

PART II

Trends in Average Length and Weight, and Proportion Mature at Age for Relevant Stocks and Trends in Environmental Variables

by

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Woods Hole Laboratory
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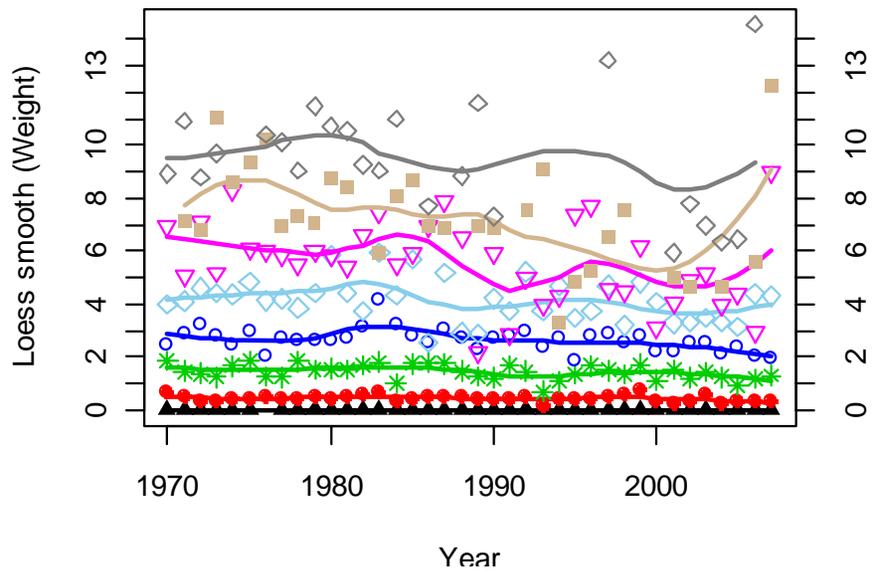
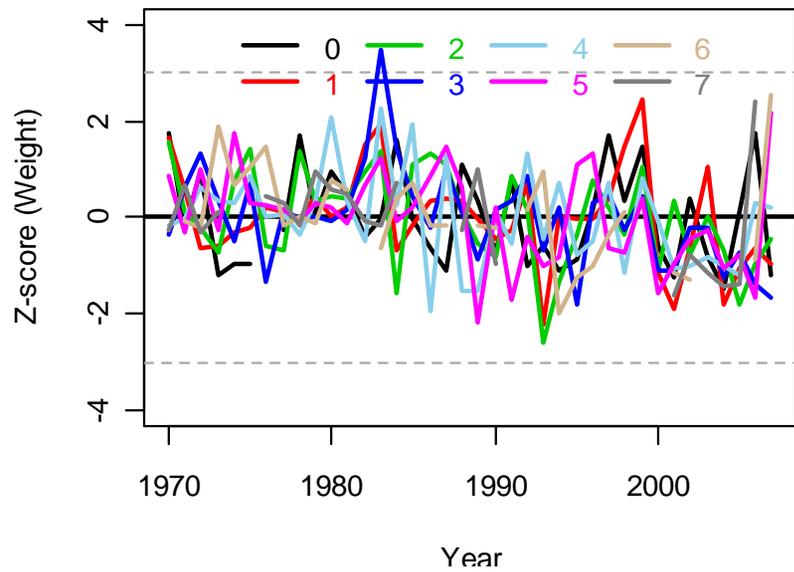
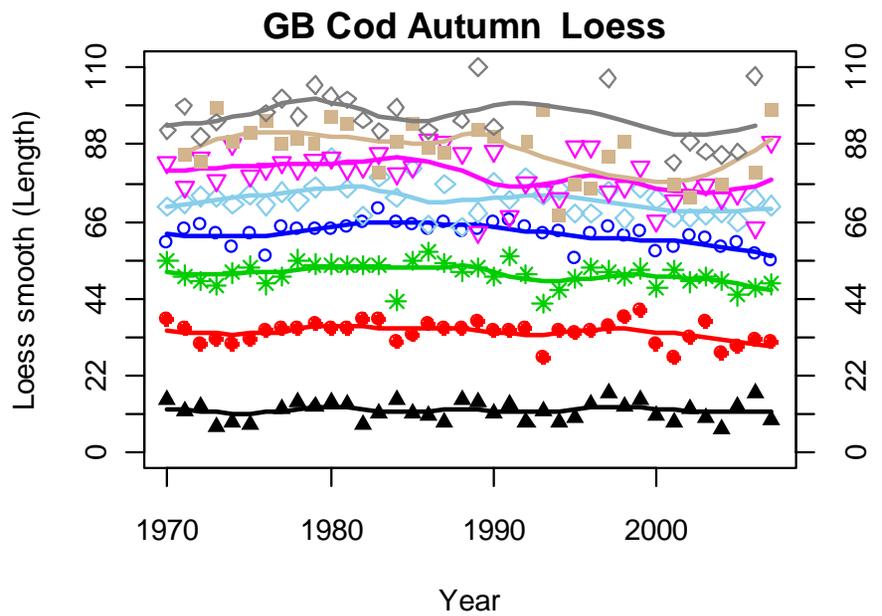
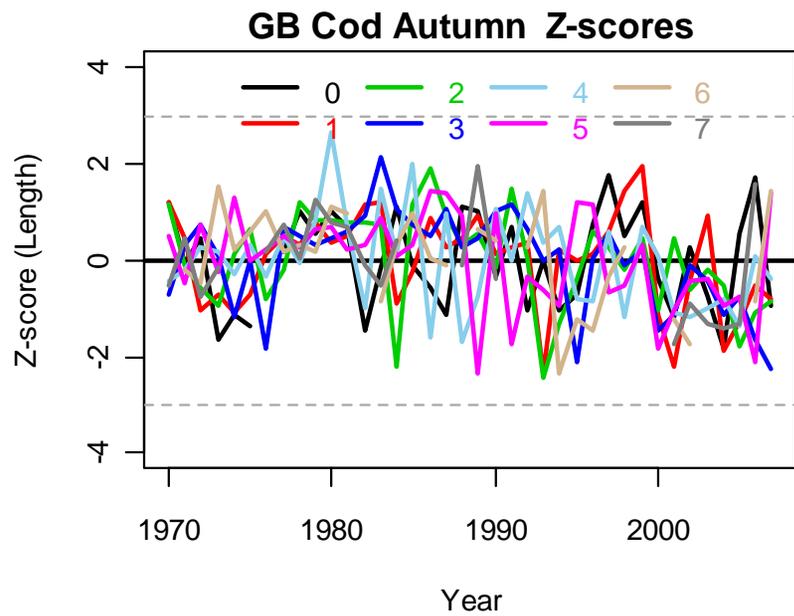


Figure 2.1. A1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank Atlantic cod, ages 0-7, from autumn bottom trawl research surveys during 1970-2007.

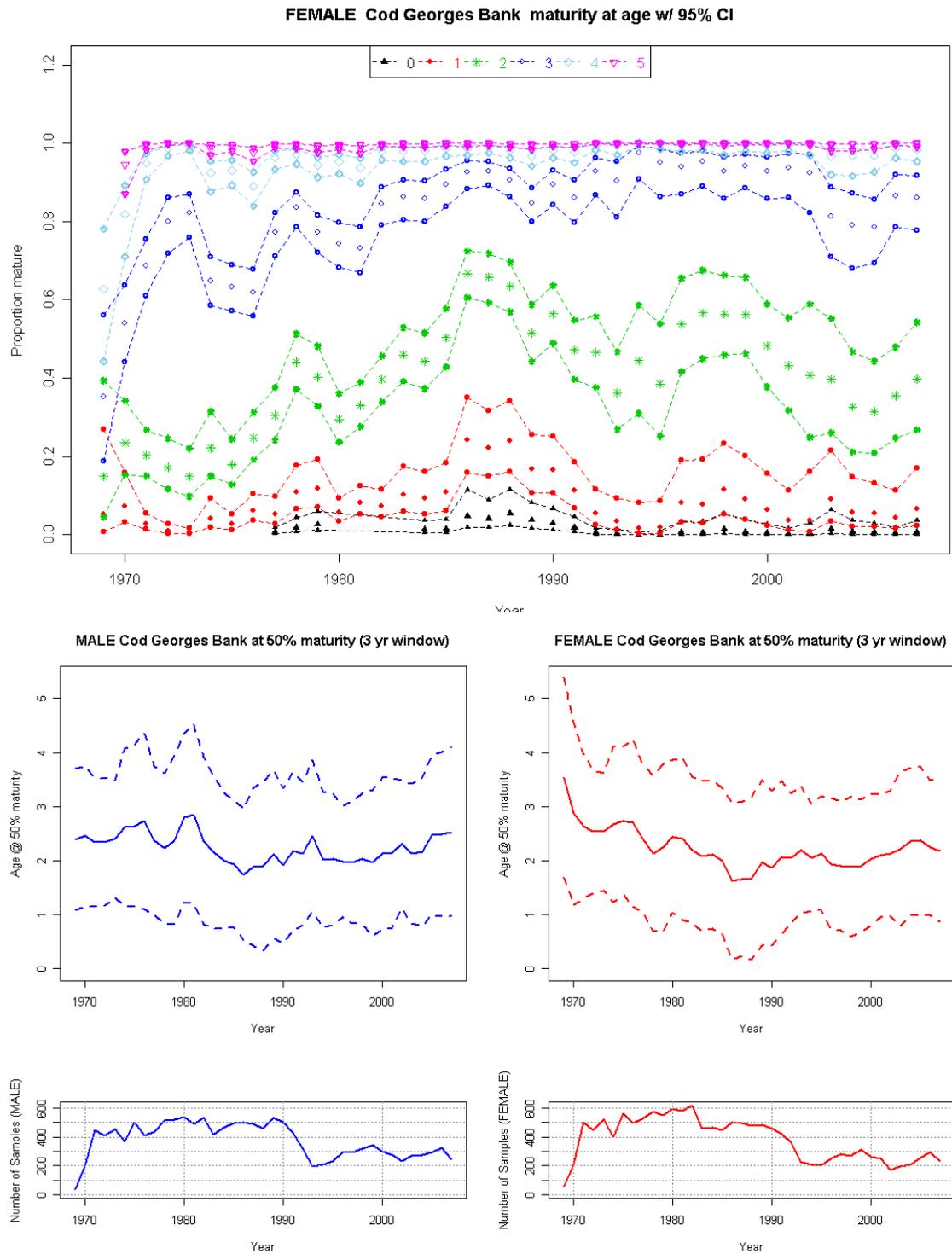


Figure 2.1 A2. Proportion mature at age with 95% confidence intervals for female Georges Bank cod using a 3-year moving window for ages 0-5 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

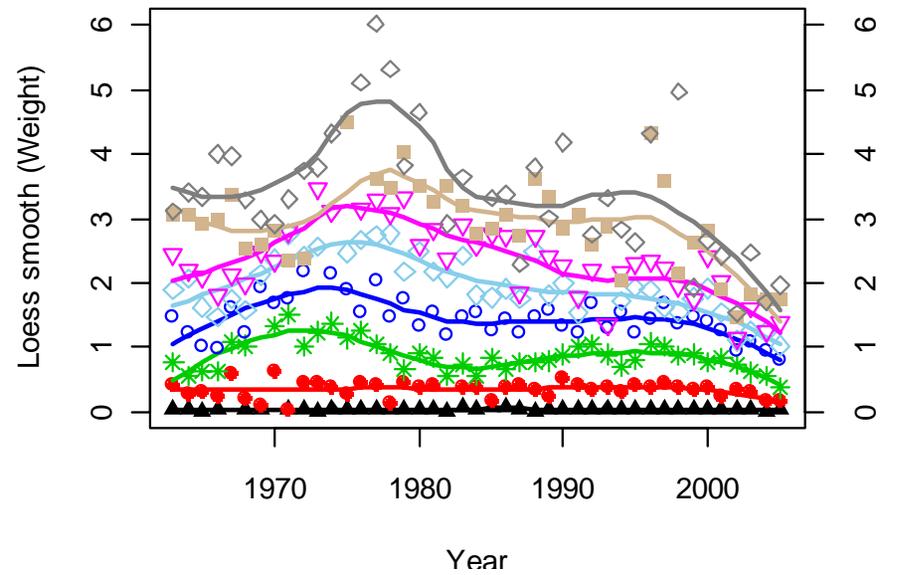
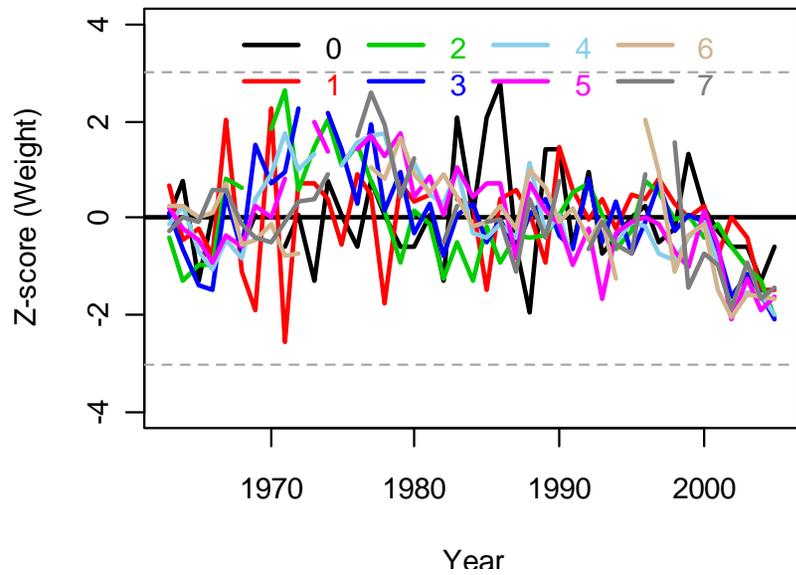
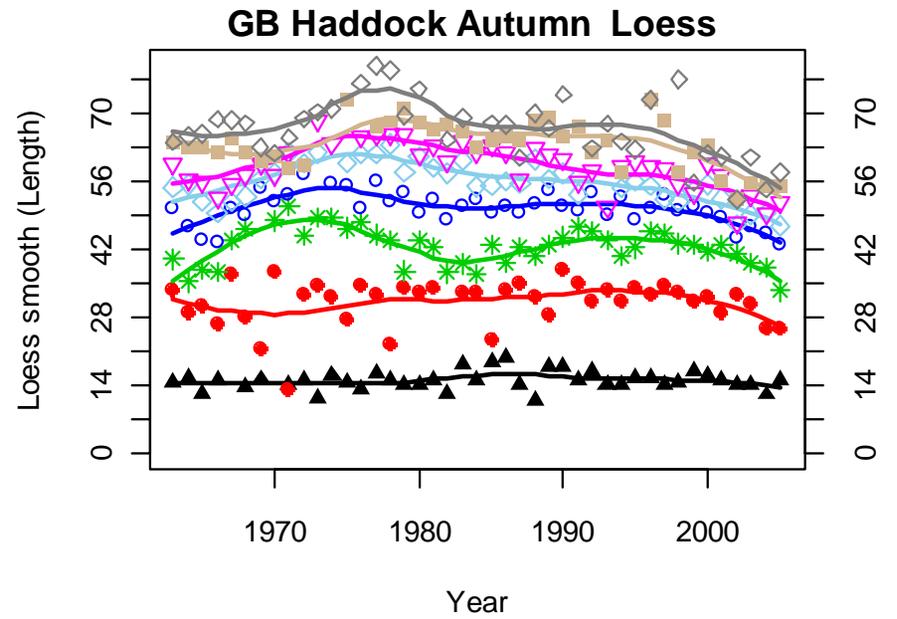
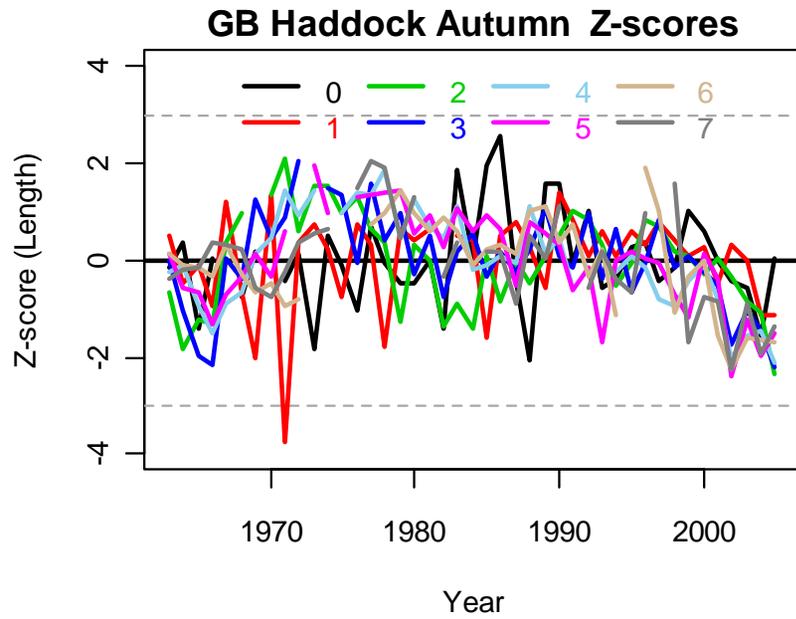
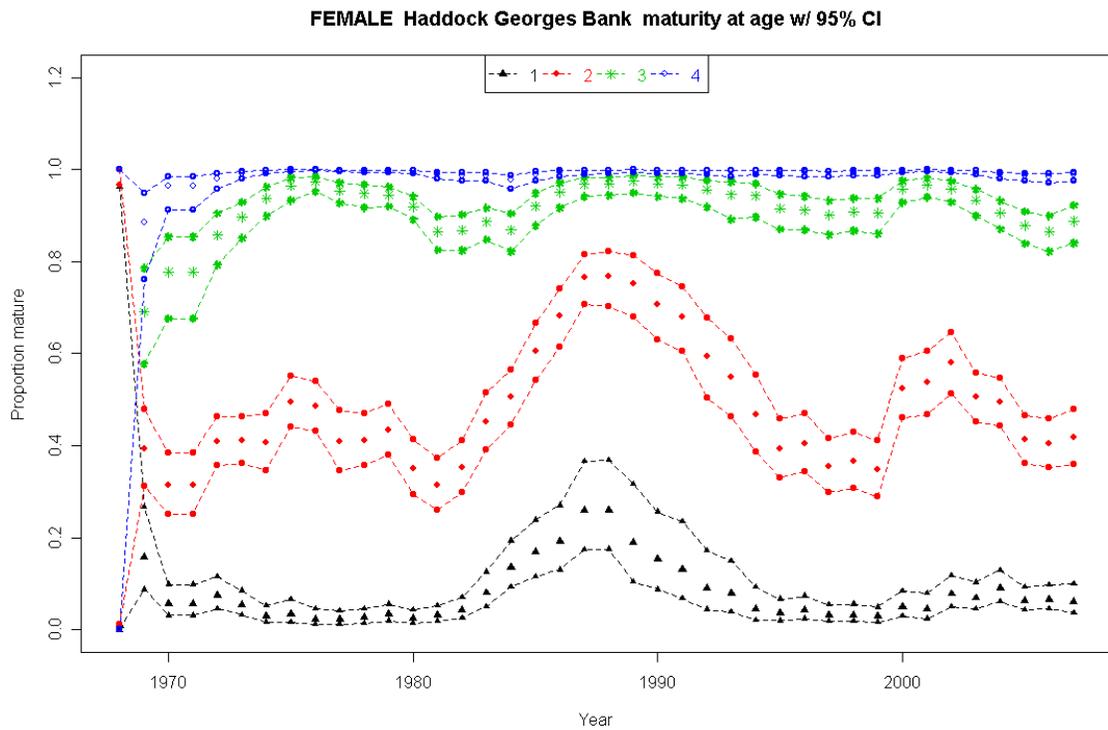
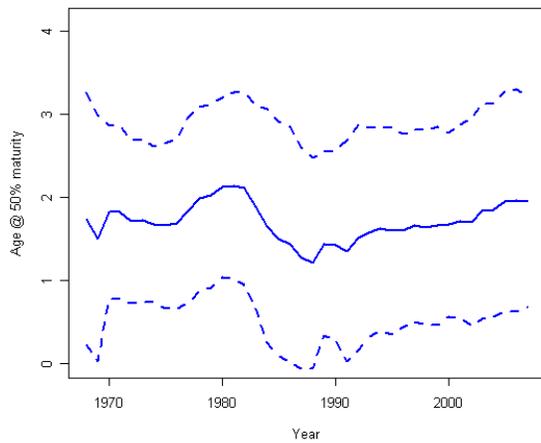


