

Overview of the **NMFS** Stock Assessment Reports (SARs) process, and considerations of climate change

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MMPA s117(a) – Stock Assessment Reports

Each draft SAR, based on the best scientific information available, shall—

1. describe the **geographic range**...
2. provide the **minimum population estimate, net productivity rates, and current population trend**...
3. estimate the **annual human-caused mortality and serious injury** of the stock **by source** and, for a strategic stock, **other factors ...including effects on marine mammal habitat and prey**;
4. **describe commercial fisheries** that interact with the stock,...
5. **categorize the status of the stock** ...
6. **estimate the potential biological removal level** for the stock...



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MMPA s117(d) - Scientific Review Groups

“... the Secretary of Commerce shall ... establish **three independent regional scientific review groups** ...”

The SRGs shall advise the Secretary on:

- A. population estimates** and the population **status** and **trends** of such stocks;
- B. uncertainties and research needed** regarding stock separation, abundance, or trends, and factors affecting the distribution, size, or productivity of the stock;
- C. uncertainties and research needed** regarding the species, number, ages, gender, and reproductive status of marine mammals;
- D. research needed to identify modifications in fishing gear and practices likely to reduce the incidental mortality and serious injury of marine mammals in commercial fishing operations;**
- E. the actual, expected, or potential impacts of habitat destruction**, including marine pollution and **natural environmental change**, on specific marine mammal species or stocks, and for strategic stocks, **appropriate conservation or management measures** to alleviate any such impacts; and
- F. any other** issue which the Secretary or the groups consider appropriate.



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The SAR cycle

SARs are *reviewed*...

- ... annually for strategic stocks
- ... every 3 years for non-strategic stocks

SARs are *revised*...

- ...if there is substantive new information



Developing Consistent (NMFS) Stock Assessment Reports

- 1994: PBR Workshop (Barlow et al. 1995, NOAA Tech Memo NMFS-OPR-95-6; Wade 1998, Marine Mammal Science; Taylor et al. 2000, Conservation Biology)
- 1996: Guidelines for Assessing Marine Mammal Stocks (GAMMS) Workshop (Wade and Angliss 1997, NOAA Tech Memo NMFS-OPR-12)
- 2003: GAMMS II Workshop (NMFS 2005, 70 FR 35397 June 20, 2005)
- 2011: GAMMS III Workshop (Moore and Merrick 2011, NOAA Tech Memo NMFS-OPR-47; 81 FR 10830 March 2, 2016)
- 2016 GAMMS established as an official NMFS policy in Policy Directive System.
- 2023 GAMMS revised and updated in NMFS Policy Directive System

Department of Commerce · National Oceanic & Atmospheric Administration · National Marine Fisheries Service

<i>NATIONAL MARINE FISHERIES SERVICE INSTRUCTION 02-204-01</i> Effective on: February 7, 2023	
To be reviewed on: February 7, 2028	
Protected Resources Policy Directive Marine Mammal Protection Act 02-204	
Guidelines for Preparing Stock Assessment Reports Pursuant to the Marine Mammal Protection Act	
NOTICE: This publication is available at: https://www.fisheries.noaa.gov/national/laws-and-policies/policy-directive-system	
Author name: S. Bettridge Office of Protected Resources	Certified by: K. Damon-Randall Office of Protected Resources
Type of Issuance: Revised February 7, 2023	



Relevant Definitions

- **“Population stock”** or **“stock”** means a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature. (MMPA)
- **“Potential biological removal level”** means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. (MMPA)
- The term **“strategic stock”** means a marine mammal stock (MMPA)
 - (A) for which the level of direct human-caused mortality exceeds the potential biological removal level;
 - (B) ...is declining and is likely to be listed as a threatened species under the ESA...within the foreseeable future; or
 - (C) which is listed as a threatened species or endangered species under the Endangered Species Act (ESA)... or is designated as depleted



Potential Biological Removal level (PBR)

The potential biological removal level (**PBR**) is the product of:

(A) The minimum population estimate

(B) 1/2 the maximum theoretical or estimated net productivity rate at a small population size.

