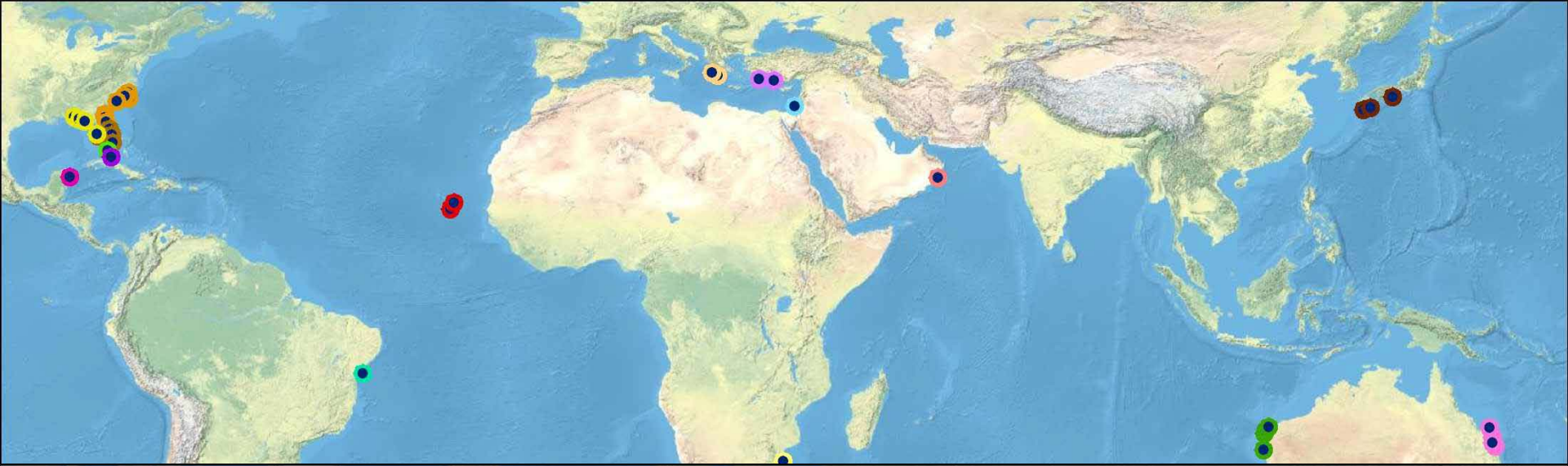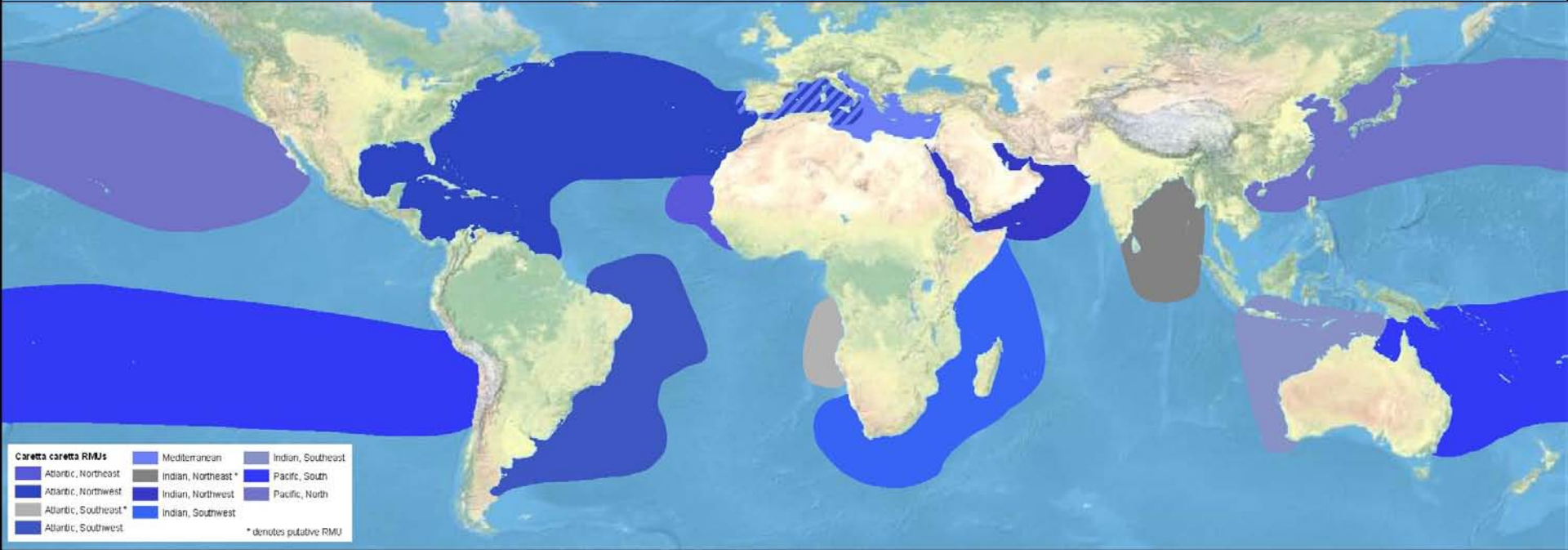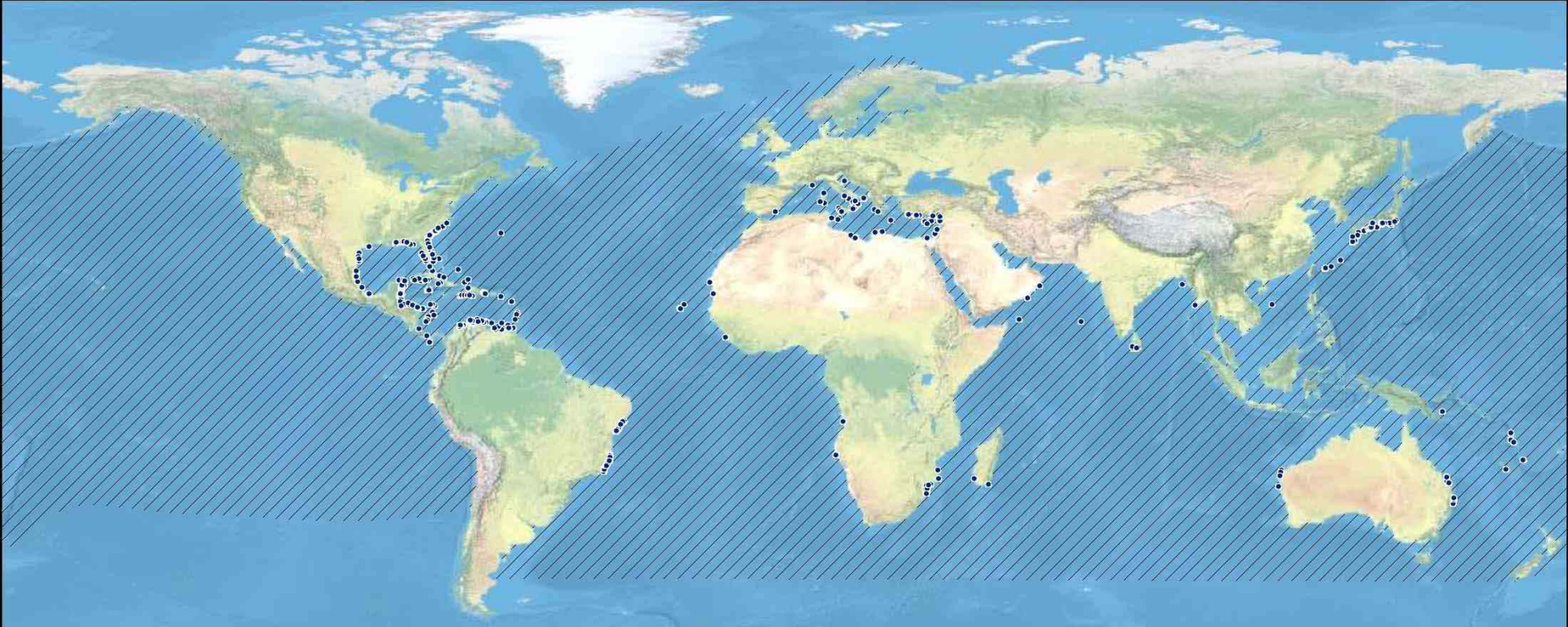
attribute table for RMUs: loggerheads