Figure 2.1. B1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank haddock, ages 0-7, from autumn bottom trawl research surveys during 1963-2007.



MALE Haddock Georges Bank at 50% maturity (3 yr window)



FEMALE Haddock Georges Bank at 50% maturity (3 yr window)

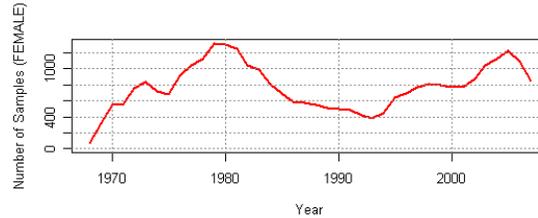
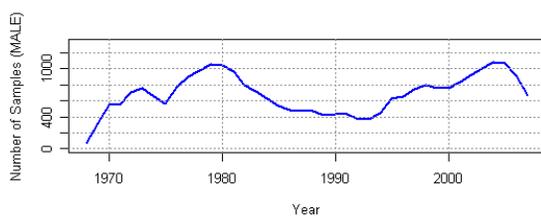
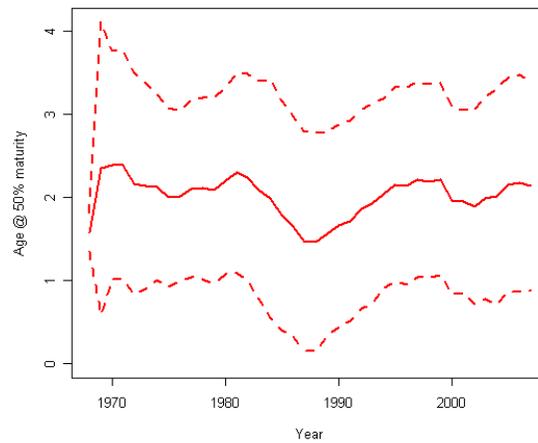
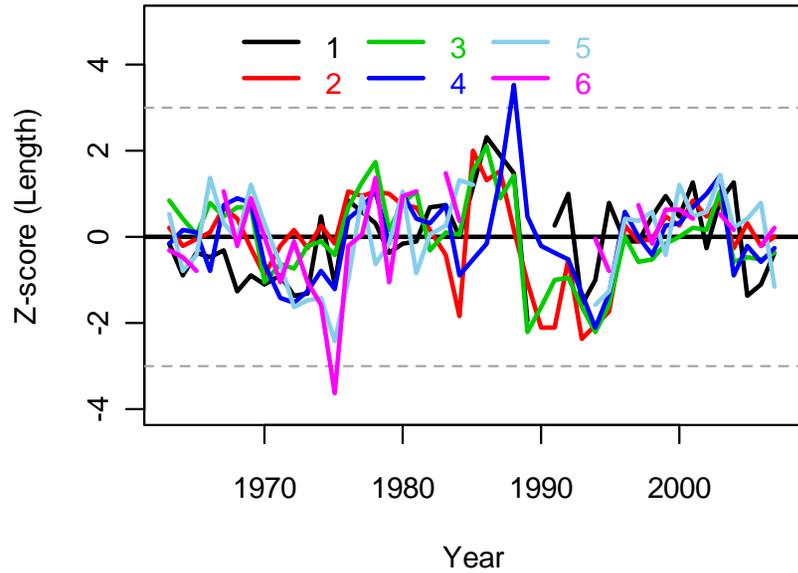


Figure 2.1 B2. Proportion mature at age with 95% confidence intervals for female Georges Bank haddock using a 3-year moving window for ages 1-4 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

GB Yellowtail Fldr Combined Autumn Z-scores



GB Yellowtail Fldr Combined Autumn Loess

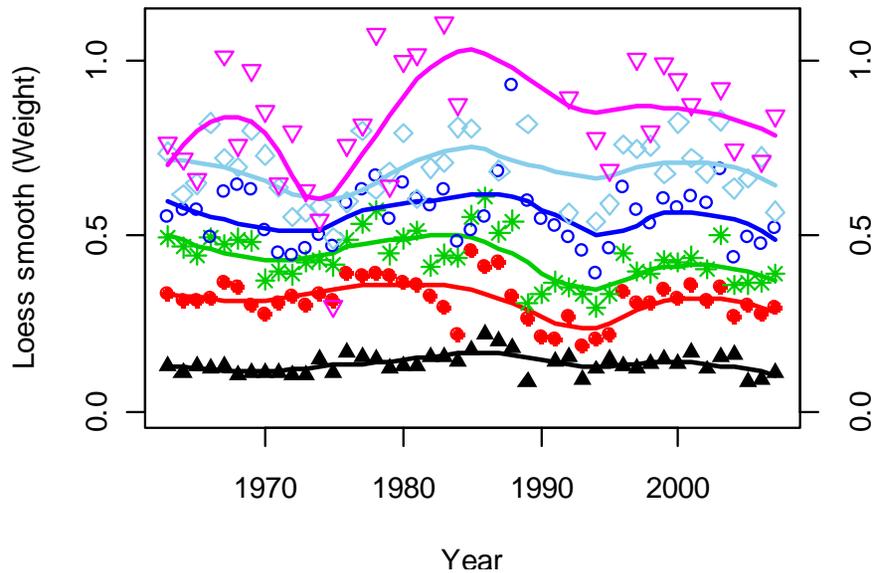
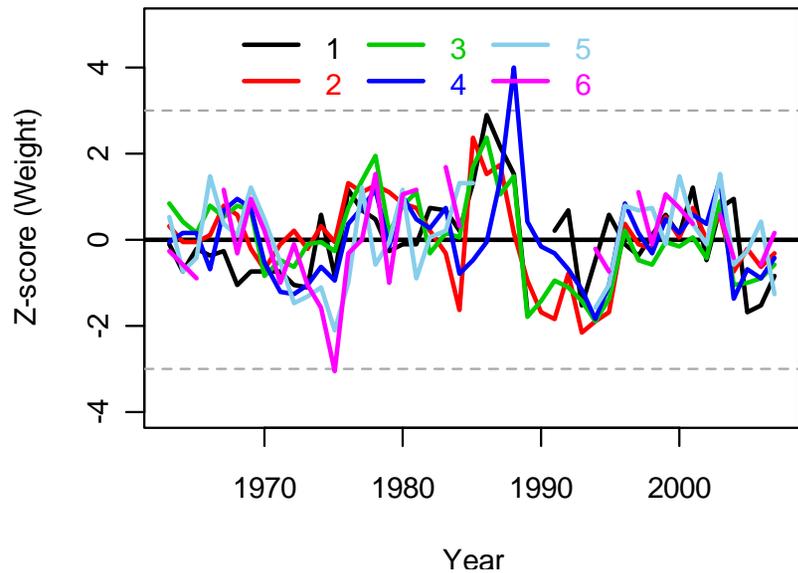
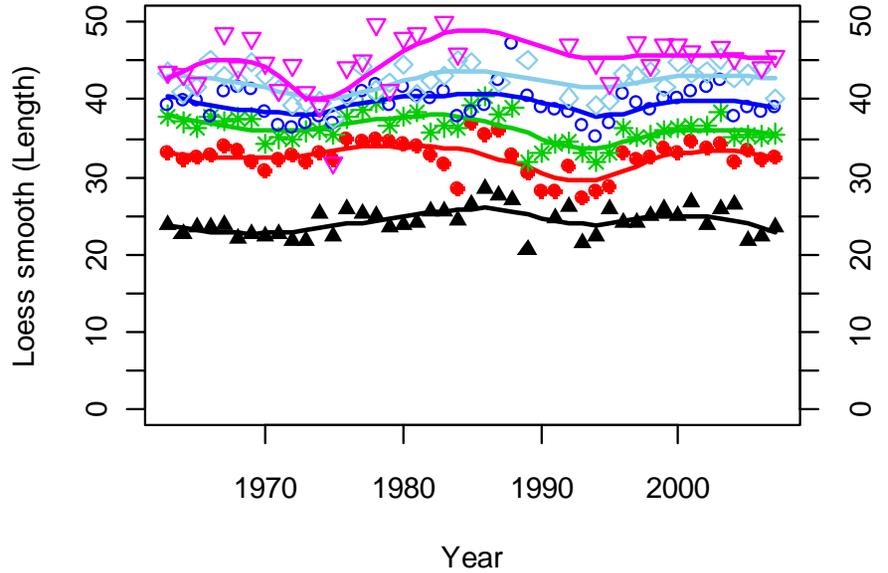


Figure 2.1. C1a. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank yellowtail flounder, ages 1-6, from autumn bottom trawl research surveys during 1963-2007.

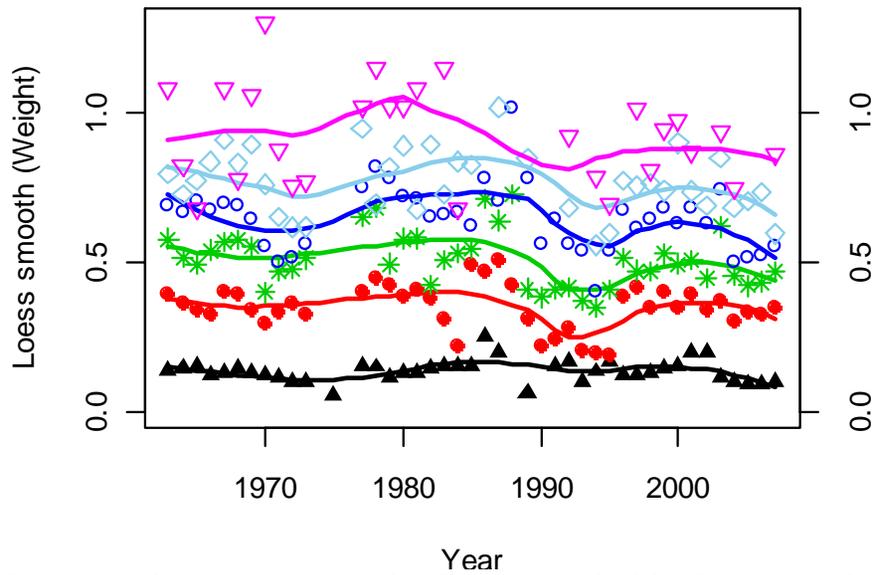
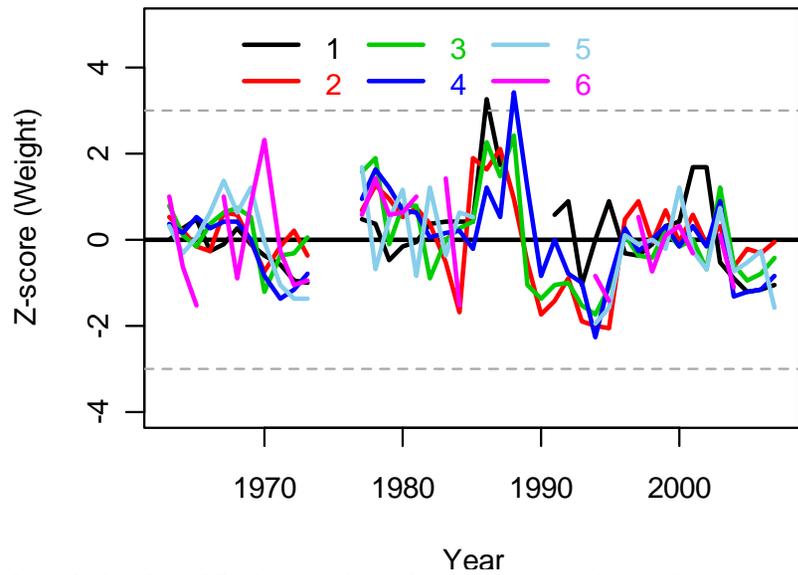
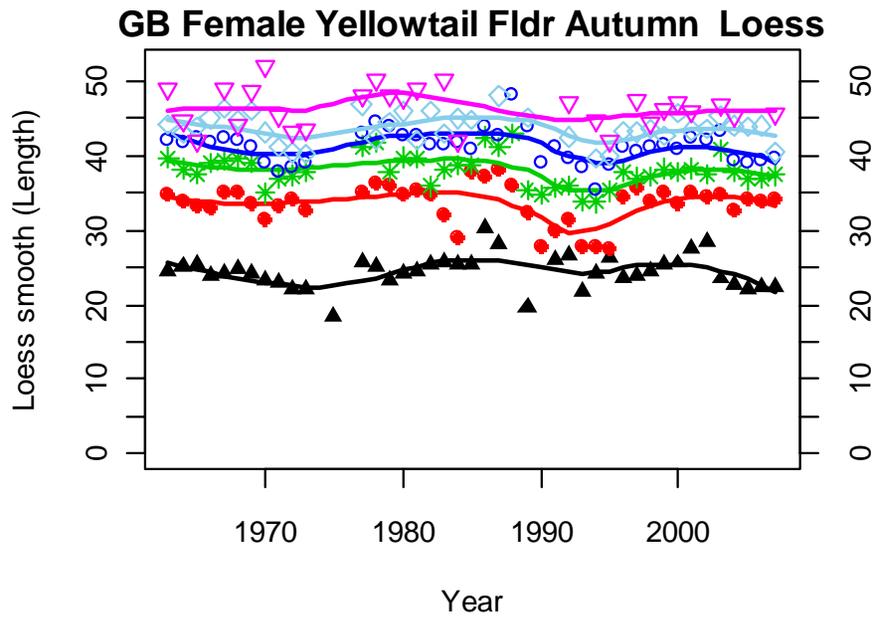
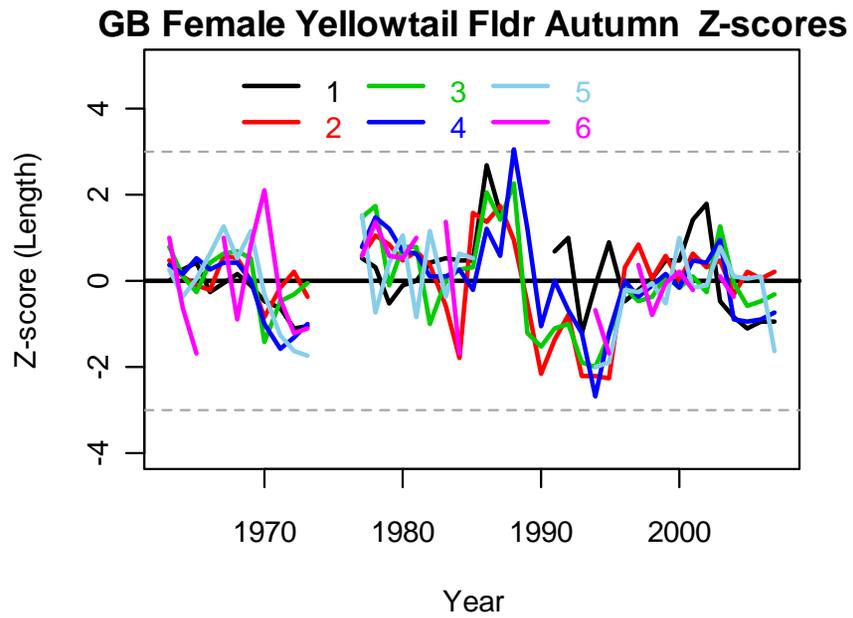


Figure 2.1. C1b. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank yellowtail flounder, ages 1-6, from autumn bottom trawl research surveys during 1963-2007.