(C) A recovery factor of between 0.1 and 1.0.

$$\mathbf{PBR = N_{min} * 1/2 R_{max} * F_r}$$

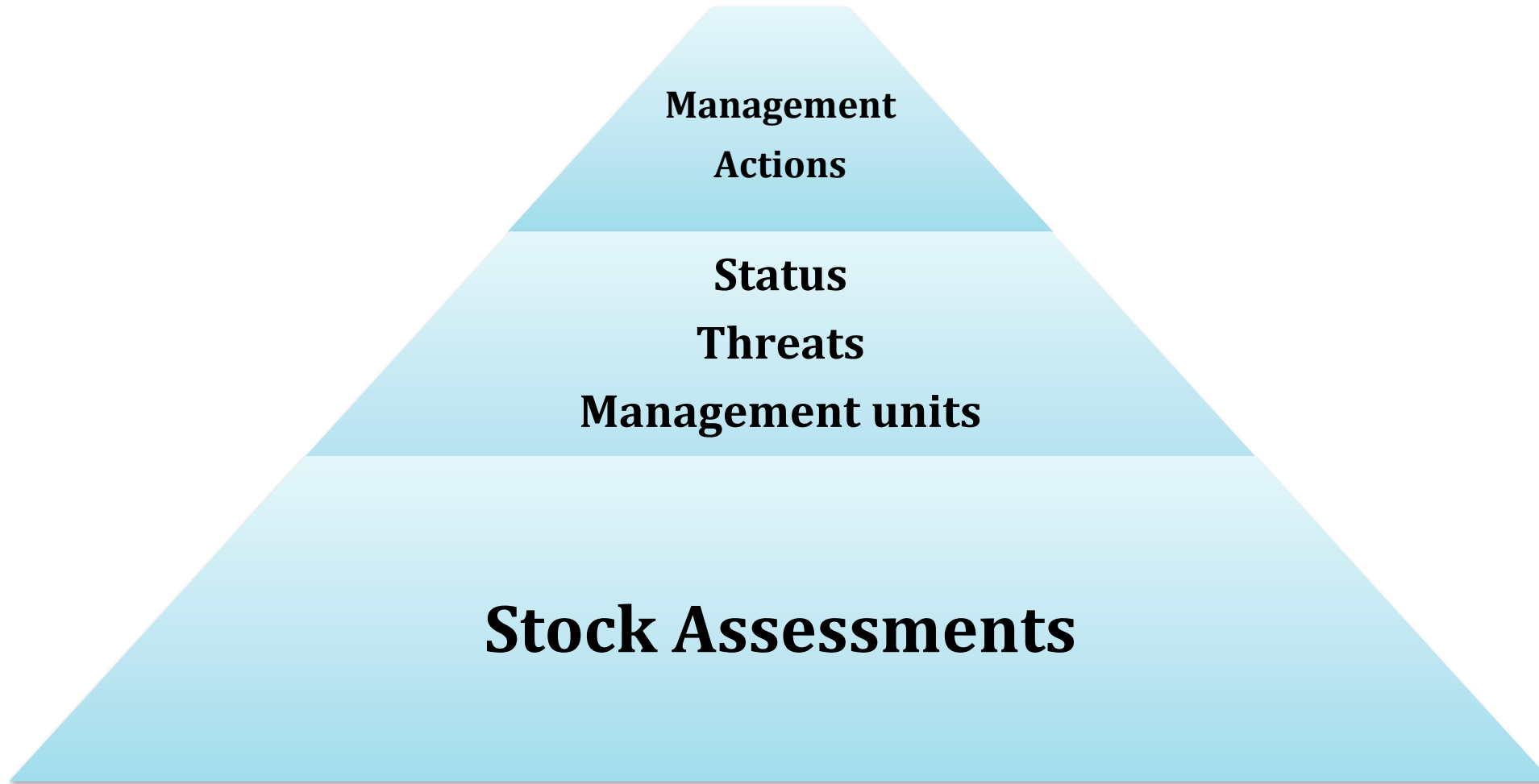


Relevant Definitions

- “**Optimum Sustainable Population,**” (OSP) with respect to any population stock, is the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element. (MMPA)
- A “**depleted**” stock is determined to be below its optimum sustainable population or is listed as an endangered or threatened species under the ESA. (MMPA)
- A **serious injury** is “any injury that will likely result in mortality.” (50 CFR 229.2, additional policy guidance)



