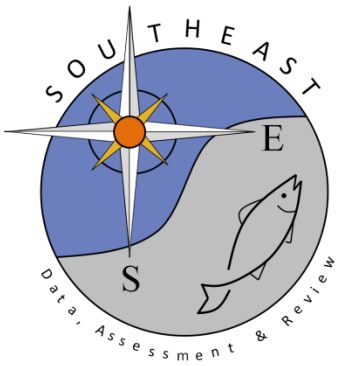
Indices of Abundance Report Cards

Indices Working Group

SEDAR39-DW-27

18 June 2014



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Evaluation of Abundance Indices for SEDAR 39.

Evaluation of :Standardized catch rates of smooth dogfish from the SEAMAP-South Atlantic Shallow Water Trawl Survey (SEDAR39-DW-02)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?				✓

Working Group Comments:

SEDAR39-DW-02 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

SEDAR39-DW-02 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.		✓		
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.		✓		
F. Include plots of the residuals by factor		✓		
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

The feasibility of this diagnostic is still under review.

SEDAR39-DW-02 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor***.)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	Recommend		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The SEAMAP-SA coverage ranges from Cape Hatteras, North Carolina to Cape Canaveral, Florida during the spring and fall. This is a random stratified trawl survey. Although this survey falls outside of the primary range of smooth dogfish, it covers a large area still used by the smooth dogfish and this area is not covered to this extent by any other index provided. This survey was recommended.

The SEAMAP-SA index was given a ranking of 4

Year range = 1994-2012
Seasonal range = spring/fall

Evaluation of :Relative abundance of Mustelus spp. in the Gulf of Mexico based on observer data collected in the reeffish bottom longline fishery (SEDAR39-DW-04)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete	**Working Group Comments:**
1. Fishery Independent Indices					
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.	✓				
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)	✓				
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)	✓				
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓				
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).	✓				
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓				
2. Fishery Dependent Indices					
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).				✓	
B. Describe any changes to reporting requirements, variables reported, etc.	✓				
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓	
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓	
METHODS					
1. Data Reduction and Exclusions					
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓	
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).				✓	
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?				✓	

SEDAR39-DW-04 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).				✓
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.				✓
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3E. observer data - coverage area is GOM

SEDAR39-DW-04 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)		✓		
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).		✓		
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				✓
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor		✓		
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

1B&C and 2F. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-04 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

This fishery-dependent time series was not recommended because the catches were clustered in multiple sets with many zeros in other sets, resulting in high coefficients of variation.

Year range = 2006-2012
Seasonal range = winter/spring/summer/fall

Evaluation of :Smoothhound Abundance Indices from NMFS Bottom Longline Surveys in the Western North Atlantic and Northern Gulf of Mexico (SEDAR39-DW-06)

	Not Applicable	Absent	Incomplete	Complete
DESCRIPTION OF THE DATA SOURCE				
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-06 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.			✓	

Working Group Comments:

4G. AOD

SEDAR39-DW-06 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)		✓		
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				✓
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

The feasibility of this diagnostic is still under review.

SEDAR39-DW-06 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/18/2014	Recommend		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The Indices Working Group recommended that the NMFS Bottom Longline Index be used in the base run of the model. The pros of this index are: it is a fishery independent survey with good spatial and temporal coverage. It also covers the entire depth range of smoothhound.

The NMFS Bottom Longline Index was given a ranking of 1.

Year range = 2000-2012
Month range = August-September

Evaluation of :Smoothhound Abundance Indices from SEAMAP Groundfish Surveys in the Northern Gulf of Mexico (SEDAR39-DW-07)

	Not Applicable	Absent	Incomplete	Complete
DESCRIPTION OF THE DATA SOURCE				
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-07 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

SEDAR39-DW-07 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)		✓		
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				✓
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

The feasibility of this diagnostic is still under review.