rmuid	species	oceanbasin	oceanreg1	oceanreg2	mtdnastock	mtdnacode	ndnastock	ndnacode	popestquan	trendshort	trendlong	citesshort
rmu23	Caretta caretta	Atlantic	Northeast	Cape Verde	cape verde	mtdna32	-	-	2000	unknown	unknown	Lopez-Jurado2000; Fretey2001; Hawkes2006; Lopez-Jurado2007; Nichols2007; Conant2009
rmu24	Caretta caretta	Atlantic	Southwest		brazil	mtdna31	brazil	ndna05	>1237	increasing	increasing	Bowen1994; Encalada1998; Baptistotte2003; Soares2004; Bowen2005; Marcovaldi2007; Nichols2007; Caraccio2008; Marcovaldi2008; NMFS2008; Conant2009; Reis2009
rmu25	Caretta caretta	Atlantic	Northwest		northern florida-north carolina, southern florida, northwest florida/gulf states, yucatan, cay sal banks/bahamas, dry tortugas	mtdna26, mtdna27, mtdna28, mtdna29, mtdna30, mtdna44	northwestern atlantic	ndna04	ca. 18293-18675	decreasing	decreasing	Bowen1994; Bolten1998; Encalada1998; Laurent1998; TEWG2000; Pearse2001a; Pearse2001b; Tiwari2002; Bolten2003; Bowen2004; Bowen2005; Carreras2006; Dow2007; McClellan2007; NMFS2008; Conant2009; Witherington2009;
rmu26	Caretta caretta	Mediterranean			greece/ionian islands, turkey, israel	mtdna43, mtdna33, mtdna34	turkey, cyprus, israel	ndna06, ndna07, ndna08	ca. 844-1771	stable	decreasing	Sella1982; Margaritoulis1988c; Argano1992; Laurent1994; Schroth1996; Laurent1998; Lazar2000; Broderick2002; Margaritoulis2003; Med Report - Chapters: "Overview"; Margaritoulis2005; Med Report - Chapters: 'Cyprus,' 'Turkey'; Carerras2006; Broderick2007; C