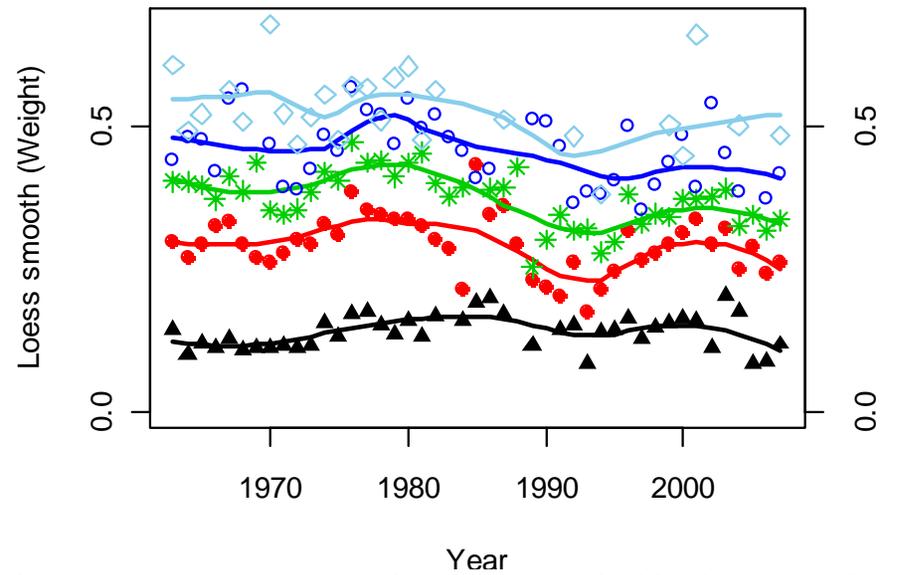
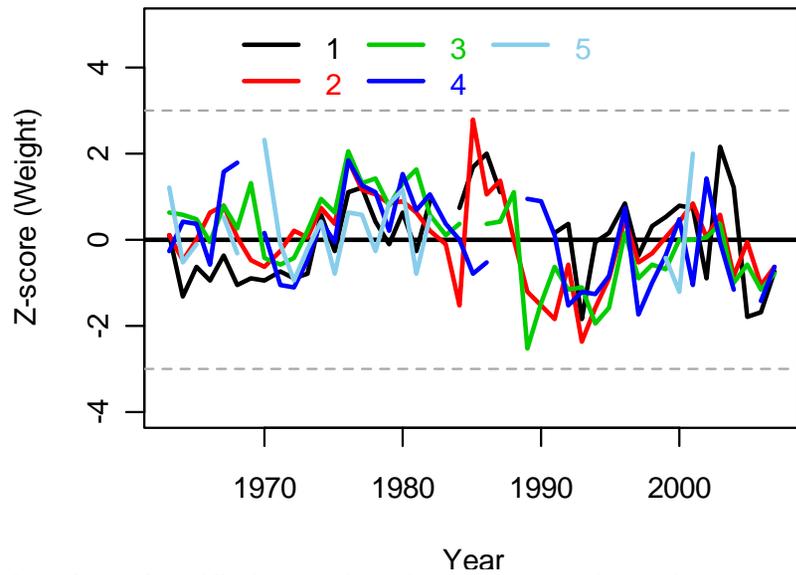
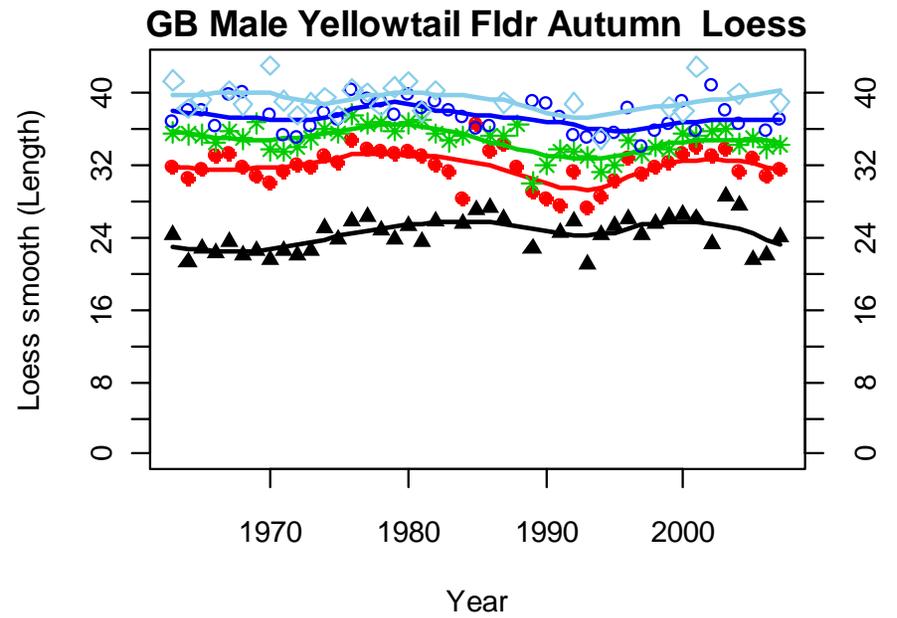
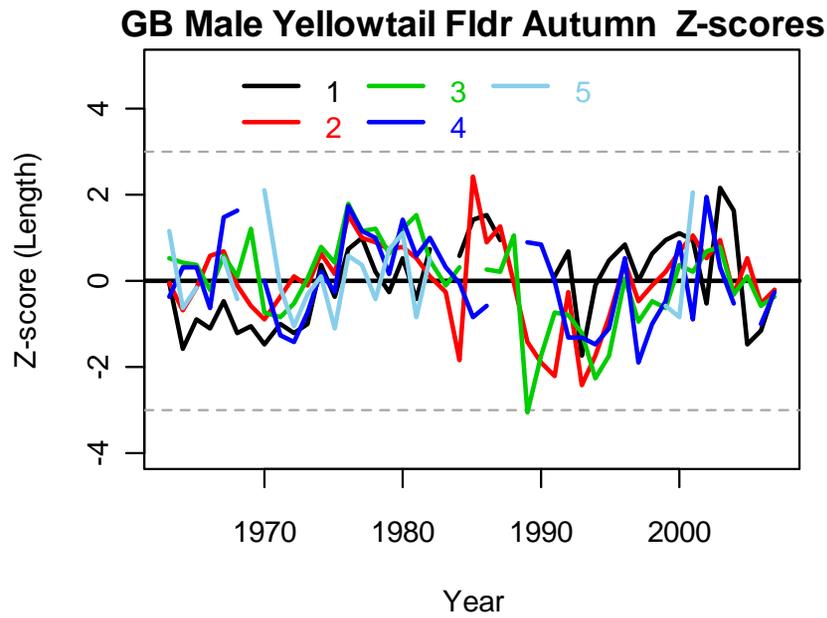
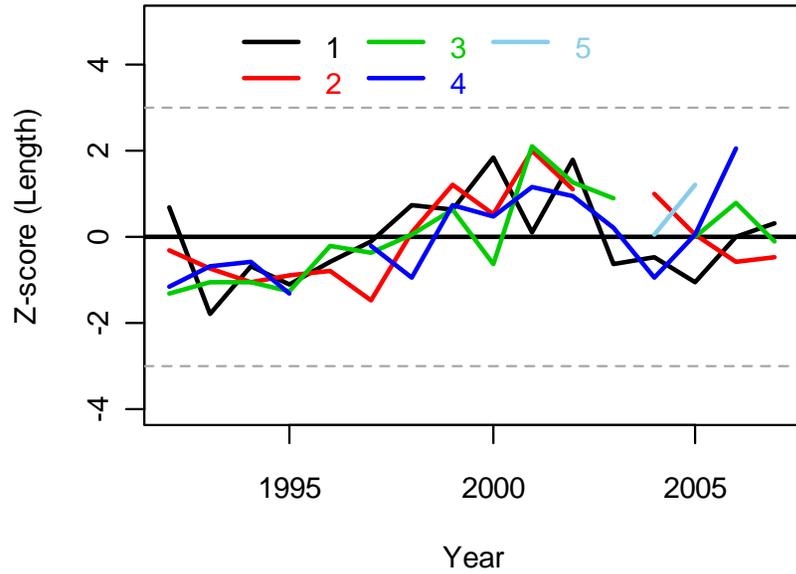


Figure 2.1. C1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank yellowtail flounder, ages 1-5, from autumn bottom trawl research surveys during 1963-2007.

SNE/MA Yellowtail Combined Autumn Z-scores



SNE/MA Yellowtail Combined Autumn Loess

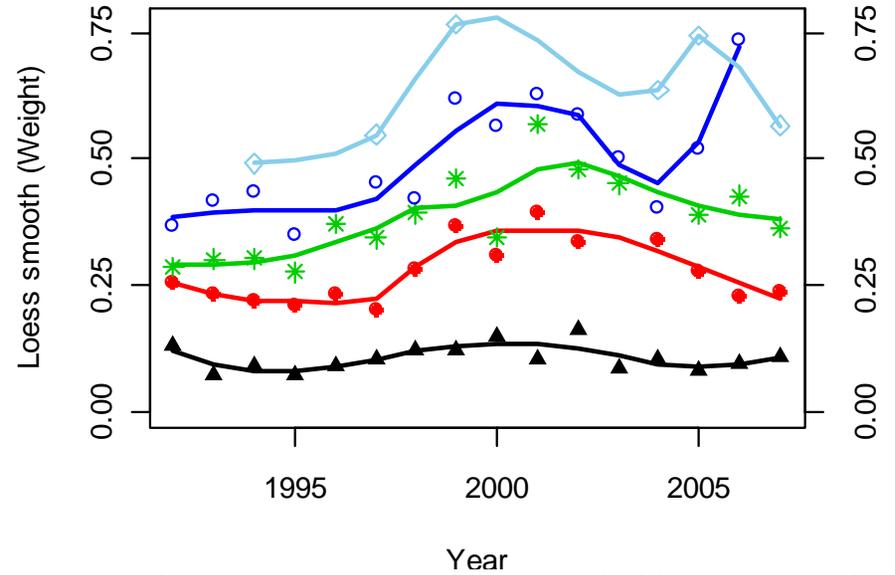
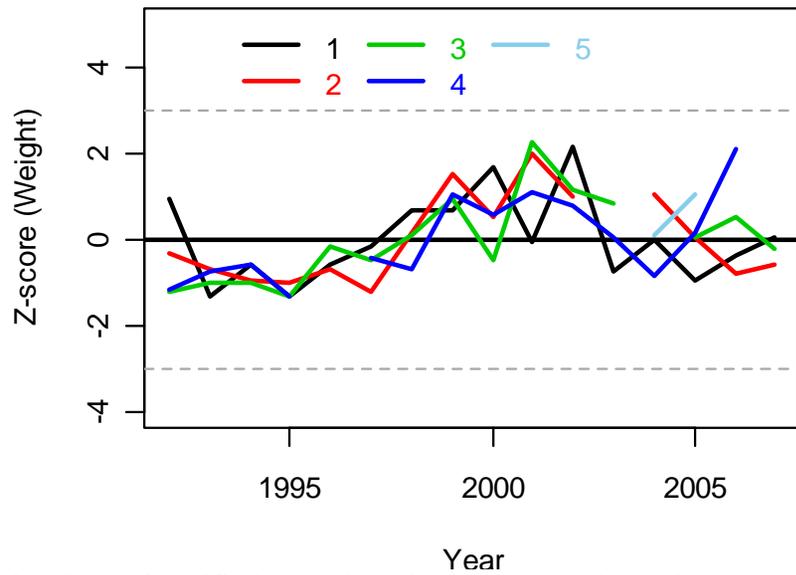
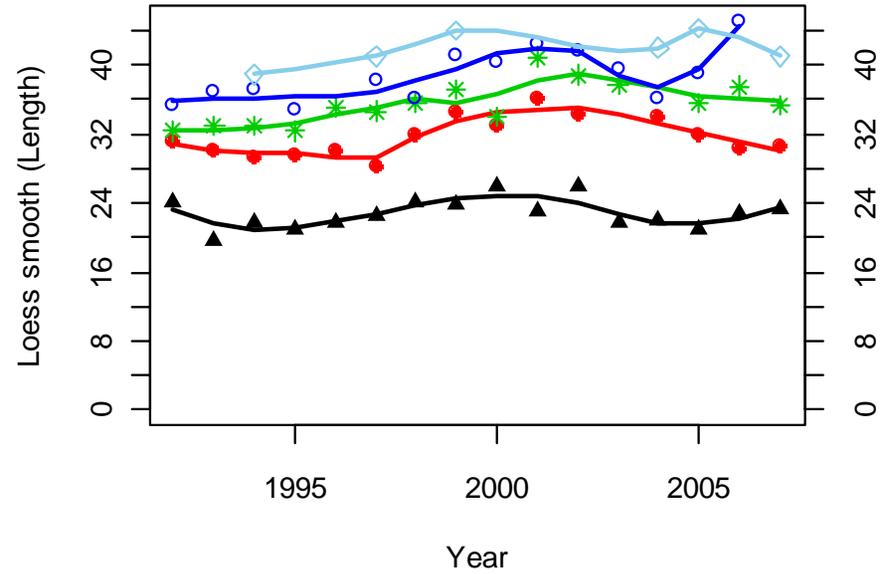


Figure 2.1. D1a. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Southern New England – Mid-Atlantic yellowtail flounder, ages 1-5, from autumn bottom trawl research surveys during 1992-2007.