SEDAR39-DW-07 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

SEDAR39-DW-07 evaluation continued

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/18/2014	split into 3 series	5/20/2014	
Revision	5/19/2014	Recommend (2)		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The SEAMAP groundfish data was analyzed as three separate indices of abundance for smoothhound after discussion within the Indices Working Group. The SEAMAP Fall Survey was originally one long index (1972-2012), but major changes in survey design and expansion of the survey area makes coming the early years (1976-1986) with the recent years (1987-2012) difficult. The three indices were SEAMAP Summer Survey (1982-2012), Early SEAMAP Fall Survey (1972-1986) and SEAMAP Fall Survey (1988-2012).

The Early SEAMAP Fall Survey (1972-1986) was not recommended for use. The reasons were there was sporadic catches of smoothhound, with 4 years of zero catch and three years of one positive catch. In addition, the commercial and recreational catch data can only be taken back to 1982, which precludes the use of this index (only two years would be included), but a major change in survey design prevents these years from being combined with the SEAMAP Fall Survey.

The SEAMAP Summer Survey (1982-2012) and SEAMAP Fall Survey (1988-2012) were recommended for use in the base model. The pros of these surveys are they are fishery independent data, with good temporal and spatial coverage. The cons for the surveys were a change in the survey design in 2008 and low catches of smoothhound through the time series.

Both the SEAMAP Summer Survey Index (1982-2012) and SEAMAP Fall Survey Index (1988-2012) were given a ranking of 1.

Evaluation of :Smoothhound Abundance Indices from NFMS Small Pelagics Surveys in the Northern Gulf of Mexico (SEDAR39-DW-08)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.				✓
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-08 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.			✓	

Working Group Comments:

4G. AOD

SEDAR39-DW-08 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)		✓		
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.				✓
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

The feasibility of this diagnostic is still under review.

SEDAR39-DW-08 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	Recommend		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The Indices Working Group recommended the NMFS Small Pelagic Trawl be used in the base run of the stock assessment model. The pros of the survey are it's a fishery independent survey with a stratified random design and good spatial coverage, with a full coverage of the depth range of smoothhound.

The NMFS Small Pelagics Survey Index was given a ranking of 1.

Year range = 2002-2012
Month range = October-November

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the Northeast Fisheries Observer Program (SEDAR39-DW-09)

	Not Applicable	Absent	Incomplete	Complete
DESCRIPTION OF THE DATA SOURCE				
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-09 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. observer data - range description in text (NC to Gulf of Maine)

SEDAR39-DW-09 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-09 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The NE Observer Program anchored sink gillnet coverage ranges from North Carolina to the Gulf of Maine throughout the year. Only a subset of the observer data was used to model the trend in abundance. The need to standardize effort across the observed sets required the use of several variables, many of which contained missing data and were therefore not used. We felt the subset of data, based on available effort, was not representative of the fishery as a whole and may have provided inadequate information for estimating relative abundance representative of the population. These estimates were not recommended. However, the individual fish length data provided from the observer program may provide valuable information to help characterize the length distribution sampled by the different fisheries (anchored sink gillnet, drift sink gillnet, and trawl)

Year range = 1995-2013
Month range = January-December

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the Rhode Island Department of Environmental Management trawl surveys (SEDAR39-DW-10)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-10 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E described in text

SEDAR39-DW-10 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-10 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor***.)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

SEDAR39-DW-10 evaluation continued

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/20/2014	+ temp & modify yrs	5/23/2014	
Revision	5/23/2014	Recommend		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The RI Department of Environmental Management has conducted a seasonal trawl survey at fixed stations within depth strata in Block Island Sound, Rhode Island Sound, and Narragansett Bay since 1979. In 1990 a monthly survey was started using fixed stations within depth strata in Narragansett Bay to compliment the seasonal survey and using the same methodology. These two surveys were modeled separately. Model diagnostics for the estimated trends from both surveys were similar. Both time series contained peaks in abundance in 2003, but the model used to standardize the seasonal time series was able to account for this variability. It was suggested to combine the indices, but when combined the annual coefficients of variation increased. The seasonal survey was preferred because of the longer time frame. It was suggested to include bottom temperature in the model. The seasonal survey was recommended after running the standardization of the time series including bottom temperature and for two separate time spans, 1981-2012 and 1980-2012, to fit with the preferred (1981-2012) and alternate (1972-2012) assessment models. The model could not estimate a value for 1979 because there were no smooth dogfish caught that year.