PLoS one

Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales

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13 Wider Caribbean RMUs (>20% of global total)

C. caretta (2): NW Atlantic and SW Atlantic

C. mydas (4): NW Atlantic, South Caribbean, SW Atlantic, Central Atlantic

D. coriacea (3): NW Atlantic, SW and SE Atlantic

E. imbricata (2): West Caribbean/USA and SW Atlantic

L. kempii (1): NW Atlantic

L. olivacea (1) West Atlantic

'portfolio' of conservation priorities

- criteria and process to evaluate conservation status of RMUs

- transparent, information-rich assessments with inclusive, objective results

- decision-support tool for multiple stakeholders

priority setting criteria:
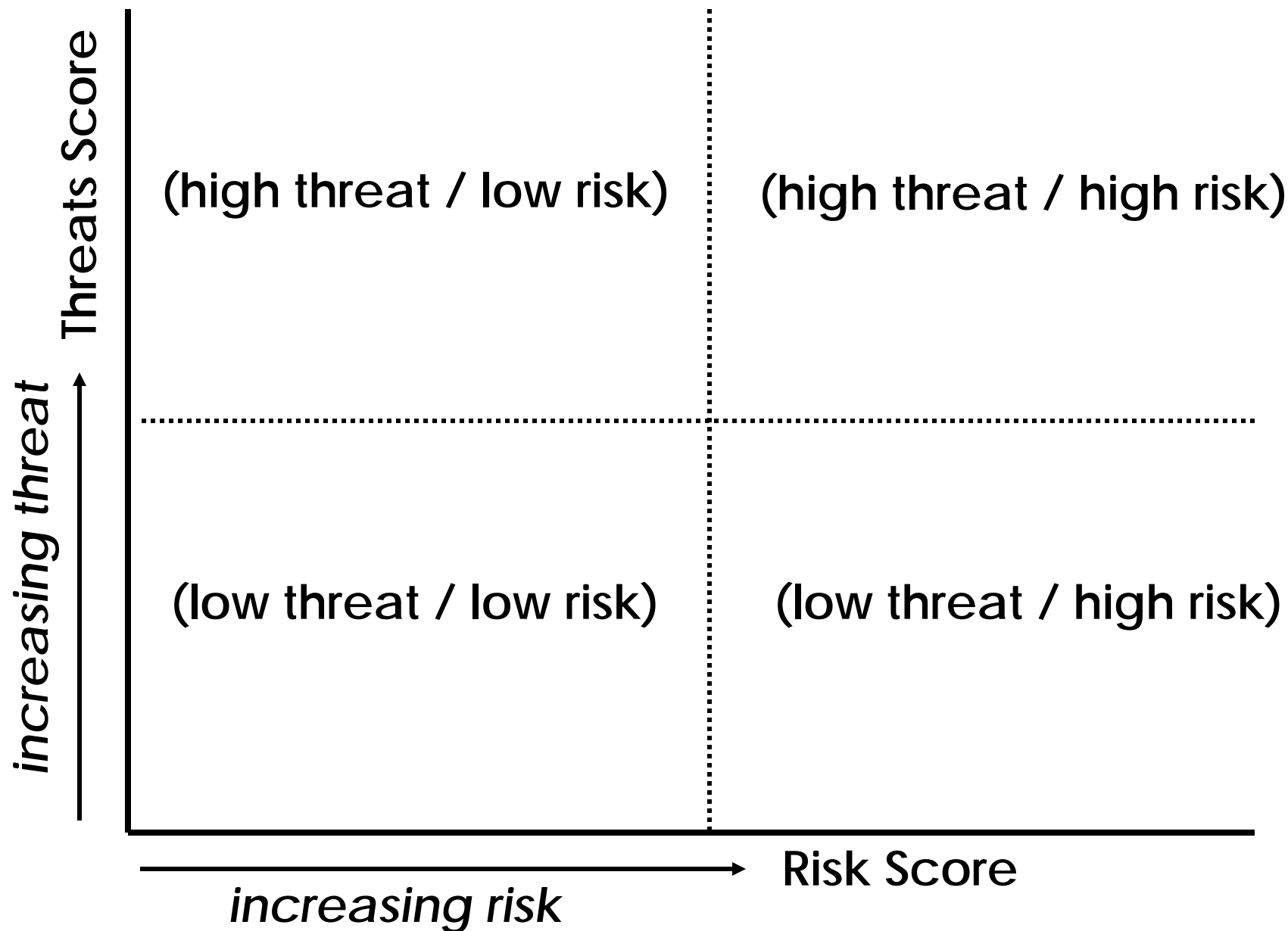# evaluate degree of risk and threats for all RMUs