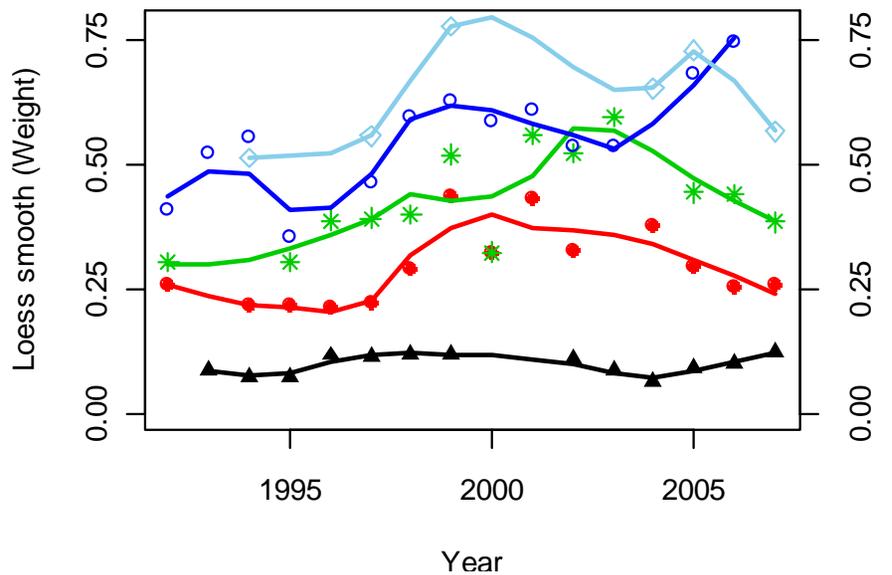
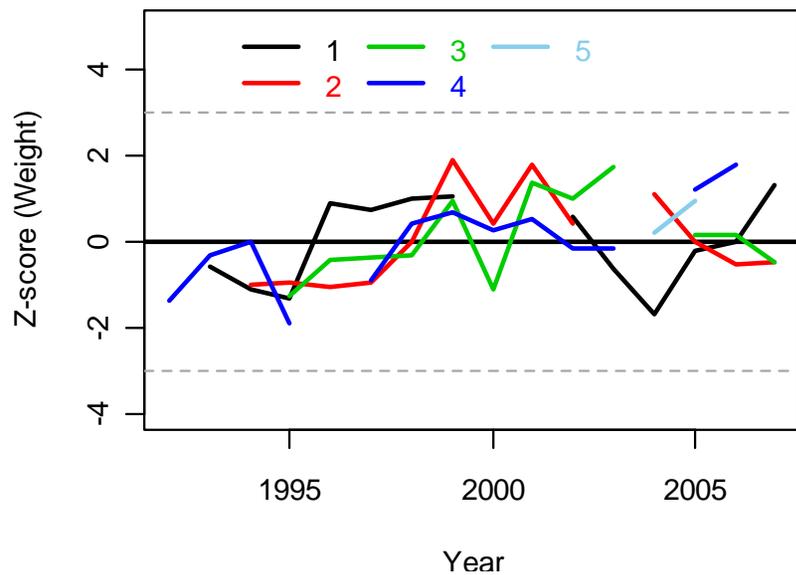
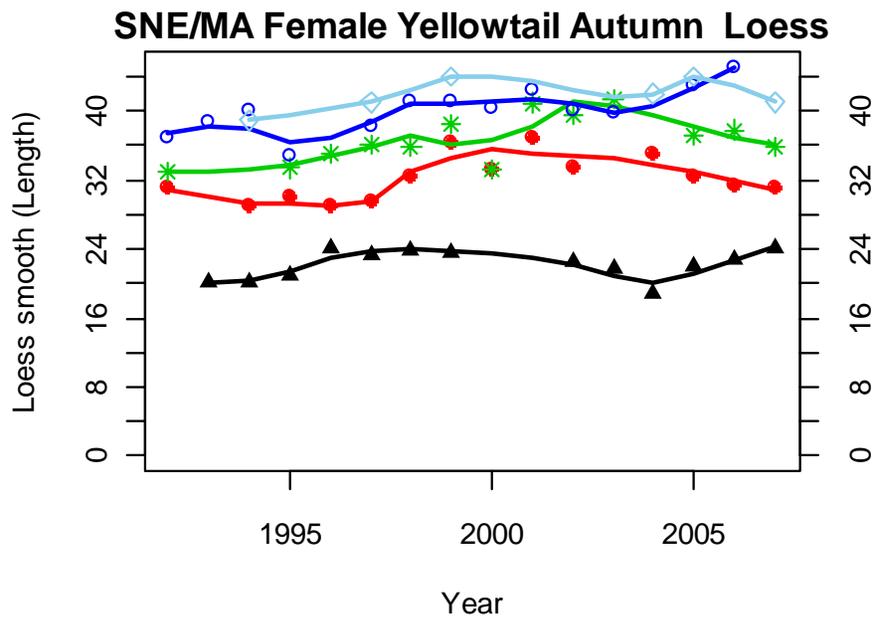
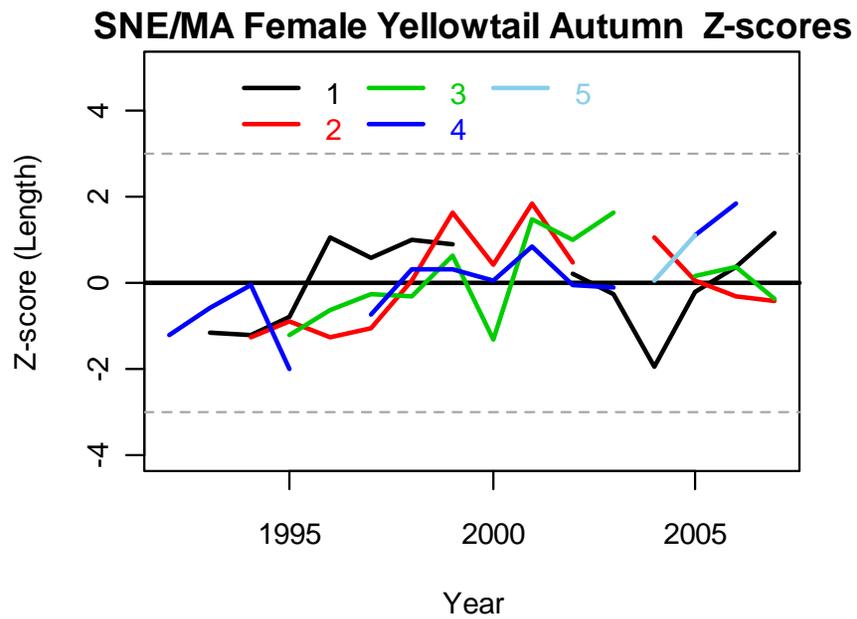


Figure 2.1. D1b. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Southern New England – Mid-Atlantic yellowtail flounder, ages 1-5, from autumn bottom trawl research surveys during 1992-2007.

**Southern New England/Massachusetts Yellowtail flounder
(Female) Autumn 1992-2007**

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age0 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age1 | ● | ● | ● | ● | ○ | ● | ● | ● | ● | ○ | ● | ● | ● | ○ | ● | ● | 0.2 |
| Length Age2 | ● | ● | ● | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 0.2 |
| Length Age3 | ● | ● | ● | ● | ○ | ○ | ● | ● | ● | ● | ● | ● | ● | ○ | ● | ● | 0.2 |
| Length Age4 | ● | ● | ○ | ● | ● | ● | ● | ○ | ● | ○ | ● | ● | ● | ● | ● | ● | 0.3 |
| Length Age5 | | | ● | | | ○ | ● | ● | | | | | ○ | ● | ○ | ○ | 0.1 |
| Length Age6 | | | ● | | | | ● | | | | | ● | ● | | | | 0.2 |
| Length Age7 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age8 | | | | | | | | | | | | | | | | | 0.0 |

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|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age0 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age1 | ● | ○ | ● | ● | ○ | ● | ● | ● | ● | ○ | ● | ● | ● | ○ | ● | ● | 0.6 |
| Weight Age2 | ● | ● | ● | ● | ○ | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | 0.8 |
| Weight Age3 | ● | ● | ● | ○ | ○ | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | 0.7 |
| Weight Age4 | ● | ○ | ○ | ● | | ● | ● | ○ | ● | ○ | ● | ○ | ● | ● | ○ | ○ | 0.7 |
| Weight Age5 | | | ● | | | ○ | ● | ● | | | | | ○ | ● | ○ | ○ | 0.4 |
| Weight Age6 | | | ● | | | | ● | | | | | ● | ● | | | | 0.7 |
| Weight Age7 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age8 | | | | | | | | | | | | | | | | | 0.0 |

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|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age0 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.5 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.8 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 6.7 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.1 |
| Number Age5 | | | ○ | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | 0.8 |
| Number Age6 | | | ○ | | | | ○ | | | | | ○ | ○ | | | | 0.1 |
| Number Age7 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age8 | | | | | | | | | | | | | | | | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | | | | | | | | | | | | | | | | | |
| Maturity Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

Legend


D = Measure of Dispersion: Range/Median

Figure 2.1.D.3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Southern New England/Massachusetts Yellowtail flounder sampled during autumn 1970-2007 and proportions mature at age sampled during spring 1970-2007 on NEFSC research bottom trawl surveys.

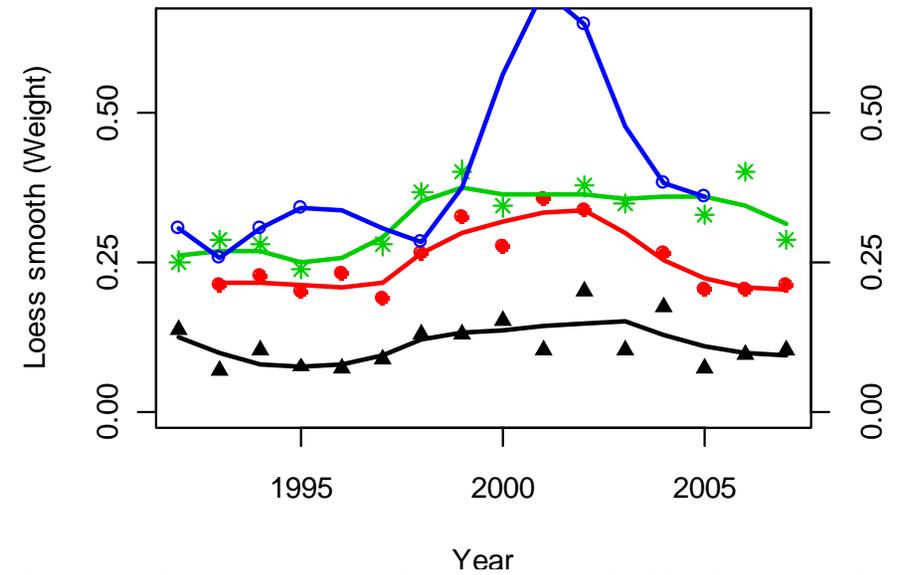
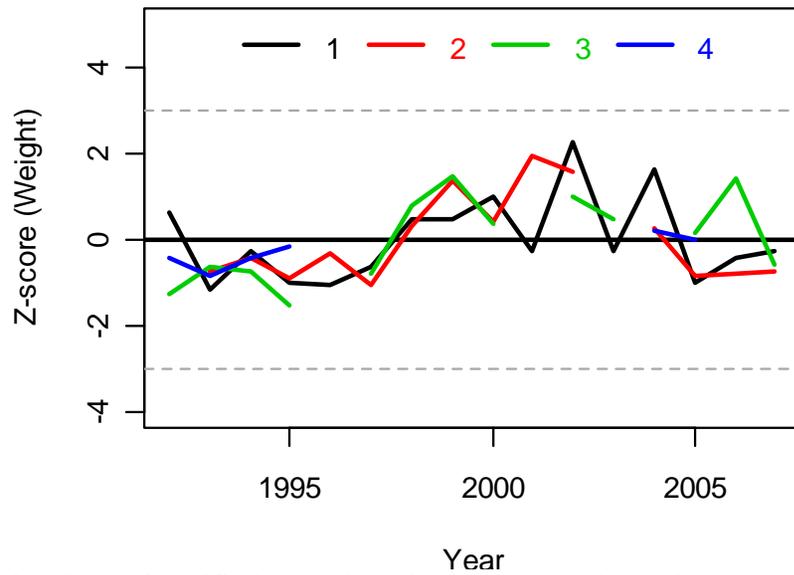
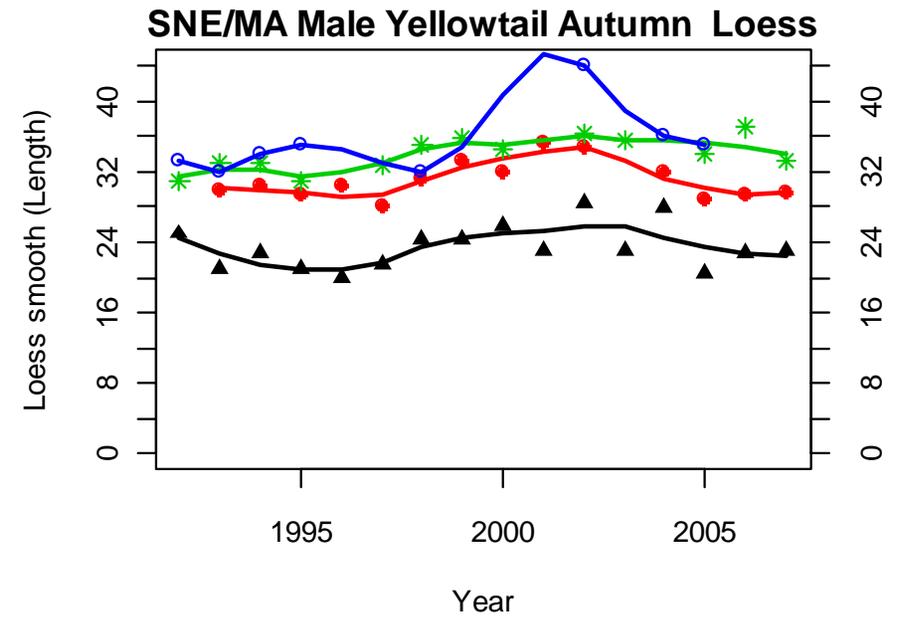
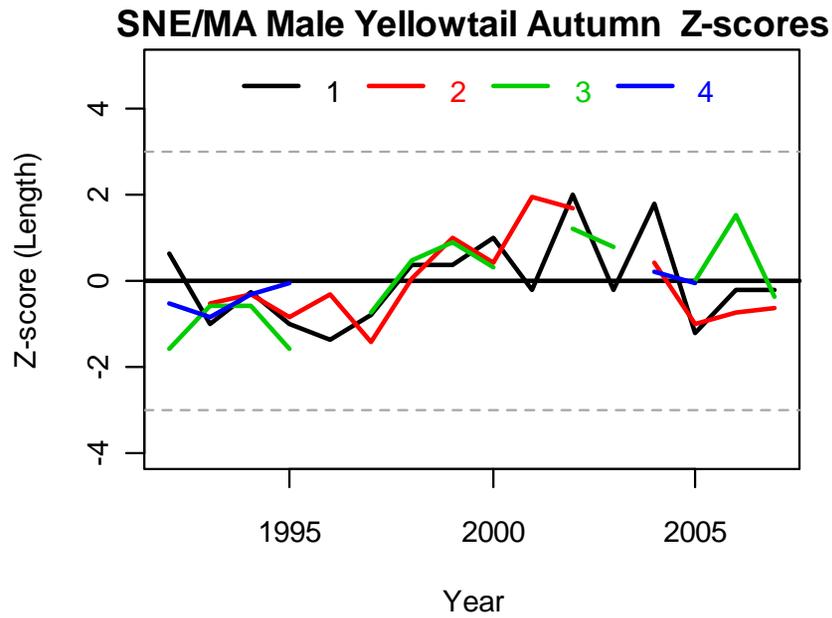


Figure 2.1. D1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Southern New England – Mid-Atlantic yellowtail flounder, ages 1-4, from autumn bottom trawl research surveys during 1992-2007.

Southern New England/Massachusetts Yellowtail flounder (Male) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age0 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age1 | ○ | ◐ | ○ | ○ | ○ | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.3 |
| Length Age2 | | ○ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.3 |
| Length Age3 | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.2 |
| Length Age4 | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.3 |
| Length Age5 | | | | | | | | | | | | | | | | | |
| Length Age6 | | | | | | | | | | | | | | | | | |
| Length Age7 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age8 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age0 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age1 | ○ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.9 |
| Weight Age2 | | ○ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.8 |
| Weight Age3 | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 0.5 |
| Weight Age4 | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 1.1 |
| Weight Age5 | | | | | | | | | | | | | | | | | |
| Weight Age6 | | | | | | | | | | | | | | | | | |
| Weight Age7 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age8 | | | | | | | | | | | | | | | | | |

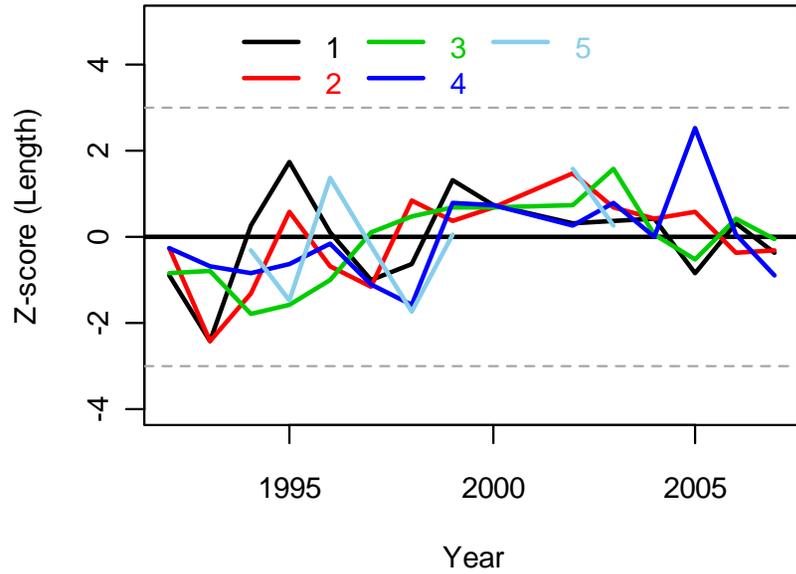
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|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age0 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age1 | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 5.3 |
| Number Age2 | | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 3.8 |
| Number Age3 | ● | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 5.3 |
| Number Age4 | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | ◐ | 3.2 |
| Number Age5 | | | | | | | | | | | | | | | | | |
| Number Age6 | | | | | | | | | | | | | | | | | |
| Number Age7 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age8 | | | | | | | | | | | | | | | | | |

Legend

 D = Measure of Dispersion: Range/Median

Figure 2.1.D.3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Southern New England/Massachusetts Yellowtail flounder sampled during autumn 1970-2007 and proportions mature at age sampled during spring 1970-2007 on NEFSC research bottom trawl surveys