The RI DEM seasonal index was given a ranking of 3.

Year range = 1980-2012 and 1981-2012
Seasonal range = spring/fall

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the University of Rhode Island trawl survey conducted by the Graduate School of Oceanography (SEDAR39-DW-11)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete	**Working Group Comments:**
1. Fishery Independent Indices					
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓	
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓	
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓	
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓	
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓	
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓	
2. Fishery Dependent Indices					
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓				
B. Describe any changes to reporting requirements, variables reported, etc.	✓				
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓				
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓				
METHODS					
1. Data Reduction and Exclusions					
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓				
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓				
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓				

SEDAR39-DW-11 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. only two fixed stations, description of location given in text

SEDAR39-DW-11 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-11 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

Even though the URI trawl survey covers a long time frame (1959-2013) with full seasonal coverage and consistent methodology across years it is not recommended for smooth dogfish. The survey is conducted at only 2 fixed stations within Narragansett Bay. The early years of the survey had high variability between years with lots of uncertainty in the estimates and model diagnostics were poor. There is no length data available to determine the length frequency or size range of smooth dogfish sampled; therefore, it is unclear if the survey trend would be representative of the entire population or only a portion of it. While this is a solid survey for monitoring multiple species, it is not recommended for this species. This survey does help to support trends seen in other surveys for the same area, e.g. the peak in smooth dogfish abundance seen in 2003.

Year range = 1959-2013
Month range = January-December

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the Long Island Sound Trawl Survey conducted by the CT Department of Energy and Environmental Protection (SEDAR39-DW-12)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-12 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. description given in text - random stratified sampling covering the entire Long Island Sound

SEDAR39-DW-12 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-12 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	remove year 2013	5/22/2014	
Revision	5/21/2014	Recommend		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The CT DEEP Long Island Sound trawl survey is a random stratified survey conducted in the spring and fall. The model diagnostics for the estimated trend were good. There was a large peak in abundance in 2002 and a notable drop in 2010. Both a large peak in 2002 and a less substantial drop were seen in NJ coastal waters (DW-14). There was no fall survey in 2010 due to vessel repairs. This survey covers an area consistently used by smooth dogfish over time. This survey is recommended after running the standardization of the time series again without the year 2013 to fit with the time span of the assessment model.

The CT DEEP Trawl Survey index was given a ranking of 3.

Year range = 1984-2012
Seasonal range = spring/fall

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the Peconic Bay Small Mesh Trawl Survey conducted by the NY State Department of Environmental Conservation (SEDAR39-DW-13)

	Not Applicable	Absent	Incomplete	Complete
DESCRIPTION OF THE DATA SOURCE				
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-13 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. description given in text - random stratified sampling covering the entire Bay

SEDAR39-DW-13 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-13 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The Peconic Bay small mesh trawl survey uses consistent methodology across years and has good coverage of the time of year that smooth dogfish are in the area. The model diagnostics for the estimated trend were good, but the index had high variability between years and no discernible trend. The majority of the fish caught during this survey were young of the year and smaller juveniles. We do not feel that the trend produced from this survey represents the overall population of smooth dogfish in the northwest Atlantic, but it provides a good index of recruitment for the species.