Risk matrix:
1) population size
2) recent and 3) long-term population trends
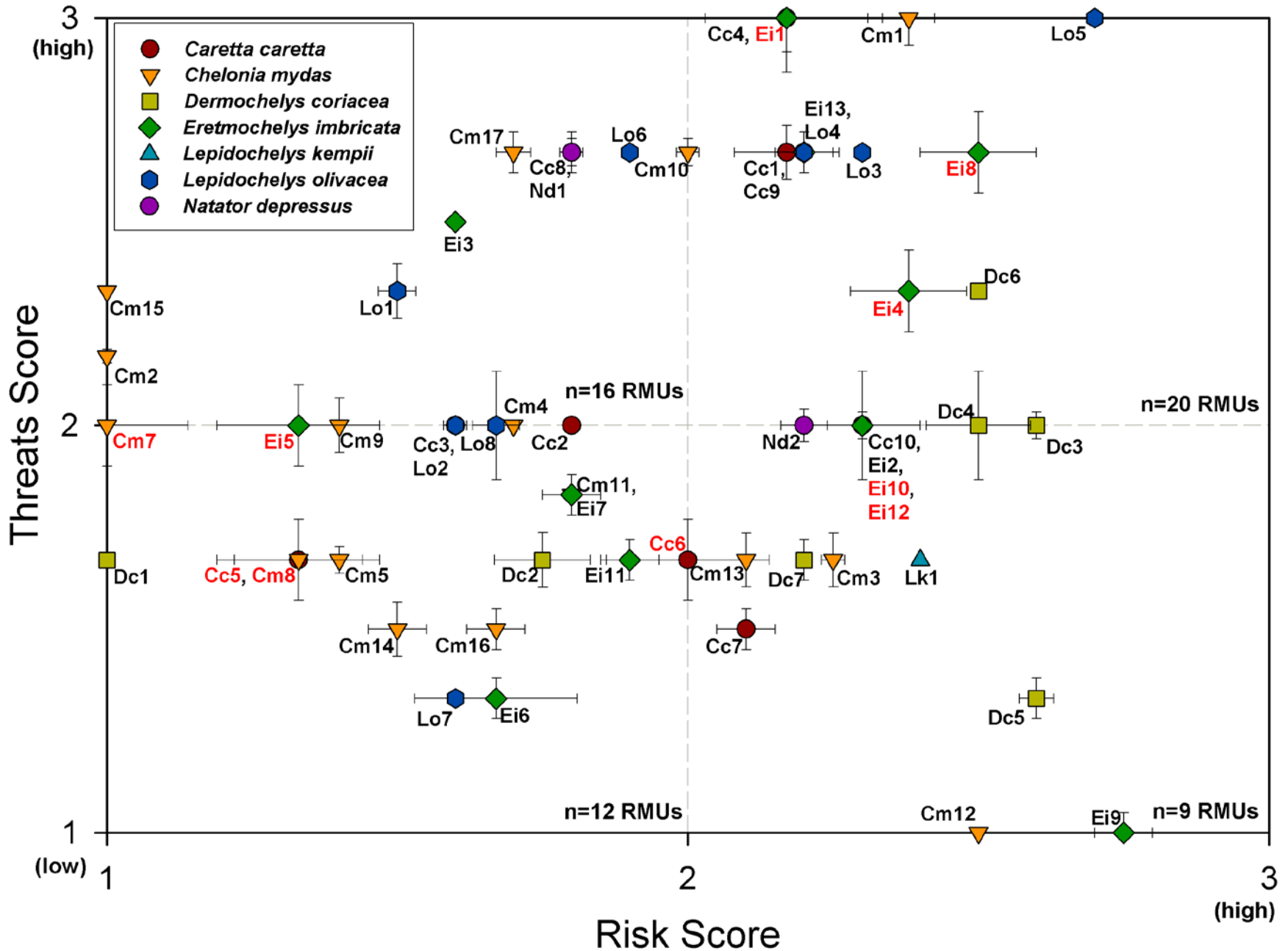4) rookery vulnerability
5) diversity