CC/GOM Yellowtail Combined Autumn Z-scores



CC/GOM Yellowtail Combined Autumn Loess

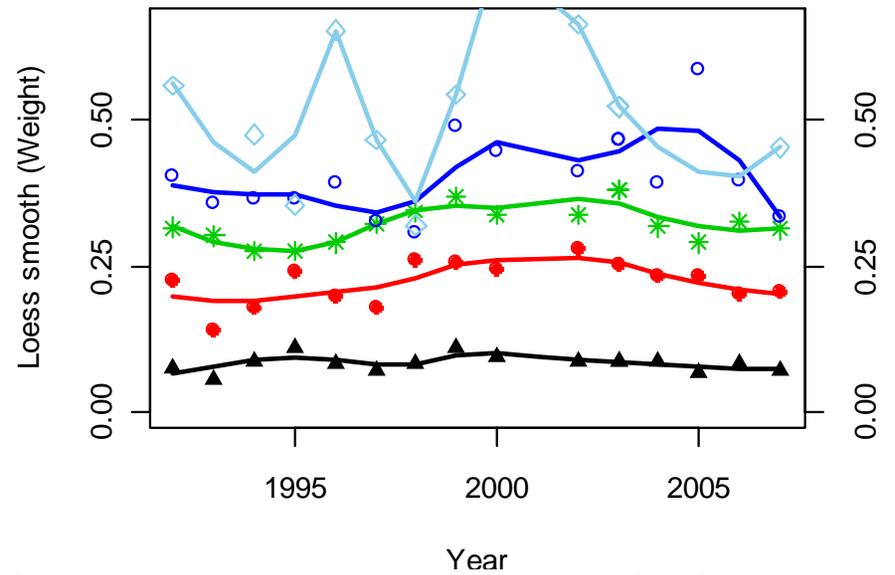
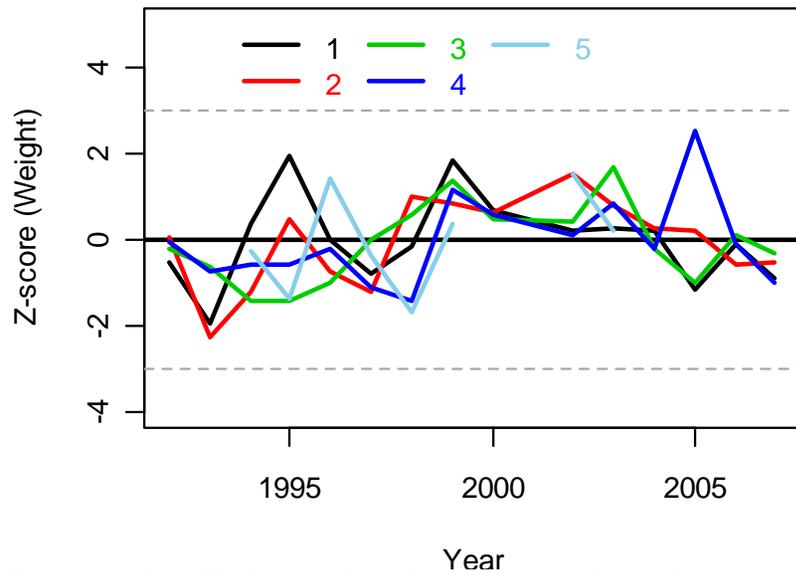
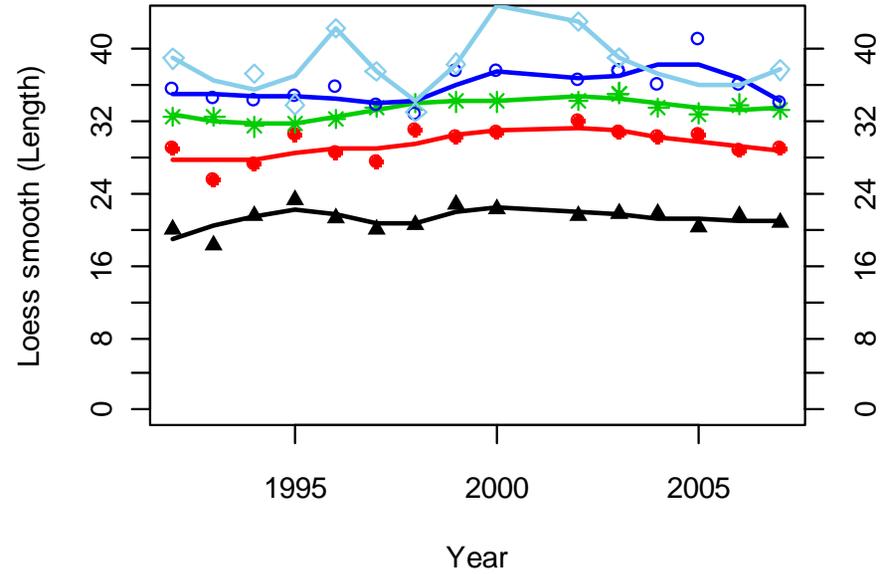


Figure 2.1. E1a. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) Cape Cod – Gulf of Maine yellowtail flounder, ages 1-5, from autumn bottom trawl research surveys during 1992-2007.

Cape Cod/Gulf of Maine Yellowtail flounder (Combined Sex) Autumn 1977-2007

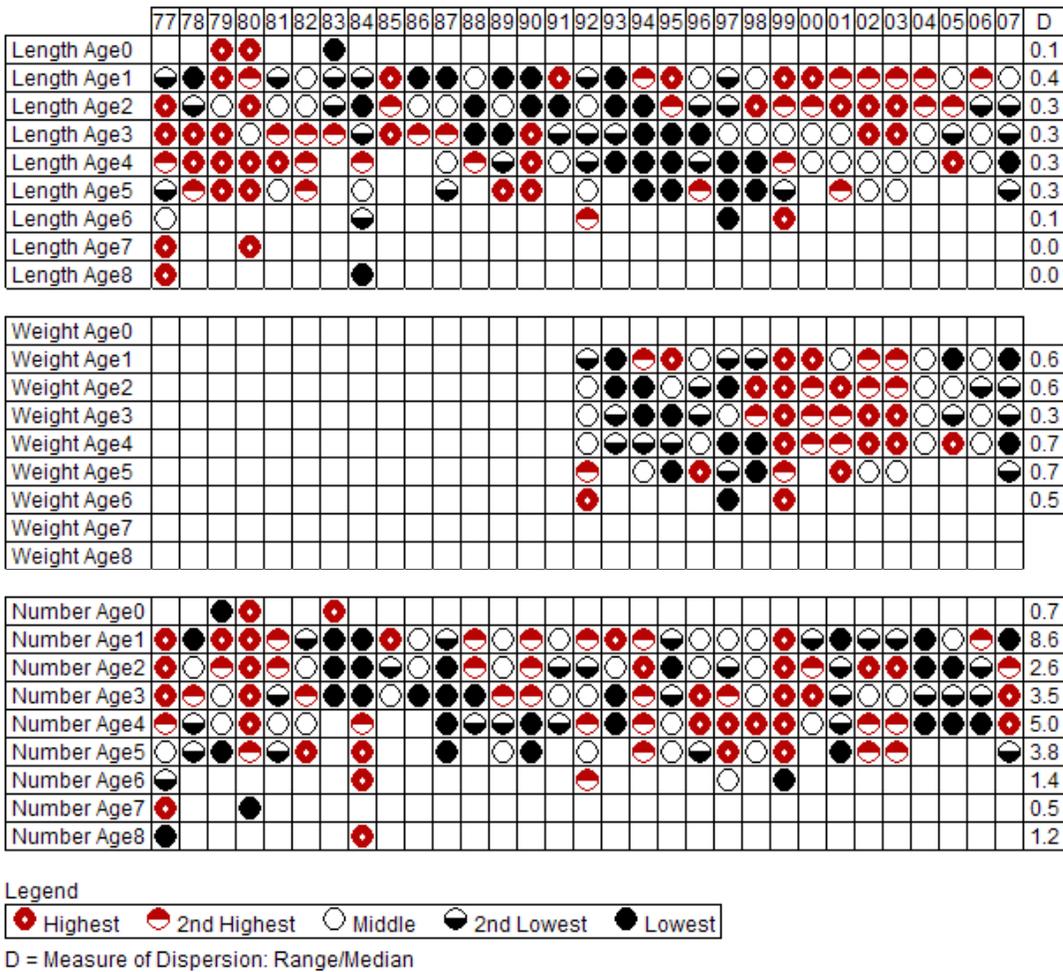


Figure 2.1.E.3a. Quintiles of stratified mean length and weight, and number per tow, at age, of Cape Cod/Gulf of Maine Yellowtail flounder sampled during autumn 1977-2007 on NEFSC research bottom trawl surveys.

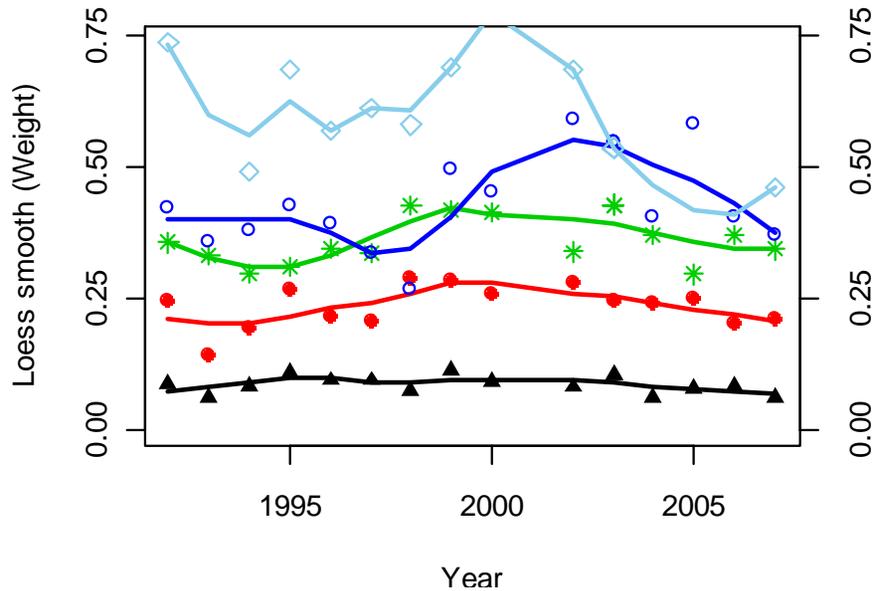
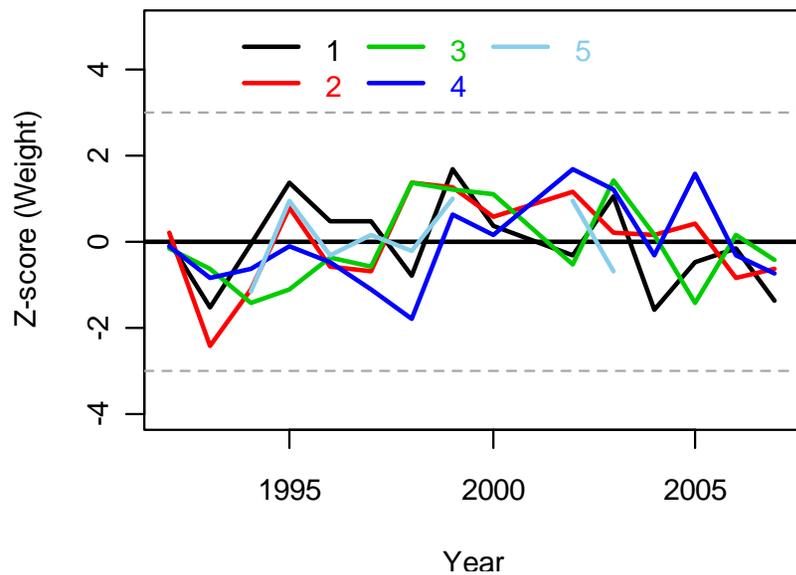
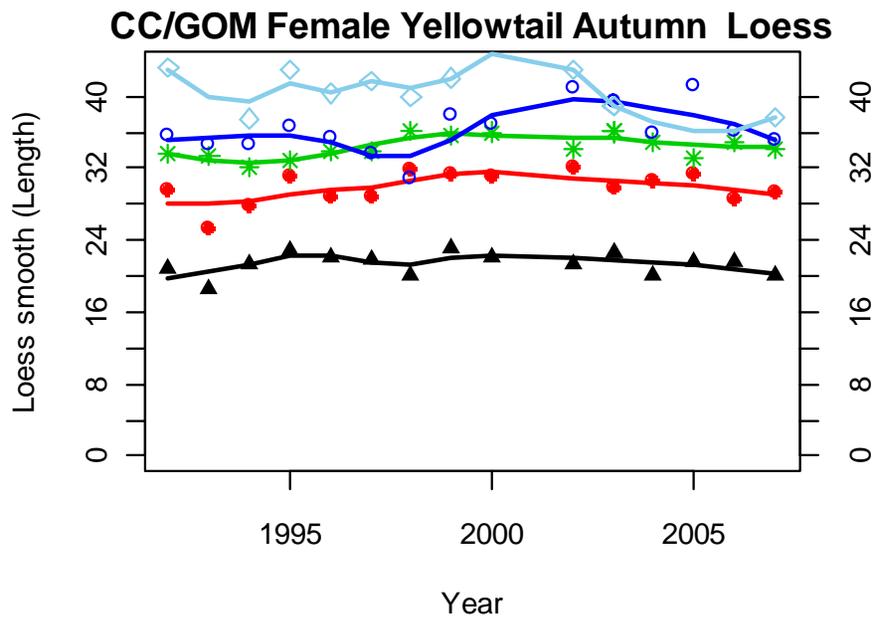
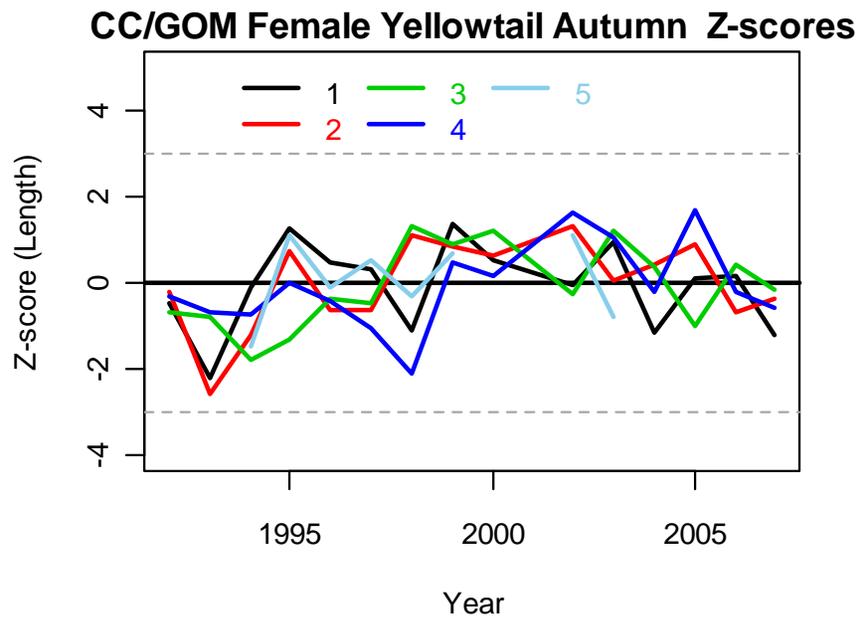


Figure 2.1. E1b. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) Cape Cod – Gulf of Maine yellowtail flounder, ages 1-5, from autumn bottom trawl research surveys during 1992-2007.

Cape Cod/Gulf of Maine Yellowtail flounder (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ○ | ● | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age7 | | | | | | | | | | | | | | | | | |
| Length Age8 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age7 | | | | | | | | | | | | | | | | | |
| Weight Age8 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.0 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.8 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.9 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 6.9 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.9 |
| Number Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Number Age7 | | | | | | | | | | | | | | | | | |
| Number Age8 | | | | | | | | | | | | | | | | | |

Legend

 D = Measure of Dispersion: Range/Median

Figure 2.1.E.3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Cape Cod/Gulf of Maine Yellowtail flounder sampled during autumn 1992-2007 on NEFSC research bottom trawl surveys.