Year range = 1959-2013
Month range = January-December

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the New Jersey Division of Fish and Wildlife Ocean Trawl Survey (SEDAR39-DW-14)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete	**Working Group Comments:**
1. Fishery Independent Indices					
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓	
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓	
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓	
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓	
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓	
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓	
2. Fishery Dependent Indices					
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓				
B. Describe any changes to reporting requirements, variables reported, etc.	✓				
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓				
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓				
METHODS					
1. Data Reduction and Exclusions					
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓				
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓				
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓				

SEDAR39-DW-14 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. description given in text - random stratified sampling off entire NJ coast

SEDAR39-DW-14 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-14 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (*Note: this is always recommended but required when model diagnostics are poor.*)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	remove year 2013	5/22/2014	
Revision	5/21/2014	Recommend		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The NJ DFW Ocean Trawl Survey is a random stratified survey conducted during five months throughout the year. Smooth dogfish were caught consistently in high numbers throughout the years of this survey. The model diagnostics for the estimated trend were good despite one explained residual outlier from a random smooth dogfish caught in January. There was a large peak in abundance in 2002 also seen in Long Island Sound (DW-12). This survey is recommended after running the standardization of the time series again without the year 2013 to fit with the time span of the assessment model.

The NJ DFW Ocean Trawl Survey was given a ranking of 3.

Year range = 1988-2012
Month range = January, April, June, August, and October

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the Delaware Division of Fish and Wildlife trawl surveys (SEDAR39-DW-15)

	Not Applicable	Absent	Incomplete	Complete
DESCRIPTION OF THE DATA SOURCE				
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-15 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD

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SEDAR39-DW-15 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-15 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

SEDAR39-DW-15 evaluation continued

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	modify time frame	5/22/2014	
Revision	5/22/2014	Recommend		

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The DE Division of Fish and Wildlife 30-foot Trawl Survey is a fixed station survey conducted at nine stations on the Delaware side of Delaware Bay. Smooth dogfish were consistently caught across survey years. The model diagnostics for the estimated trend were good despite one explained residual outlier from a random smooth dogfish caught at the northernmost station in October. This survey is recommended after running the standardization of the time series for two separate time spans (1981-2012 and 1974-2012) to fit with the preferred (1981-2012) and alternate (1972-2012) assessment models.

The DE Trawl index was given a ranking of 3.

Year range = 1974-2012 and 1981-2012
Month range = April-November

Evaluation of : Standardized indices of abundance for smooth dogfish, Mustelus canis, from the COASTSPAN longline survey in Delaware Bay (SEDAR39-DW-16)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-16 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year others discussed and available AOD

SEDAR39-DW-16 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-16 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The timing of this survey does not coincide with the peak use of Delaware Bay by smooth dogfish (late spring). We do not think the annual estimates of relative abundance represent the true trend in abundance over time. This survey is not recommended.

Year range = 2006-2013
Month range = July-August

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the Ocean Gillnet Program conducted by the North Carolina Division of Marine Fisheries (SEDAR39-DW-17)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
1. Fishery Independent Indices					
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓	
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓	
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓	
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓	
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓	
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓	
2. Fishery Dependent Indices					
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓				
B. Describe any changes to reporting requirements, variables reported, etc.	✓				
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓				
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓				
METHODS					
1. Data Reduction and Exclusions					
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓				
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓				
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓				

SEDAR39-DW-17 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. description given in text - random stratified sampling covering three areas off NC coast south of Cape Lookout to the SC border

SEDAR39-DW-17 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-17 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The Ocean Gillnet Program (NC GN) covers a large expanse of the NC coast and conducts sampling throughout the majority of the year (February 15 through December 15). This is a relatively new survey and the time series is short, 2009-2013. The model diagnostics for the estimated trend were poor, possibly because of the limited number of years to pull information from. The gear in this survey is soaked for 12 hours and brings in the issue of gear saturation. It is difficult to standardize catches across sets when there is no way to determine when the gear stopped fishing. For this reason and because of the short time series, this survey is not recommended.