The MMPA Pyramid



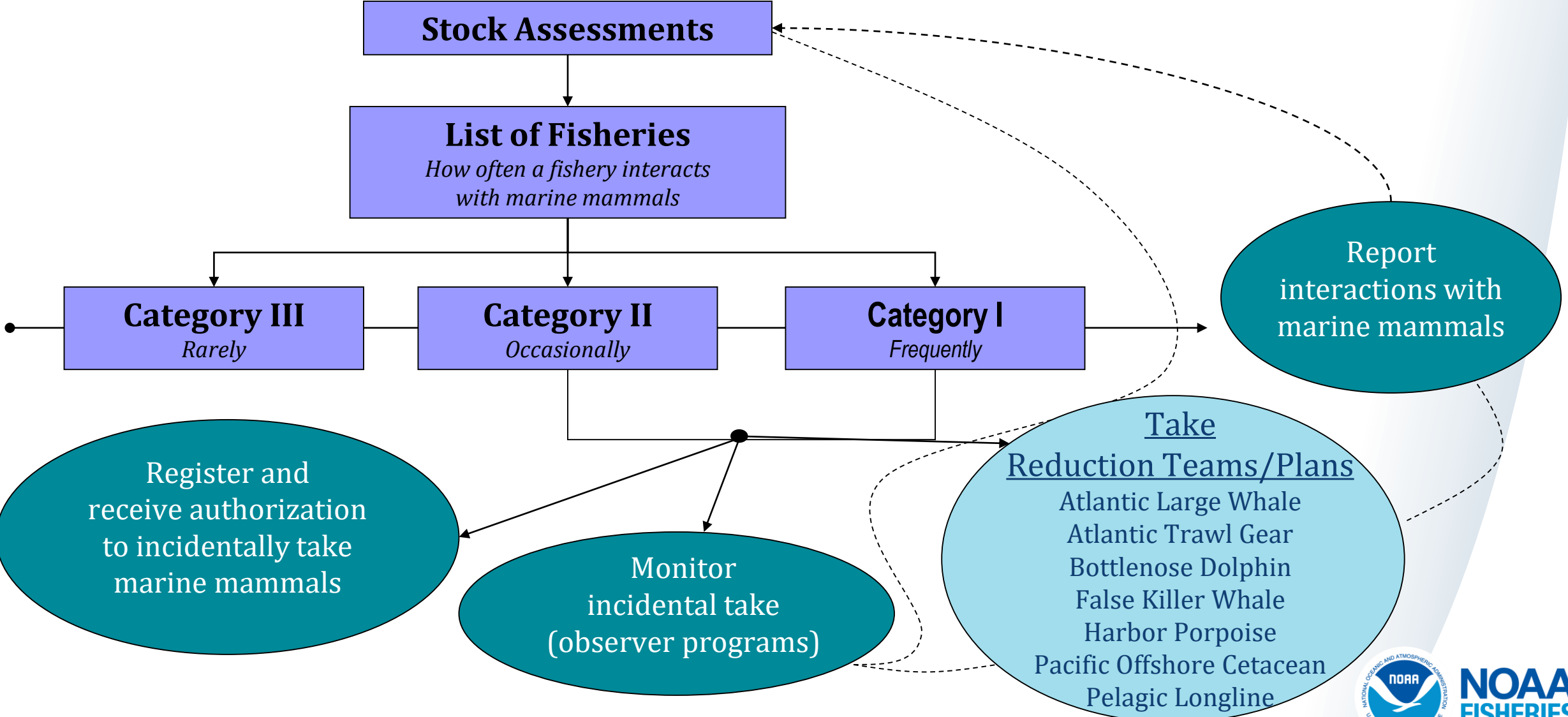
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The SARs in Action

- Used to evaluate MMPA **scientific research permits**
 - e.g., which stocks, # of authorized takes, etc.
- Used to evaluate **Incidental Harassment Authorizations** and **Incidental Take Regulations**
 - e.g., negligible impact determinations, small numbers, etc.
- Informs **take reduction plans and teams**
 - e.g., PBR index and progress towards TRP goals
- Used in determining MMPA **List of Fisheries** categorizations
 - e.g., tiered analysis
- Used to support MMPA **101(a)(5)(E) authorizations**
 - e.g., negligible impact determinations
- **Best available science!**



Example with Marine Mammal & Commercial Fisheries



Climate change and the SARs

- Not explicitly required by MMPA or regulations
- Can be reflected in distribution changes and key metrics (e.g., population trends, reproductive rates)
- Historically discussed in status of the stock and/or habitat issues section(s)
- GAMMS IV: Updated guidance on climate change, habitat issues, prey, etc.
 - New “Other Factors...” section and guidance, in line with 117(a)(3), focused on **strategic stocks**
- Room for improvement!



Questions?



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