FMP NORTHEAST MULTISPECIES (GROUNDFISH)
STOCK(S) Two Stocks - Northern Silver Hake (GOM/NGB), Southern Whiting (SGB/SNE/MA)
LAST ASSESSMENT 2011 Benchmark (SAW51), 2016 Operational Update

Assessment Model, Terminal Year	Description of Assessment Model	Overfishing?/ Overfished?	In Rebuilding Program?	OFL	ABC/ABC CR	ACL	ACT
Index-Based, 2016	No Approved Model (3-yr moving ave indices)	Northern stock N/N Southern stock N/N	No	F_{MSY} proxy x $B_{(3yravg)}$	**25th percentile stochastic OFL estimate**; 4% added to southern stock ABC to account for offshore hake	95% ABC	N/A

Major management issues/challenges:	MSY/OY	AMs	Discards	State Waters
Overfishing not based on fishing activity Fishery is open access (instability/potential influx of new participants) Northern and southern stock areas have very different fisheries	XXX	Inseason possession limit reduction; post-season adjustment to inseason trigger	3-yr. moving avg.	3%

Availability of Biological and Assessment Data	*Used in Assessment:* Trawl survey, dealer landings, VTR transfers at sea (bait), observer discards *Other Data: XXX*
Recent Performance Against Harvest Control Rule	Catch limits are and have been significantly higher than catch (2016 catch/ACL: Northern stock -- 15%; Southern stock -- 13%)
Current Management Program	Northern stock area is managed as a series of time/area exemptions from the large-mesh groundfish minimum mesh size requirements, greatly limited directed small-mesh access to the fishery (often used by smaller, inshore vessels as supplemental fishery to groundfishing.) Some larger whiting (recently re-emerging) are increasingly being landed by larger mesh trawlers and gillnetters. The southern stock area is a blanket exemption and supports a more directed, larger boat fleet. *Note, the Cultivator Shoals Exemption Area is in the northern stock area, but is primarily fished by the southern fleet.*
Variablity in Catch/Revenues?	Drastic reduction in catch since the Distant Water Fleet left (N:94,000 mt in 1964 to 1,434 mt in 2013, S: 352,000 mt in 1965 to 5,110 mt in 2013). Currently, as whiting is typically a supplemental fishery, the fishery responds to fluctuations in other fisheries, such as large-mesh groundfish (north) and squid (south and Cultivator). Catch has been relatively low (vs. availability) since the mid-1990s. Prices have appeared to increase in recent years ($0.60/lb 2010-2013 vs. $0.50/lb earlier 2000s).
Data - Vessels, Permits, Dealers, Processors, Employment	During FY2016, there were 40 vessels landing more than 2000 lbs. of silver hake per trip in the northern management area at 87 dealers , landing 6.4 million lbs. of silver hake ($4.2 million) and 324 thousand lbs of red hake ($126 thousand) on 1,081 trips. In the southern management area there were 61 vessels landing more than 2000 lbs. of silver hake per trip at 81 dealers , landing 6.2 million lbs. of silver hake ($4.3 million) and 272 thousand lbs of red hake ($319 thousand) on 1,914 trips. The totals were similar in 2014 and 2015.
% Food, % Recreational	100% food (there is a little recreational fishing in the northern area, but it isn't currently accounted for in the assessment or management; it is ~2% of total catch)
Fishing Communities	Top nine ports for small-mesh multispecies landings and revenue in 2016 were New Bedford, MA; Point Judith, RI; Gloucester, MA; New London, CT; New York, NY; Seabrook, NH; Provincetown, MA; and Boston, MA.
Other Economic/Social Factors	Food consumption Bait
Major Sources of Scientific Uncertainty	Offshore hake has a considerable amount of uncertainty and cannot be assessed. **From the assessment:** stock mixing, particularly of larger fish; relatively fewer large/older fish; predator/prey relationships
Major Sources of Management Uncertainty	Trophic interactions may have a substantial effect on stock productivity. Time-based (1972-1983) MSY proxy reference points may not be consistent with near term and long term future stock productivity.
How is the probability of overfishing addressed?	The Whiting PDT reviews catch information and stock status annually and makes recommendations to the Council if management adjustments (including accountability measures) are needed. Specifications are usually adjusted every three years, but may be adjusted more frequently. The catch limits apply a 25th percentile of the joint OFL distribution and survey biomass indexes for scientific uncertainty and a 5% reduction for management uncertainty.
What is the consequence of overfishing?	Reduced catches for a small number of vessels that are dependent on whiting, potentially impacting a much wider number of vessels that use whiting fishing as a "stop-gap" fishery. Silver hake play an important ecosystem role and provide substantial income to a core set of vessels. Reductions in biomass could have significant effects and cuts to rebuild could be costly.
How are expected net benefits to the Nation currently measured/evaluated?	Risk averse ABC control rule because of potential risk of overfishing and damage to industry
Interactions with Other Fisheries/Stocks, Bycatch Issues	Managed jointly with red hake, large-mesh groundfish, squid/mackerel fisheries (south), inshore/small boat herring
Ecosystem Considerations: Trophic Interactions	XXX
Ecosystem Considerations: Habitat	XXX
Ecosystem Considerations: Climate	Mostly unknown. Stocks may be likely to exhibit distribution shifts in response to warming conditions; this would have impacts on management's ability to constrain catch to stock boundary-based catch limits.
Other Important Considerations/Notes	Restrictions on fishing effort in the northern area makes using fishery dependent data difficult to detect trends.