Year range = 2009-2013
Month range = February-December

Evaluation of :Standardized indices of abundance for Smooth Dogfish, Mustelus canis, from the University of North Carolina shark longline survey south of Shakleford Banks (SEDAR39-DW-18)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-18 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).			✓	
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year, others discussed and AOD 3E. only two fixed stations, description of location given in text

SEDAR39-DW-18 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-18 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	***Workshop Recommendation***	***Revision Deadline*** ***	***Author and Rapporteur Signatures***
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

Even though the UNC LL survey has been used in the past for other species it is not recommended for smooth dogfish due to the timing of the survey (April-November), which does not cover the season (winter) of peak usage by this species for this area. The majority of catches occurred during April and early May (82%), which were not consistently sampled across years due to weather and logistical constraints and there were 10 years without any smooth dogfish catches (1973, 1975, 1991, 1995, 1999-2002, and 2012-2013).

Year range = 1972-2011 (no smooth dogfish were caught in 2012 and 2013)
Month range = April-November

Evaluation of : Standardized indices of abundance for smooth dogfish, Mustelus canis caught during the South Carolina Department of Natural Resources red drum longline survey (SEDAR39-DW-19)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete	**Working Group Comments:**
1. Fishery Independent Indices					
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓	
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓	
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓	
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓	
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓	
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓	
2. Fishery Dependent Indices					
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓				
B. Describe any changes to reporting requirements, variables reported, etc.	✓				
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓				
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓				
METHODS					
1. Data Reduction and Exclusions					
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓				
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓				
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓				

SEDAR39-DW-19 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.			✓	
B. Include tables and/or figures of number of positive observations by factors and interaction terms.			✓	
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.			✓	
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				✓
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?				✓
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

3A,B,C,D given for year others discussed and available AOD

SEDAR39-DW-19 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.				✓
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)				✓
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.			✓	
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.				✓
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.			✓	
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.				✓
F. Include plots of the residuals by factor				✓
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

2B,D. AOD

The feasibility of this diagnostic is still under review.

SEDAR39-DW-19 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	not recommended		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

Even though the SCDNR red drum LL (OLD) survey has been used in the past for other species it is not recommended for smooth dogfish due to the timing of the survey, which does not consistently cover the season (winter) of peak usage by this species for this area. The majority of catches occurred during late November, December, and January (88%), which were not consistently sampled across years. Only 9% of the total sets had smooth dogfish catch.

Year range = 1984-2006 (sampling design change in 2007)
Month range = January-December (not consistently)

Evaluation of : Biomass, abundance, and distribution of smooth dogfish (Mustelus canis) from the NEFSC and MA DMF trawl surveys (SEDAR39-DW-24)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)				✓
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-24 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.			✓	
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				
B. Describe construction of GLM components (e.g. forward selection from null etc.)	✓			
C. Describe inclusion criteria for factors and interactions terms.	✓			
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?	✓			
E. Provide a table summarizing the construction of the GLM components.	✓			
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)	✓			
G. Report convergence statistics.	✓			

Working Group Comments:

3C. Easily calculated from table values
4. GLM approach not used. Assumed random stratified sampling approach would account for any variability per tow. CPUE used was stratified mean number per tow.

SEDAR39-DW-24 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.	✓			
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)	✓			
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
F. Include plots of the residuals by factor	✓			
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

The feasibility of this diagnostic is still under review.

SEDAR39-DW-24 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				A&B. CPUE in stratified mean number per tow and CV reported. Additional standardization through GLM procedures not conducted.
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report			✓		
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).			✓		
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

SEDAR39-DW-24 evaluation continued

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/18/2014	Recommend		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The NEFSC bottom trawl survey has been conducted seasonally in the fall since 1963 and spring since 1968 using a random stratified sampling design from Cape Hatteras, NC to Cape Cod, MA. Additional sampling south of Cape Hatteras has been conducted and north of Cape Hatteras in shallower waters, but in limited years and was not considered useful for this species assessment. The MA DMF bottom trawl survey has been conducted seasonally in both the spring and fall since 1978, also using a random stratified sampling design in Massachusetts inshore waters. For both time series the spring and fall surveys were separated to created indices of abundance. Given the timing of the seasonal surveys for both time series we felt the fall surveys better represented trends in smooth dogfish abundance with more smooth dogfish present in the sampled areas during this season. Both fall time series were recommended for use given their long time series, area coverage, and consistent catches of smooth dogfish across survey years. Two separate time series will be considered for each survey based on the preferred (1981-2012) and alternate (1972-2012) assessment models.