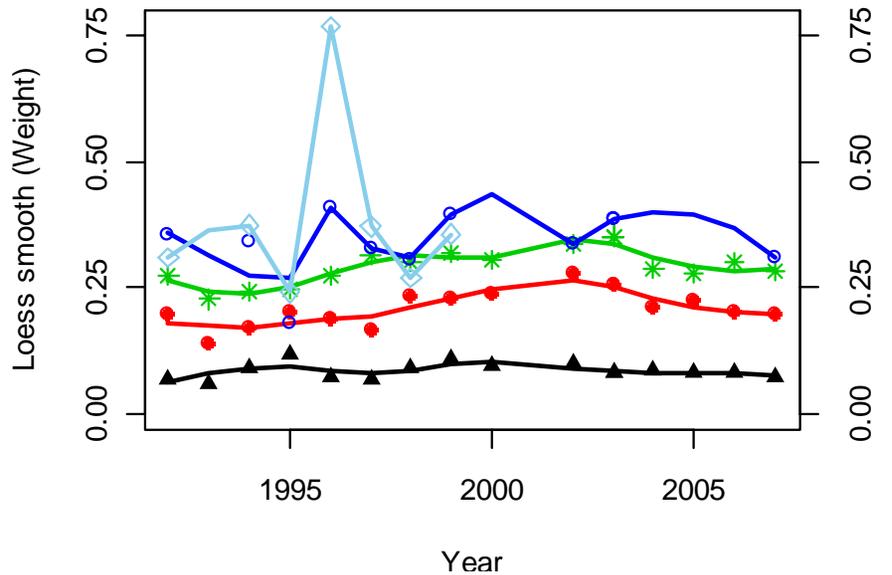
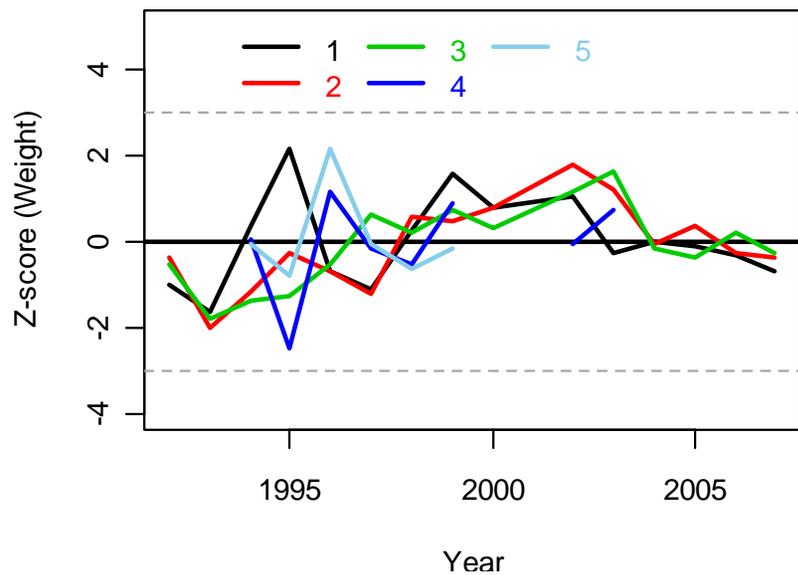
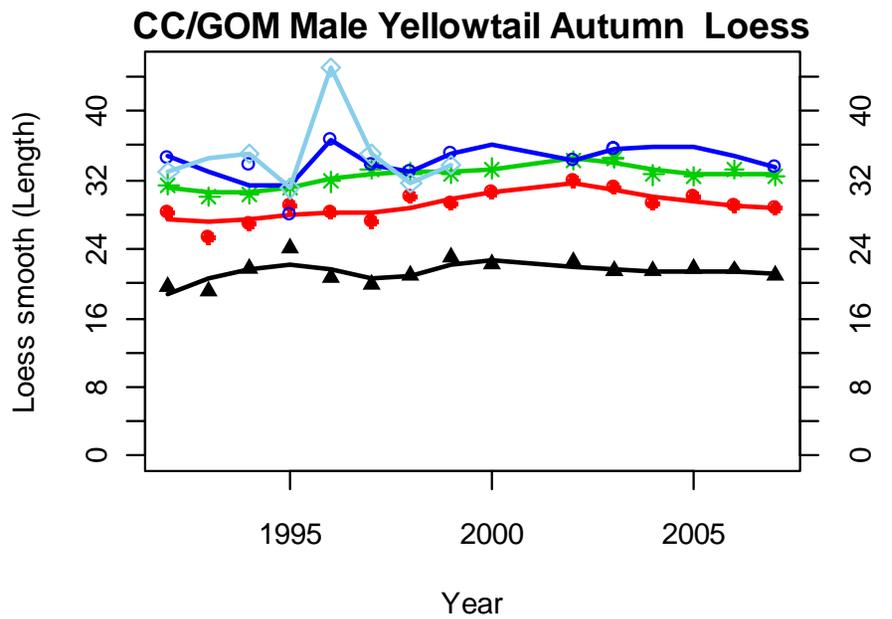
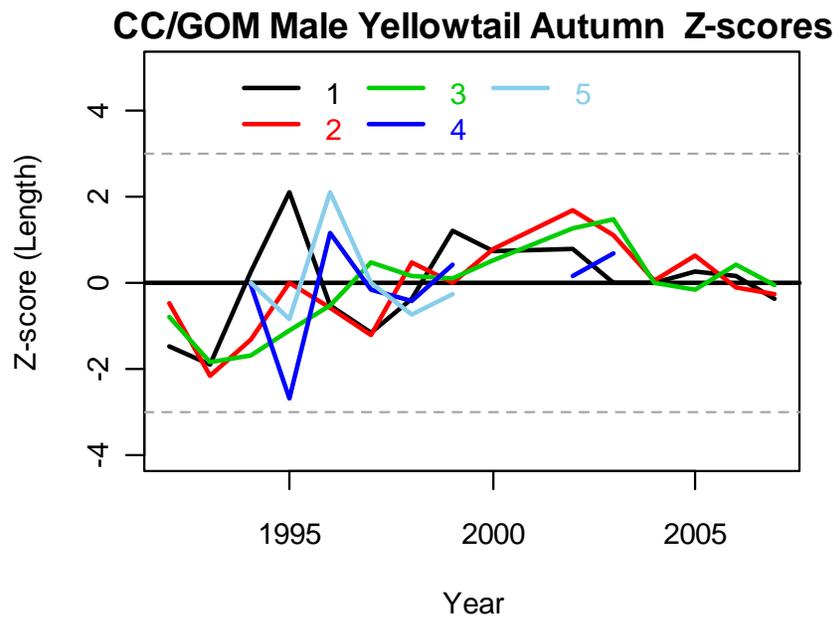
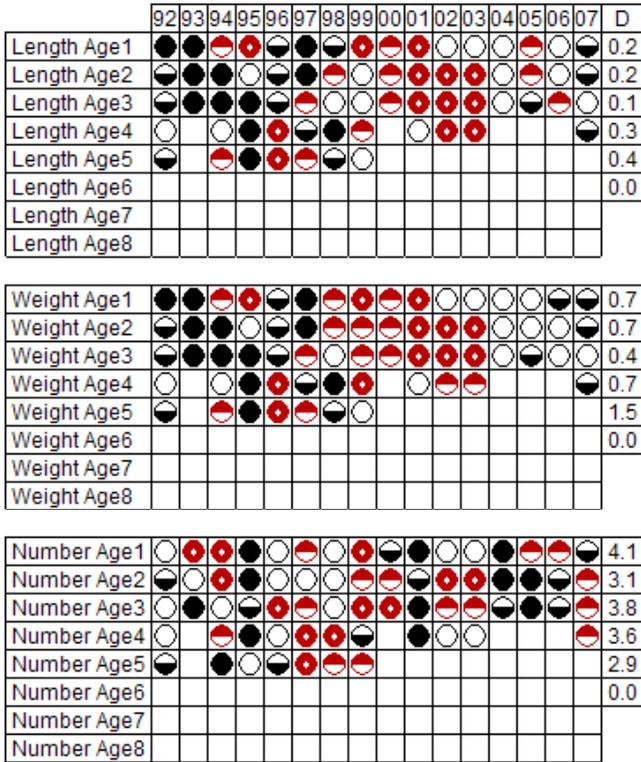


Figure 2.1. E1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) Cape Cod – Gulf of Maine yellowtail flounder, ages 1-5, from autumn bottom trawl research surveys during 1992-2007.

Cape Cod/Gulf of Maine Yellowtail flounder (Male) Autumn 1992-2007



Legend
 Highest
 2nd Highest
 Middle
 2nd Lowest
 Lowest

D = Measure of Dispersion: Range/Median

Figure 2.1.E.3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Cape Cod/Gulf of Maine Yellowtail flounder sampled during autumn 1992-2007 on NEFSC research bottom trawl surveys.

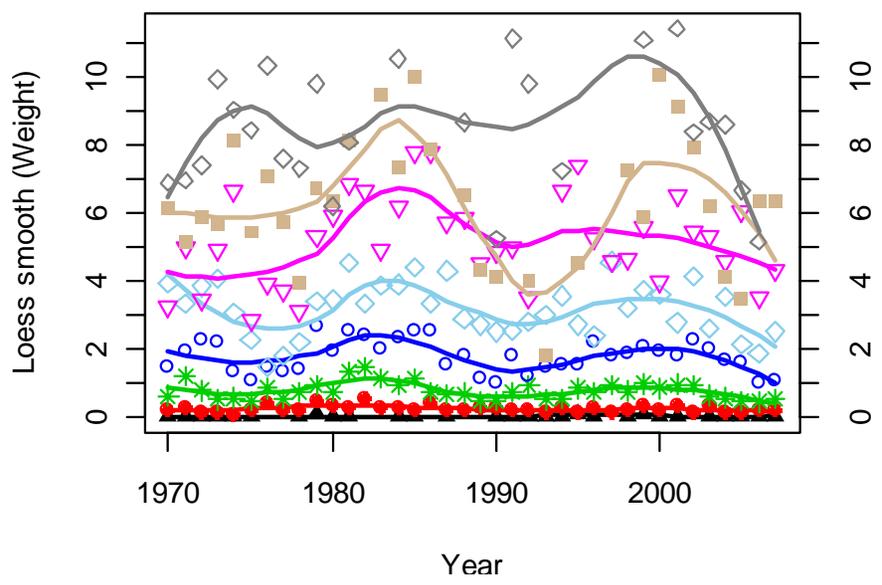
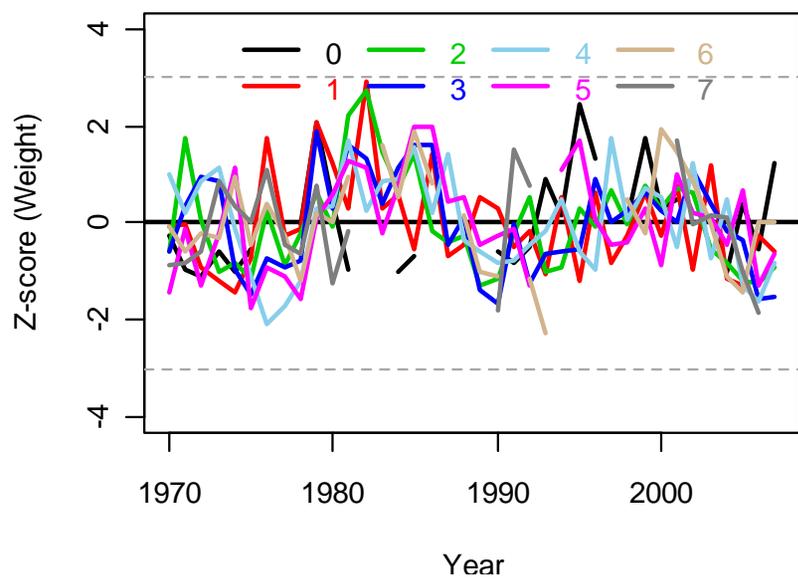
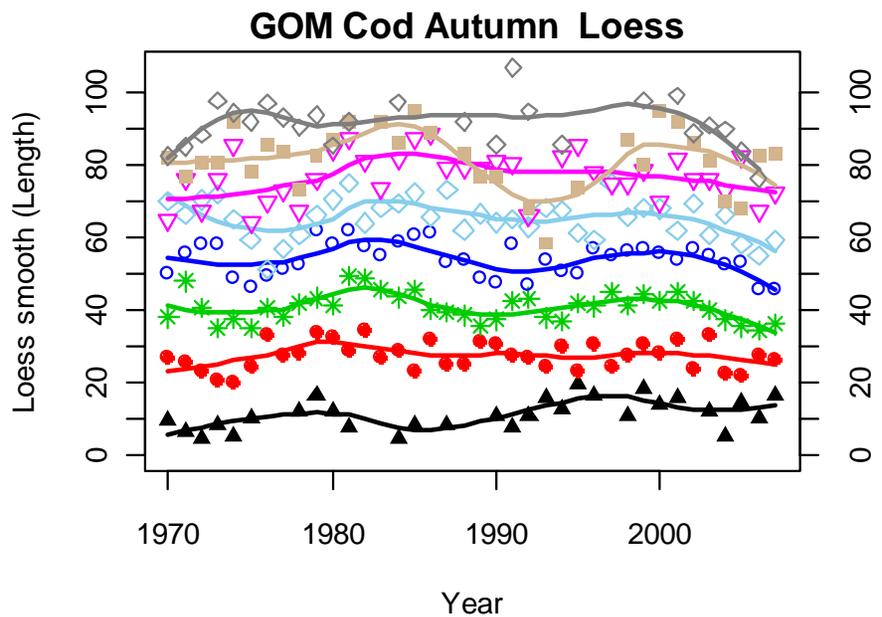
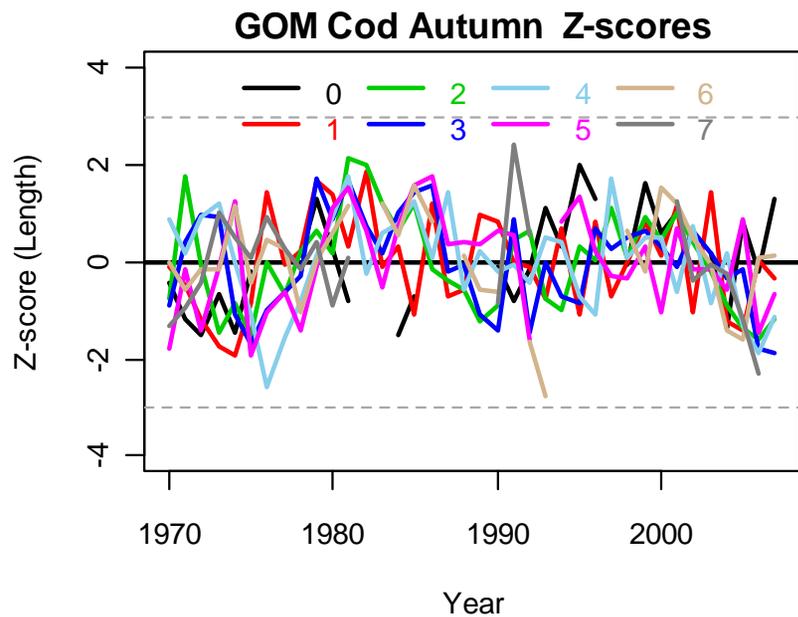
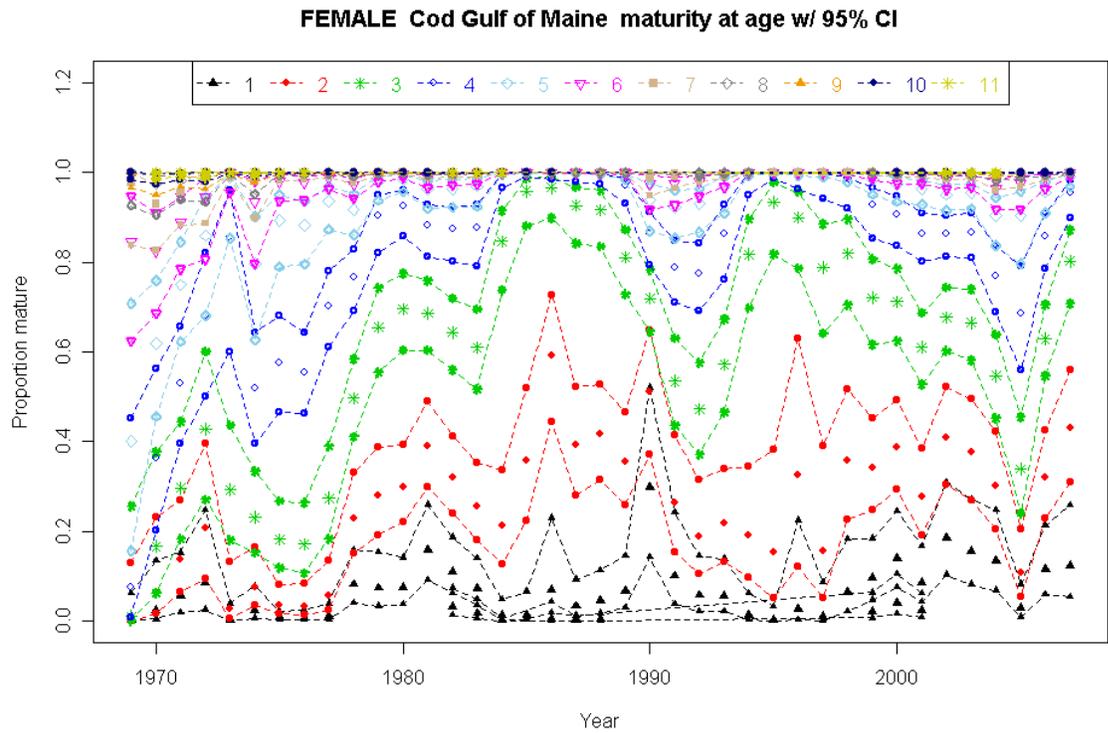
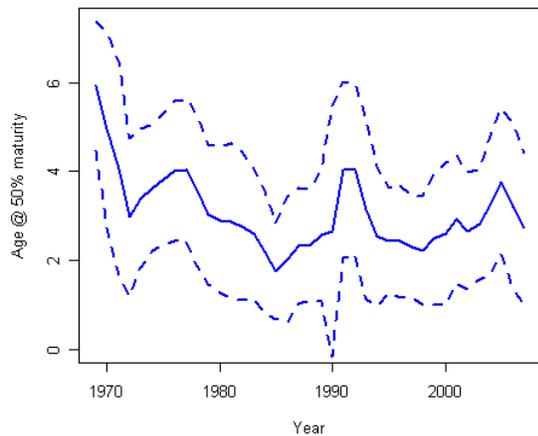