FMP NORTHEAST MULTISPECIES (GROUNDFISH)
STOCK(S) Two Stocks - Northern Red Hake (GOM/NGB), Southern Red Hake (SGB/SNE/MA)
LAST ASSESSMENT 2011 Benchmark (SAW51), 2017 Operational Update

Assessment Model, Terminal Year	Description of Assessment Model	Overfishing?/ Overfished?	In Rebuilding Program?	OFL	ABC/ABC CR	ACL	ACT
Index-Based, 2016	No Approved Model (3-yr moving ave indices)	Northern stock N/N Southern stock Y/Y	No	F_{MSY} proxy x B(3yravg)	40th percentile stochastic OFL estimate	95% ABC	N/A
Major management issues/challenges: High proportion of catch is discards, mostly due to the lack of a market; overfishing not based on fishing activity; stock structure; some portion of directed red hake fishery sold as bait				**MSY/OY**	**AMs**	**Discards**	**State Waters**
				XXX	Inseason possession limit reduction; post-season adjustment to inseason trigger	3-yr. moving avg.	3%

Availability of Biological and Assessment Data	*Used in Assessment:* Trawl survey, dealer landings, VTR transfers at sea (bait), observer discards *Other Data:*
Recent Performance Against Harvest Control Rule	The northern stock area ABC was exceeded in both 2012 (38% over ABC, 45% over ACL), 2013 (29% over ABC, 36% over ACL), 2014 (1% below ABC, 5% over ACL), 2015 (18% over ABC, 25% over ACL), and 2016 (18% below ABC, 14% below ACL). The southern stock catches are much lower (averaging 41% of the ACL over 2012 to 2015.). The 2016 catch was 36% below the ABC and 33% below the ACL), which was revised in 2016.
Current Management Program	Northern stock area is managed as a series of time/area exemptions from the large-mesh groundfish minimum mesh size requirements, greatly limited directed small-mesh access to the fishery (often used by smaller, inshore vessels as supplemental fishery to groundfishing.) There is some directed red hake fishing in the northern area. The southern stock area is a blanket exemption. *Note, the Cultivator Shoals Exemption Area is in the northern stock area, but is primarily fished by the southern fleet.*
Variablity in Catch/Revenues?	Drastic reduction in catch since the Distant Water Fleet left (N:15,000 mt in 1978 to 155 mt in 2013, S: 113,000 mt in 1966 to 490 mt in 2013); northern red hake landings relatively stable between 100-200 mt since mid-1990s and the exemption area system, southern stock landings more varied between 600 and 1,000 mt in that time.
Data - Vessels, Permits, Dealers, Processors, Employment	During FY2016, there were 20 vessels landing more than 400 lbs. of red hake per trip in the northern management area at 83 dealers , landing 5.5 million lbs. of silver hake ($3.7 million) and 319 thousand lbs of red hake ($319 thousand) on 900 trips. In the southern management area there were 70 vessels landing more than 400 lbs. of red hake per trip at 88 dealers , landing 5.5 million lbs. of silver hake ($3.9 million) and 631 thousand lbs of red hake ($319 thousand) on 2,456 trips. The totals were similar in 2014 and 2015.
% Food, % Recreational	100% food (there is a little recreational fishing in the southern area, but it isn't currently accounted for in the assessment or management; it is ~6% of total catch)
Fishing Communities	Top nine ports for small-mesh multispecies landings and revenue in 2016 were New Bedford, MA; Point Judith, RI; Gloucester, MA; New London, CT; New York, NY; Seabrook, NH; Provincetown, MA; and Boston, MA.
Other Economic/Social Factors	Bait market (tuna, lobster) Little human food market
Major Sources of Scientific Uncertainty	Stock structure (as much evidence supports a single stock as supports multiple stocks); species identification in fishery dependent data (white hake); consumption; natural mortality is unknown
Major Sources of Management Uncertainty	Discards - 60% of the 2016 catch in the north (50/50 split between large- and small-mesh fisheries) and 70% in the south (nearly all from small-mesh fisheries) is estimated discards. Primary discard reason is the lack of market). Uncertainty in the reference points due to changes in distribution and time-based (1980-2010) proxy methods.
How is the probability of overfishing addressed?	The Whiting PDT reviews catch information and stock status annually and makes recommendations to the Council if management adjustments (including accountability measures) are needed. Specifications are usually adjusted every three years, but may be adjusted more frequently. The catch limits apply a 40th percentile of the joint OFL distribution and survey biomass indexes for scientific uncertainty and a 5% reduction for management uncertainty.
What is the consequence of overfishing?	Minimal; this is a low value (economic and ecological?) species, which is why the SSC was comfortable with a more risk prone approach to the ABC control rule, adopting a P*=40% value.
How are expected net benefits to the Nation currently measured/evaluated?	Because of potential to be a choke stock, ABC control rule is more risk prone than other stocks.
Interactions with Other Fisheries/Stocks, Bycatch Issues	Silver hake, inshore herring, large-mesh groundfish, squid
Ecosystem Considerations: Trophic Interactions	XXX
Ecosystem Considerations: Habitat	Primarily found in muddy habitats
Ecosystem Considerations: Climate	Mostly unknown. Stocks may be exhibiting distribution shifts in response to warming conditions; this would have impacts on management's ability to constrain catch to stock boundary-based catch limits.
Other Important Considerations/Notes	Restrictions on fishing effort in the northern area makes using fishery dependent data difficult to detect trends.