The NEFSC Trawl Survey index was given a ranking of 1.
NEFSC year range = 1972-2012
NEFSC seasonal range = fall only used

The MA DMF Trawl Survey index was given a ranking of 3.
MA DMF year range = 1978-2012
MA DMF seasonal range = fall only used

Evaluation of : Northeast Area Monitoring and Assessment Program (NEAMAP) Trawl Survey (SEDAR39-DW-30)

DESCRIPTION OF THE DATA SOURCE	Not Applicable	Absent	Incomplete	Complete
1. Fishery Independent Indices				
A. Describe the survey design (e.g. fixed sampling sites, random stratified sampling), location, seasons/months and years of sampling.				✓
B. Describe sampling methodology (e.g. gear, vessel, soak time etc.)				✓
C. Describe any changes in sampling methodology (e.g. gear, vessel, sample design etc.)	✓			
D. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).				✓
E. What species or species assemblages are targeted by this survey (e.g. red snapper, reef fish, pelagic).				✓
F. Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.				✓
2. Fishery Dependent Indices				
A. Describe the data source and type of fishery (e.g. commercial handline, commercial longline, recreational hook and line etc.).	✓			
B. Describe any changes to reporting requirements, variables reported, etc.	✓			
C. Describe the variables reported in the data set (e.g. location, time, temperature, catch, effort etc.).	✓			
D Describe the size/age range that the index applies to. Include supporting figures (e.g. size comp) if available.	✓			
METHODS				
1. Data Reduction and Exclusions				
A. Describe any data exclusions (e.g. gears, fishing modes, sampling areas etc.). Report the number of records removed and justify removal.	✓			
B. Describe data reduction techniques (if any) used to address targeting (e.g. Stephens and MacCall, 2004; gear configuration, species assemblage etc).	✓			
C. Discuss procedures used to identify outliers. How many were identified? Were they excluded?	✓			

Working Group Comments:

SEDAR39-DW-30 evaluation continued

	Not Applicable	Absent	Incomplete	Complete
2. Management Regulations (for FD Indices)				
A. Provide (or cite) history of management regulations (e.g. bag limits, size limits, trip limits, closures etc.).	✓			
B. Describe the effects (if any) of management regulations on CPUE	✓			
C. Discuss methods used (if any) to minimize the effects of management measures on the CPUE series.	✓			
3. Describe Analysis Dataset (after exclusions and other treatments)				
A. Provide tables and/or figures of number of observations by factors (including year, area, etc.) and interaction terms.				✓
B. Include tables and/or figures of number of positive observations by factors and interaction terms.				✓
C. Include tables and/or figures of the proportion positive observations by factors and interaction terms.				✓
D. Include tables and/or figures of average (unstandardized) CPUE by factors and interaction terms.				✓
E. Include annual maps of locations of survey sites (or fishing trips) and associated catch rates ***OR*** supply the raw data needed to construct these maps (Observation, Year, Latitude, Longitude (or statistical grid, area), Catch, Effort).				✓
F. Describe the effort variable and the units. If more than one effort variable is present in the dataset, justify selection.				✓
G. What are the units of catch (e.g. numbers or biomass, whole weight, gutted weight, kilograms, pounds).				✓
4. Model Standardization				
A. Describe model structure (e.g. delta-lognormal)				
B. Describe construction of GLM components (e.g. forward selection from null etc.)				✓
C. Describe inclusion criteria for factors and interactions terms.				✓
D. Were YEAR*FACTOR interactions included in the model? If so, how (e.g. fixed effect, random effect)? Were random effects tested for significance using a likelihood ratio test?	✓			
E. Provide a table summarizing the construction of the GLM components.				✓
F. Summarize model statistics of the mixed model formulation(s) (e.g. log likelihood, AIC, BIC etc.)				✓
G. Report convergence statistics.				✓

Working Group Comments:

SEDAR39-DW-30 evaluation continued

MODEL DIAGNOSTICS

Comment: Other model structures are possible and acceptable. Please provide appropriate diagnostics to the CPUE indices working group.