Threats matrix:
1) Bycatch
2) Direct take
3) Coastal Development
4) Pollution and Pathogens
5) Climate Change

- each criterion scored 1 to 3 (low to high), average score for each matrix
- also accounting for data deficiencies and uncertainties
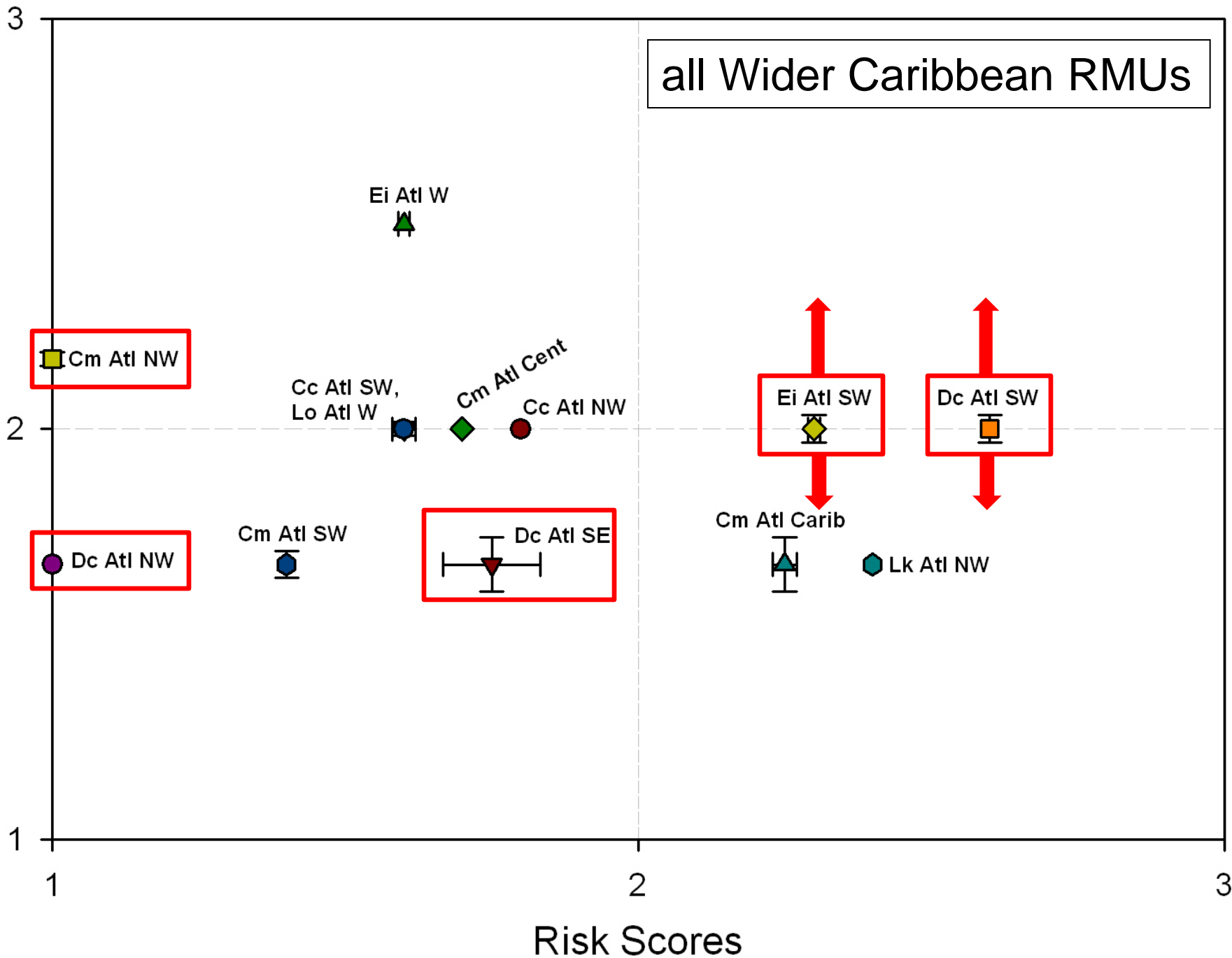- at global, regional, and species scales