Figure 2.1. F1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0)



MALE Cod Gulf of Maine at 50% maturity (3 yr window)



FEMALE Cod Gulf of Maine at 50% maturity (3 yr window)

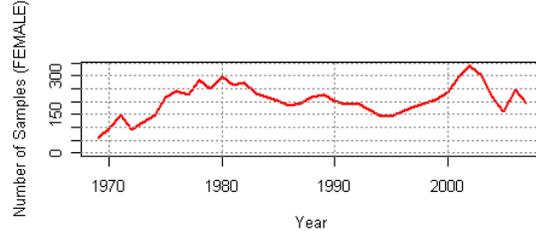
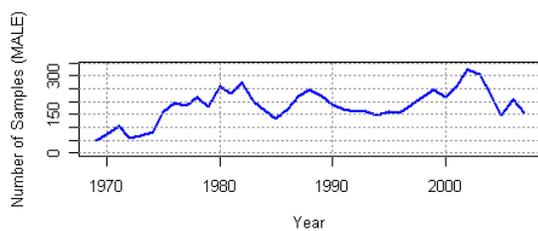
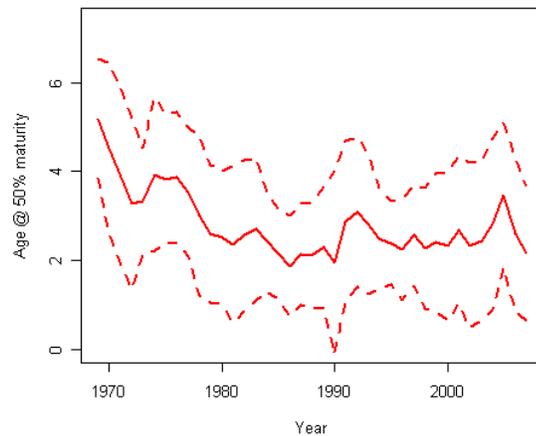


Figure 2.1 F2. Proportion mature at age with 95% confidence intervals for female Gulf of Maine cod using a 3-year moving window for ages 1-11 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

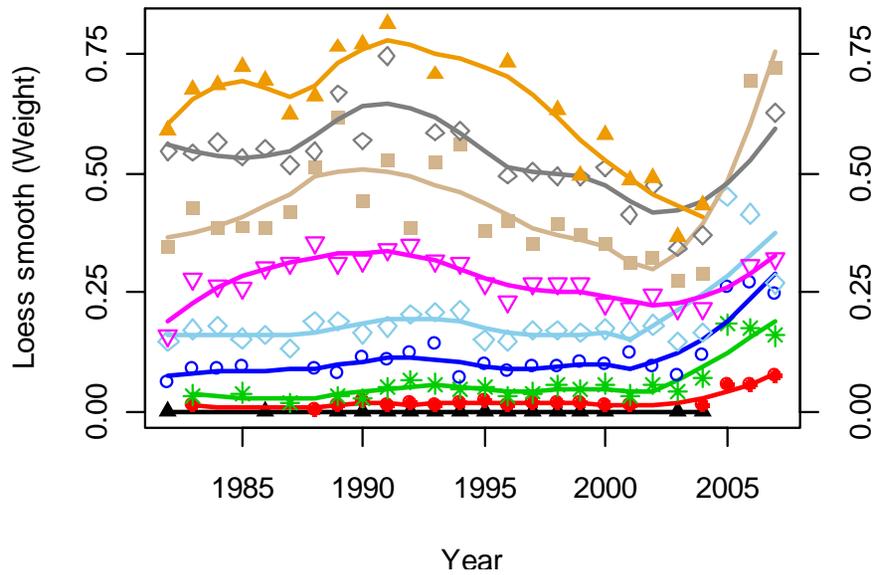
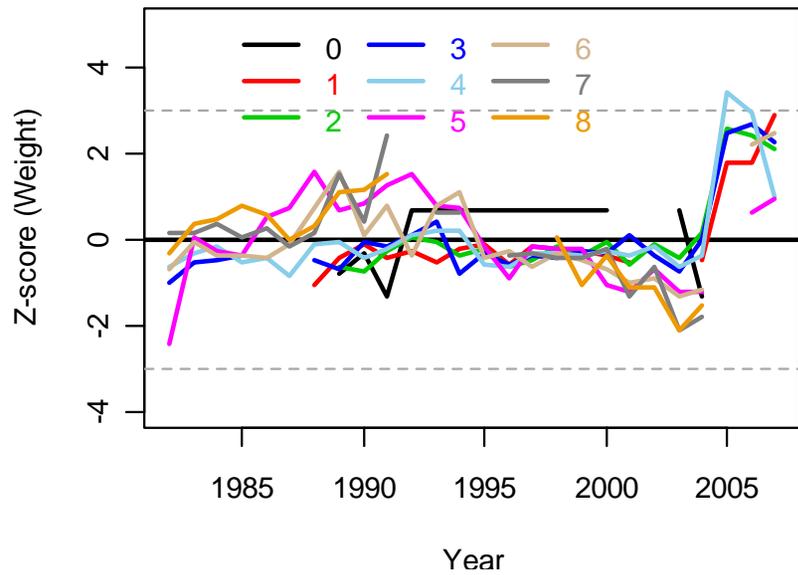
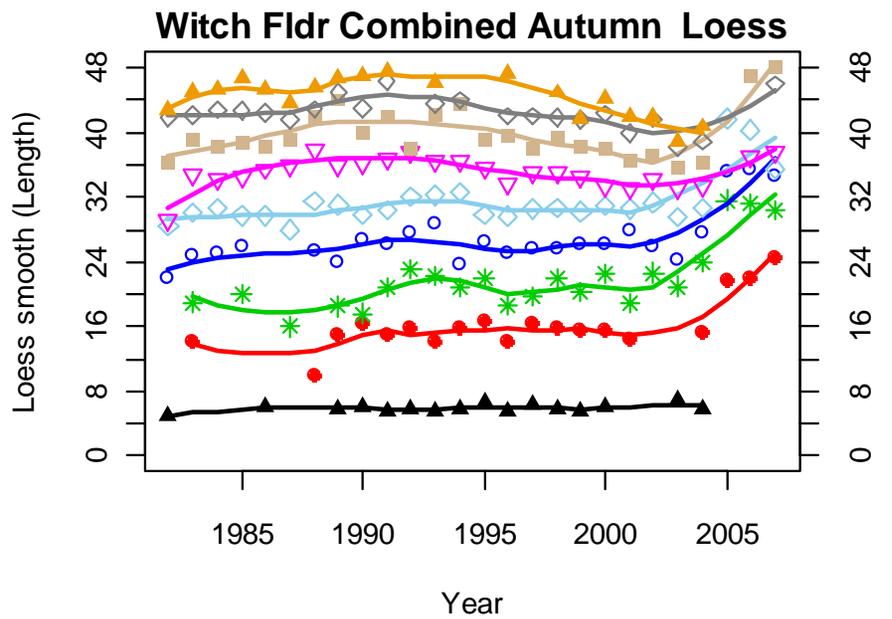
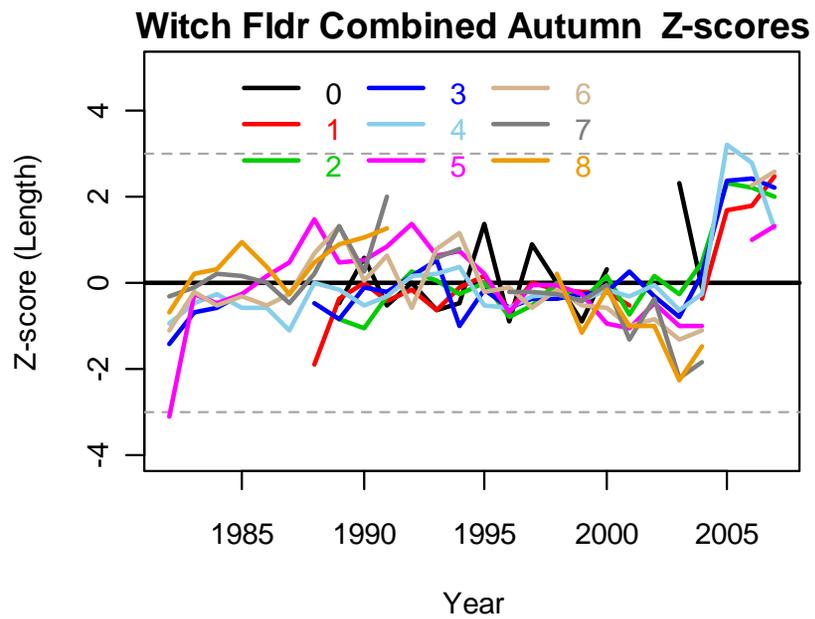


Figure 2.1. G1a. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for witch flounder, ages 0-8, from autumn bottom trawl research surveys during 1982-2007.

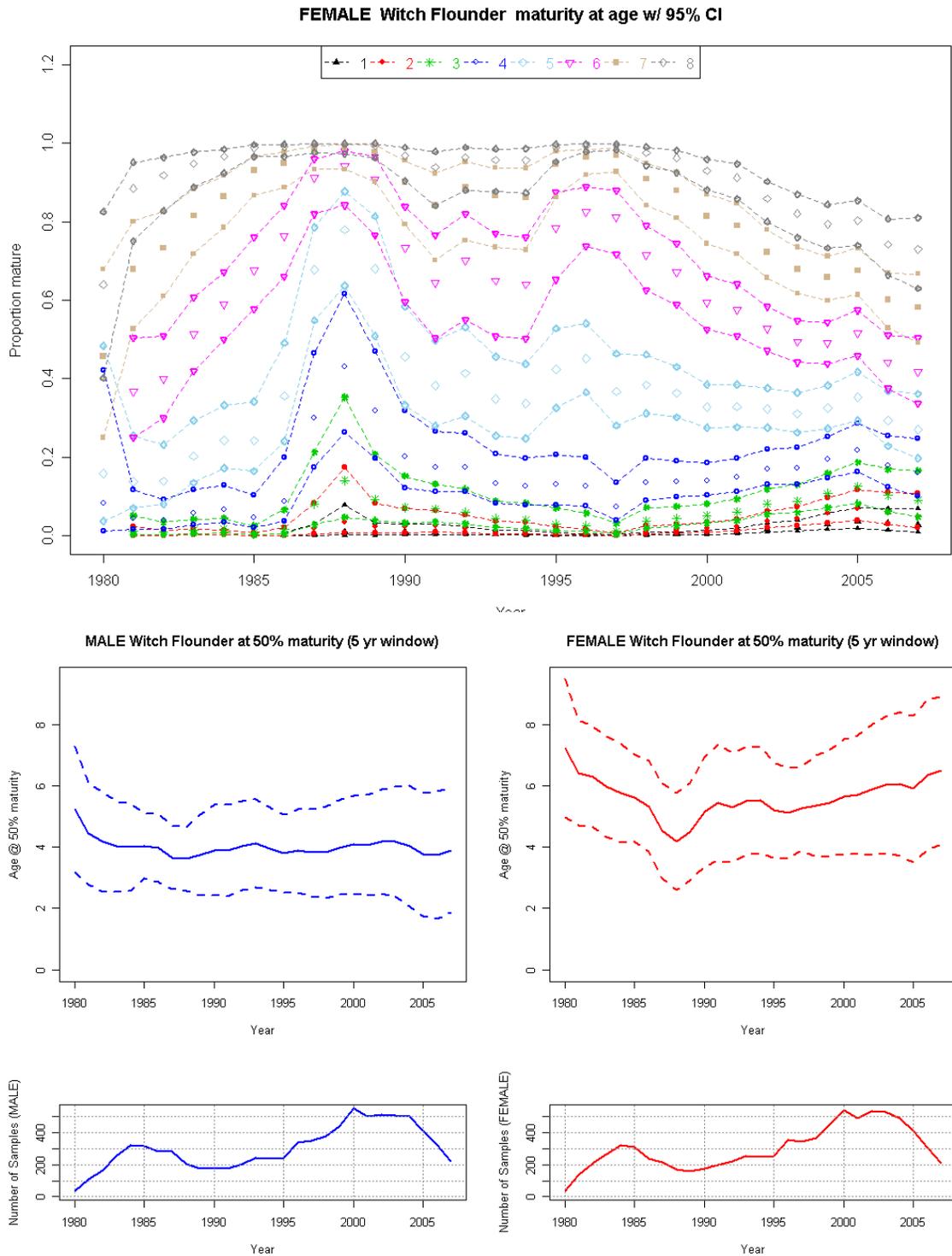


Figure 2.1 G2. Proportion mature at age with 95% confidence intervals for female witch flounder using a 5-year moving window for ages 1-8 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 5-year moving average for males (lower left panel) and females (lower right panel).

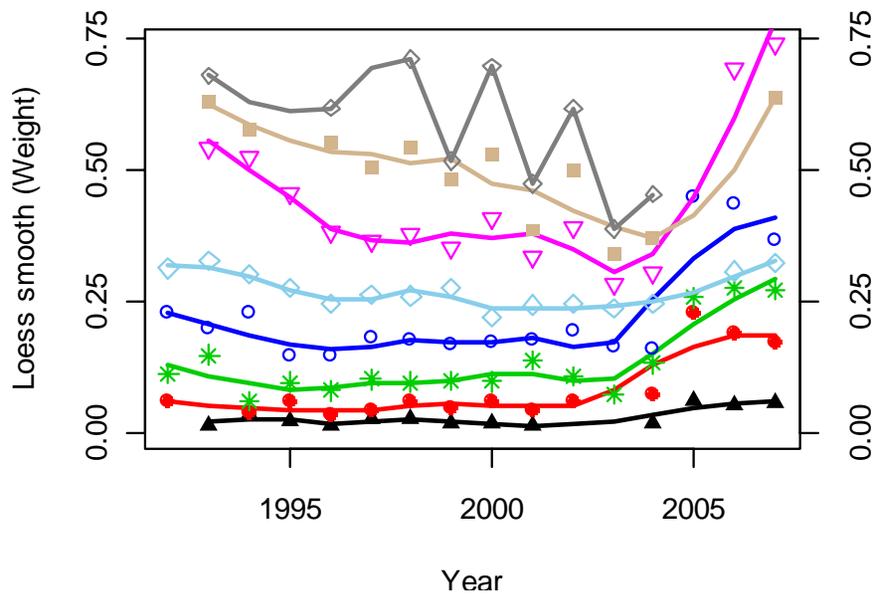
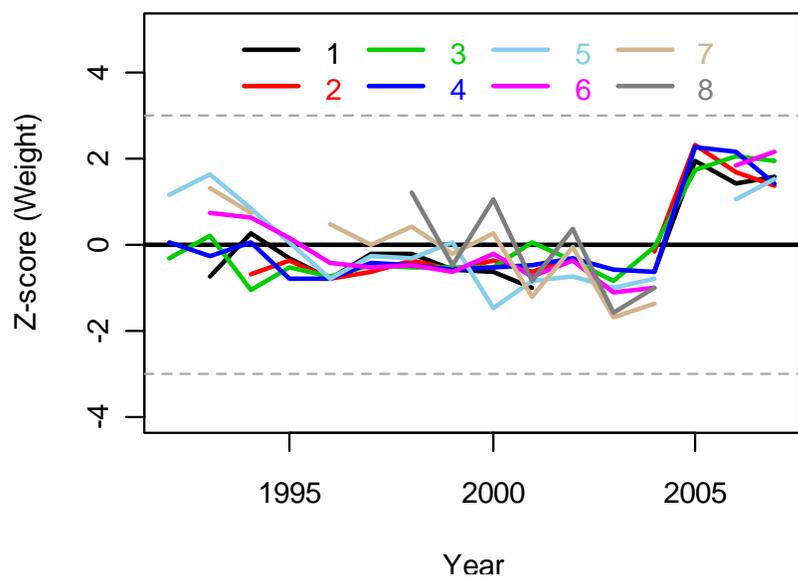
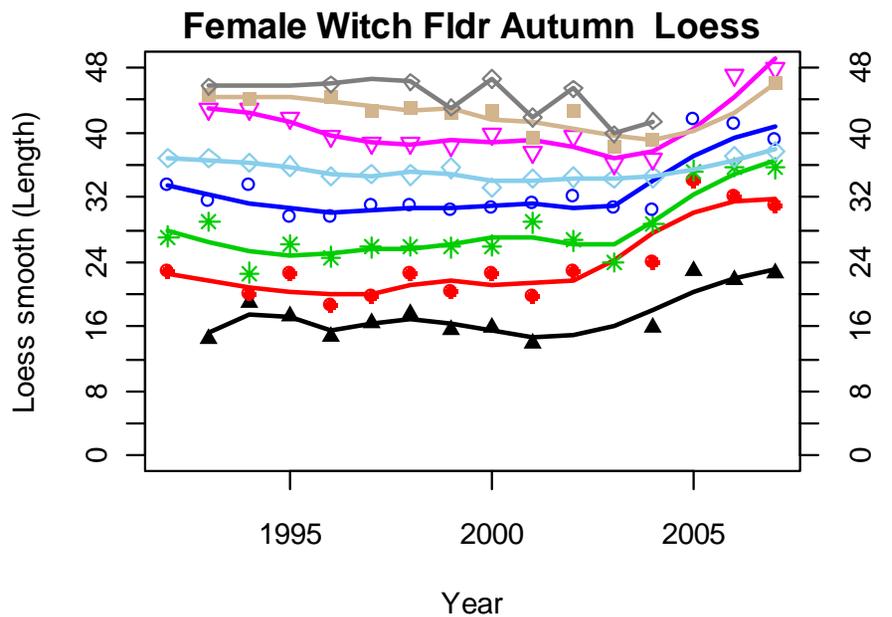
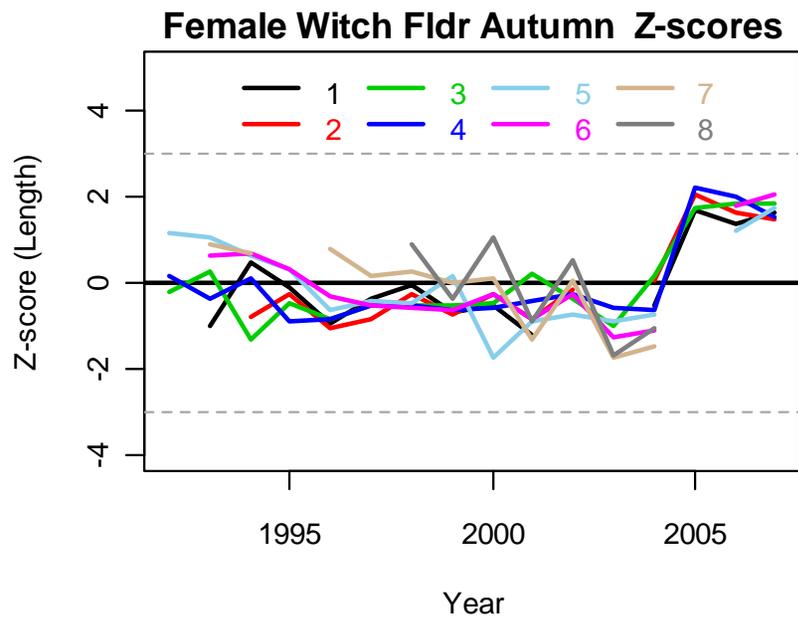


Figure 2.1. G1b. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for witch flounder, ages 1-8, from autumn bottom trawl research surveys during 1992-2007.