	Not Applicable	Absent	Incomplete	Complete
1. Binomial Component				
A. Include plots of the chi-square residuals by factor.	✓			
B. Include plots of predicted and observed proportion of positive trips by year and factor (e.g. year*area)	✓			
C. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).	✓			
2. Lognormal/Gamma Component				
A. Include histogram of log(CPUE) or a histogram of the residuals of the model on CPUE. Overlay the expected distribution.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.	✓			
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.	✓			
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓			
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓			
F. Include plots of the residuals by factor	✓			
3. Poisson Component				
A. Report overdispersion parameter and other fit statistics (e.g. chi-square / degrees of freedom).				✓
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor.				✓
C. Include QQ-plot – (e.g. Student deviance residuals vs. theoretical quantiles), Overlay expected distribution.		✓		
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.		✓		
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.		✓		
4. Zero-inflated model				
A. Include ROC curve to quantify goodness of fit.	✓			
B. Include plots describing error distribution (e.g. Studentized residuals vs. linear predictor).	✓			
C. Include QQ-plot (e.g. Student dev. residuals vs. theoretical quantiles), Overlay expected distribution.	✓			

Working Group Comments:

The feasibility of this diagnostic is still under review.

SEDAR39-DW-30 evaluation continued

	Not Applicable	Absent	Incomplete	Complete	Working Group Comments:
MODEL DIAGNOSTICS (CONT.)					
D. Include diagnostic plot for variance function (e.g. square root of std residuals vs. fitted values). Overlay expected distribution.	✓				
E. Include diagnostic plot for link function (e.g. linear response variable vs. linear predictor). Overlay expected distribution.	✓				
MODEL RESULTS					
A. Tables of Nominal CPUE, Standardized CPUE, Observations, Positive Observations, Proportion Positive Observations and Coefficients of Variation (CVs). Other statistics may also be appropriate to report				✓	
B. Figure of Nominal and Standardized Indices with measure of variance (i.e. CVs).				✓	
IF MULTIPLE MODEL STRUCTURES WERE CONSIDERED: (***Note: this is always recommended but required when model diagnostics are poor.***)					
1. Plot of resulting indices and estimates of variance	✓				
2. Table of model statistics (e.g. AIC criteria)	✓				

SEDAR39-DW-30 evaluation continued

	Date Received	*Workshop Recommendation*	*Revision Deadline* ***	*Author and Rapporteur Signatures*
First Submission	5/19/2014	Recommend		
Revision				

*The revision deadline is negotiated by the author, the SEDAR coordinator and the CPUE rapporteur. The author **DOES NOT** commit to any **LEGAL OBLIGATION** by agreeing to submit a manuscript before this deadline. The maximum penalty for failure to submit a revised document prior to the submission deadline is rejection of the CPUE series.*

Justification of Working Group Recommendation

The NEAMAP bottom trawl survey has been conducted during the fall and spring since the fall of 2007 using a random stratified sampling design in shallow inshore waters from Cape Hatteras, NC to Cape Cod, MA. Given the timing of the seasonal surveys we felt the fall survey better represented trends in smooth dogfish abundance with more smooth dogfish present in the sampled areas during this season. The fall time series was recommended for use given the area coverage and consistent catches of smooth dogfish across survey years. NEAMAP also compliments the NEFSC trawl time series by surveying shallower waters within the same latitudinal spatial coverage. Two methods were used to develop the indices of abundance from the NEMAP nominal time series: a design based approach using a weighted stratification method and and negative binomial GLM approach. We felt the stratified index was the most appropriate to use at this time.

The NEAMAP trawl survey was given a ranking of 2.

Year range = 2007-2012
Seasonal range = fall only used