Portfolio approach to priority setting for marine turtles

Threats Score

increasing threat

(high threat / low risk)   (high threat / high risk)

(low threat / low risk)   (low threat / high risk)

Risk Score

increasing risk

Risk vs. Threats (error bars indicate data uncertainty scores)

what's next?

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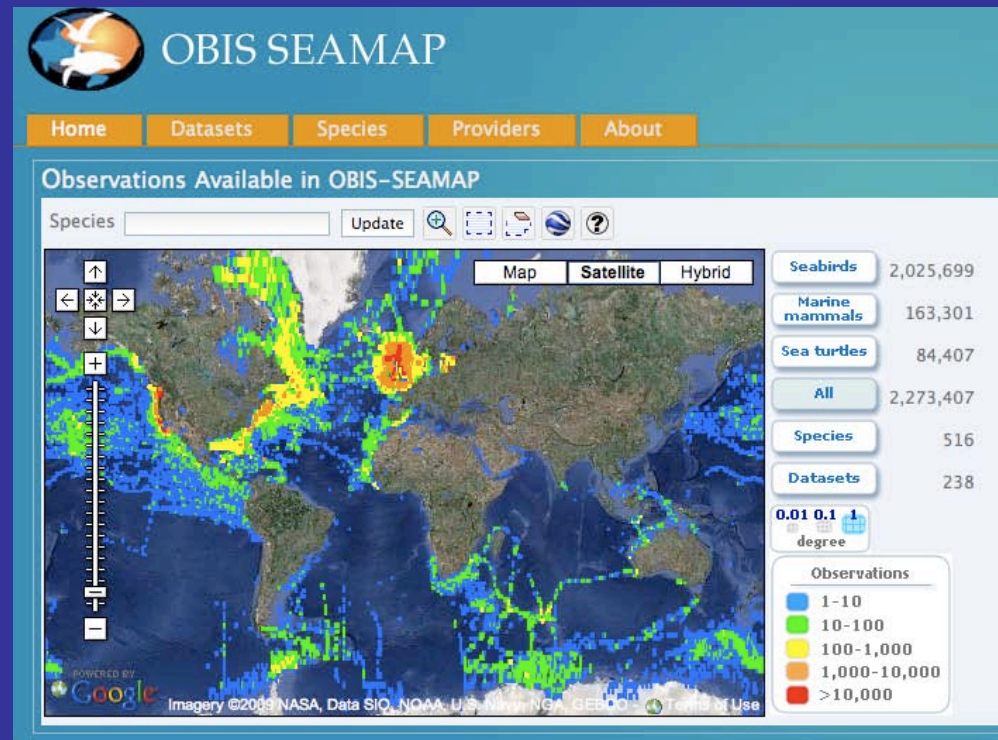
- RMUs published and on OBIS-SEAMAP

- refinements and modifications: user feedback!!

- Conservation Priorities Technical Report → internal review → MTSG review → publication and additional roll-out

- How to align these products with Red List assessments

thanks

foto: Jim Abernethy

OBIS SEAMAP

SWOT
The State of the World's Sea Turtles

National Fish and Wildlife Foundation

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