Witch flounder (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Length Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Length Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Length Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.1 |
| Weight Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.3 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.1 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.7 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.2 |
| Weight Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.2 |
| Weight Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 8.5 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.6 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.4 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.7 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.9 |
| Number Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.5 |
| Number Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.5 |
| Number Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.4 |
| Number Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.2 |
| Number Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.5 |
| Number Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.1 |
| Number Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.3 |
| Number Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Number Age14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |

| | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 6.2 |
| Maturity Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.7 |
| Maturity Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.1 |
| Maturity Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Maturity Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Maturity Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Maturity Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Maturity Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Maturity Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Maturity Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |

Legend
 ● Highest ● 2nd Highest ○ Middle ● 2nd Lowest ● Lowest

D = Measure of Dispersion: Range/Median

Figure 2.1.G3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Witch flounder sampled during autumn 1992-2007 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

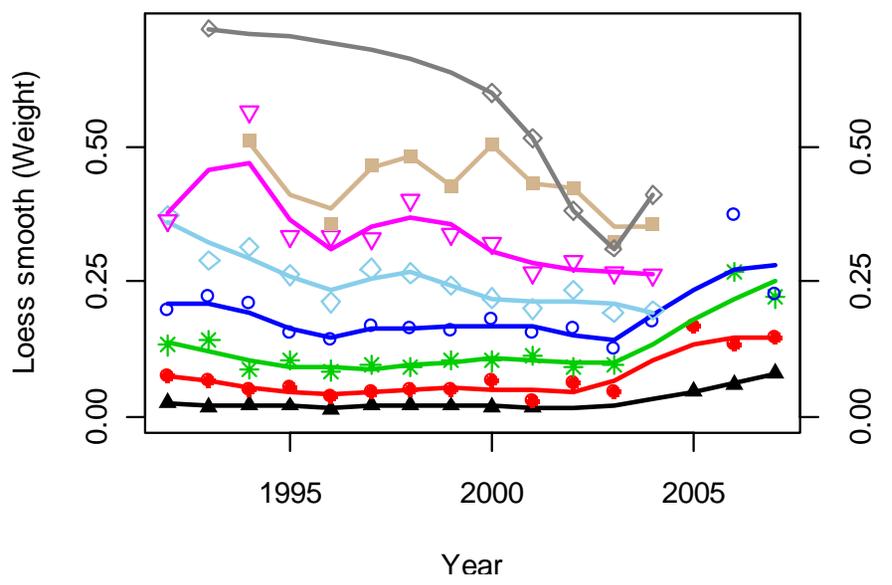
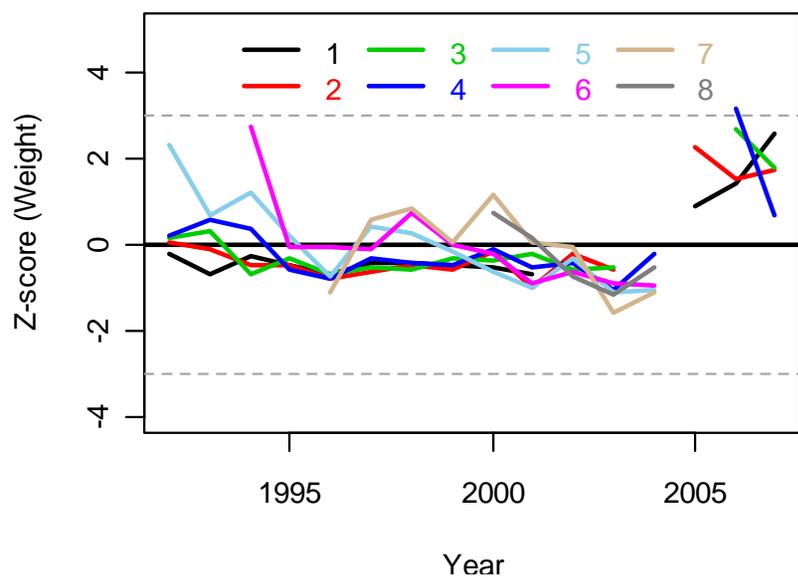
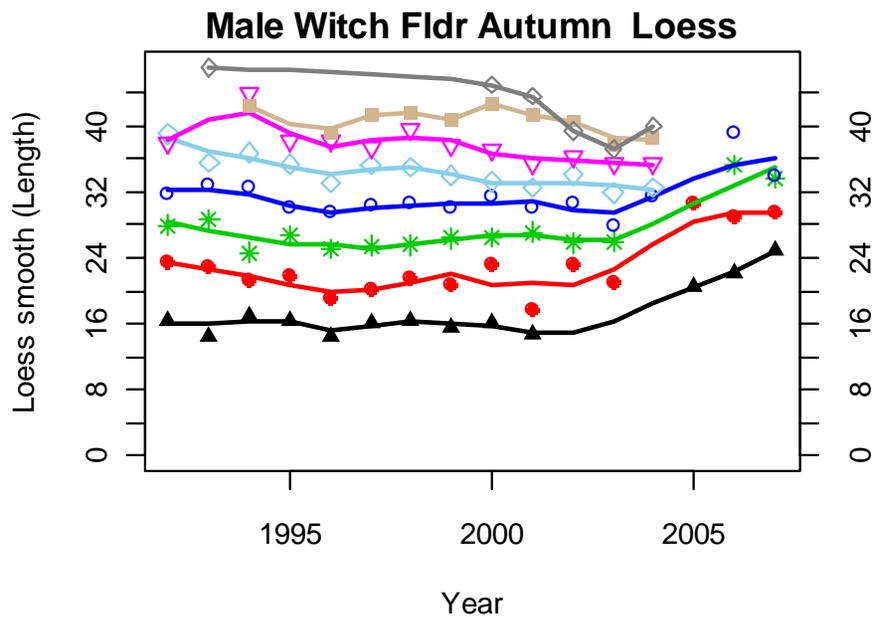
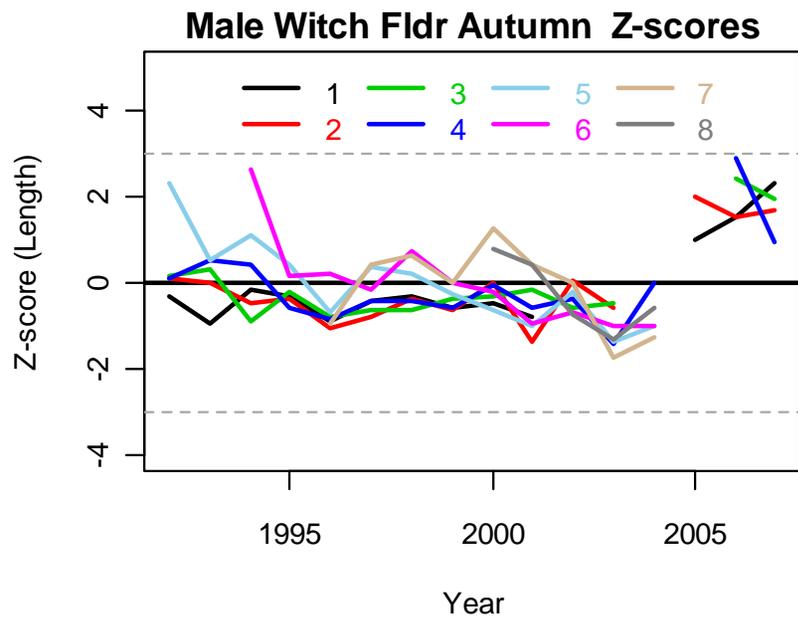


Figure 2.1. G1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for witch flounder, ages 1-8, from autumn bottom trawl research surveys during 1992-2007.

Witch flounder (Male) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ● | ● | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Length Age2 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Length Age3 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Length Age4 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Length Age5 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age6 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Length Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Length Age14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

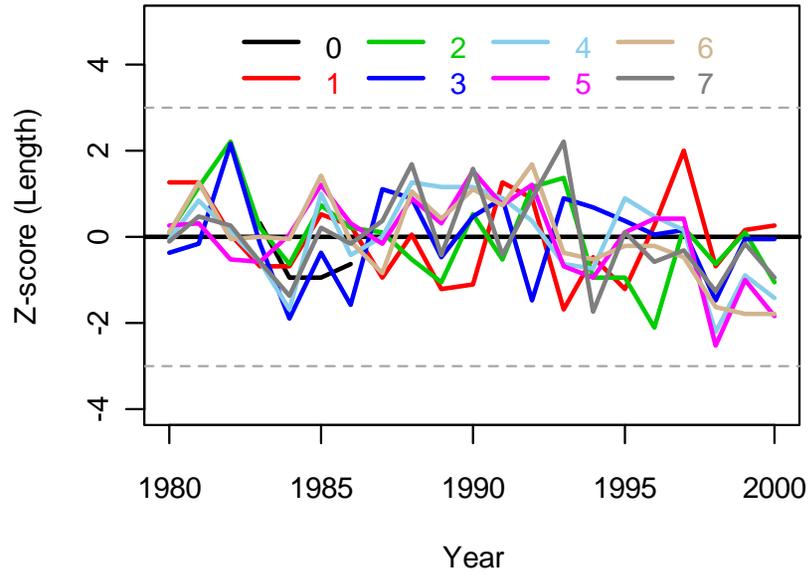
| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Weight Age1 | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.2 |
| Weight Age2 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.6 |
| Weight Age3 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.8 |
| Weight Age4 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.5 |
| Weight Age5 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Weight Age6 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Weight Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Weight Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Weight Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Weight Age14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Number Age1 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.9 |
| Number Age2 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 7.7 |
| Number Age3 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.7 |
| Number Age4 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.6 |
| Number Age5 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.1 |
| Number Age6 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.8 |
| Number Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.3 |
| Number Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.1 |
| Number Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.6 |
| Number Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Number Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Number Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Number Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Number Age14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

Legend
 Highest
 2nd Highest
 Middle
 2nd Lowest
 Lowest
D = Measure of Dispersion: Range/Median

Figure 2.1.G3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Witch flounder sampled during autumn 1992-2007 on NEFSC research bottom trawl surveys.

GB/GOM Am. Plaice Combined Autumn Z-score:



GB/GOM Am. Plaice Combined Autumn Loess

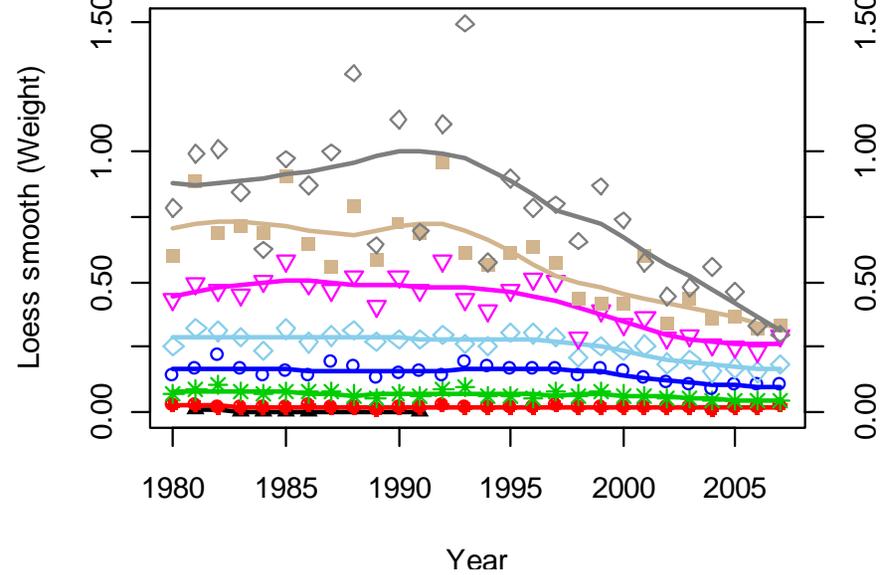
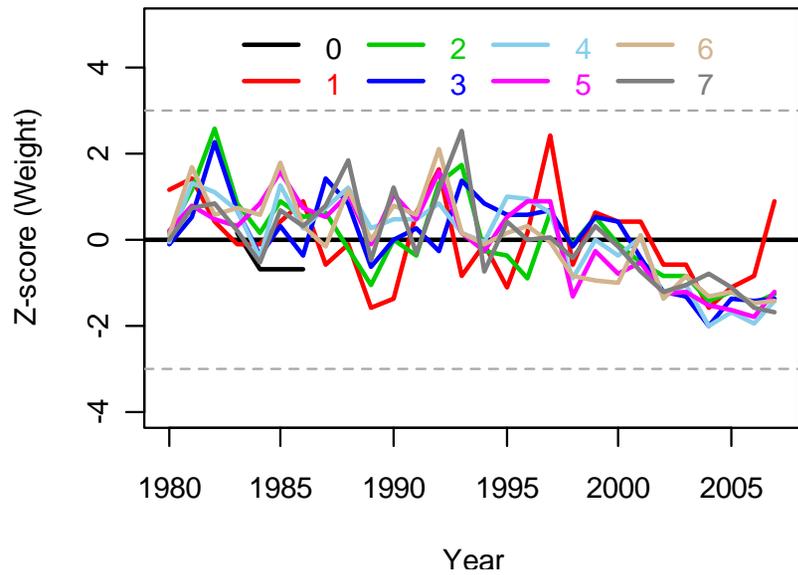
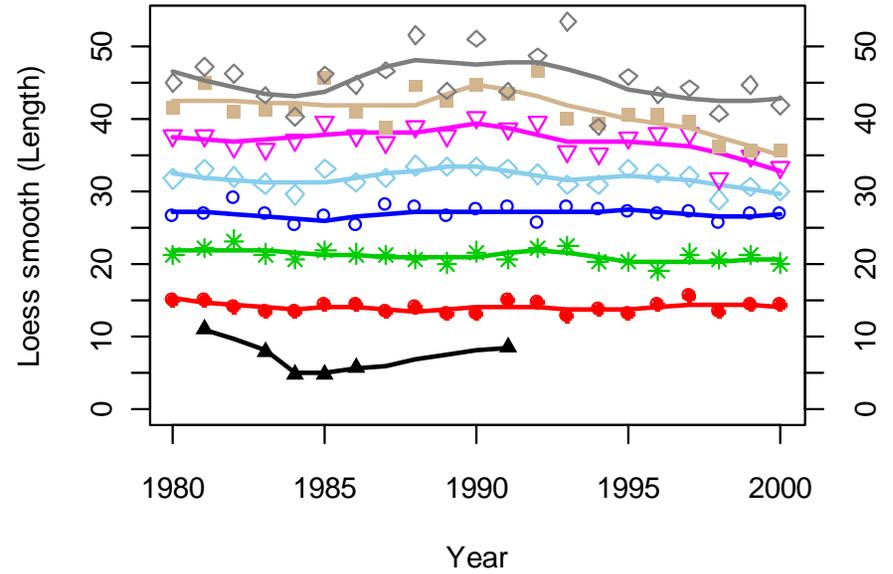


Figure 2.1. H1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Gulf of Maine American plaice, ages 0-7, from autumn bottom trawl research surveys during 1980-2007.

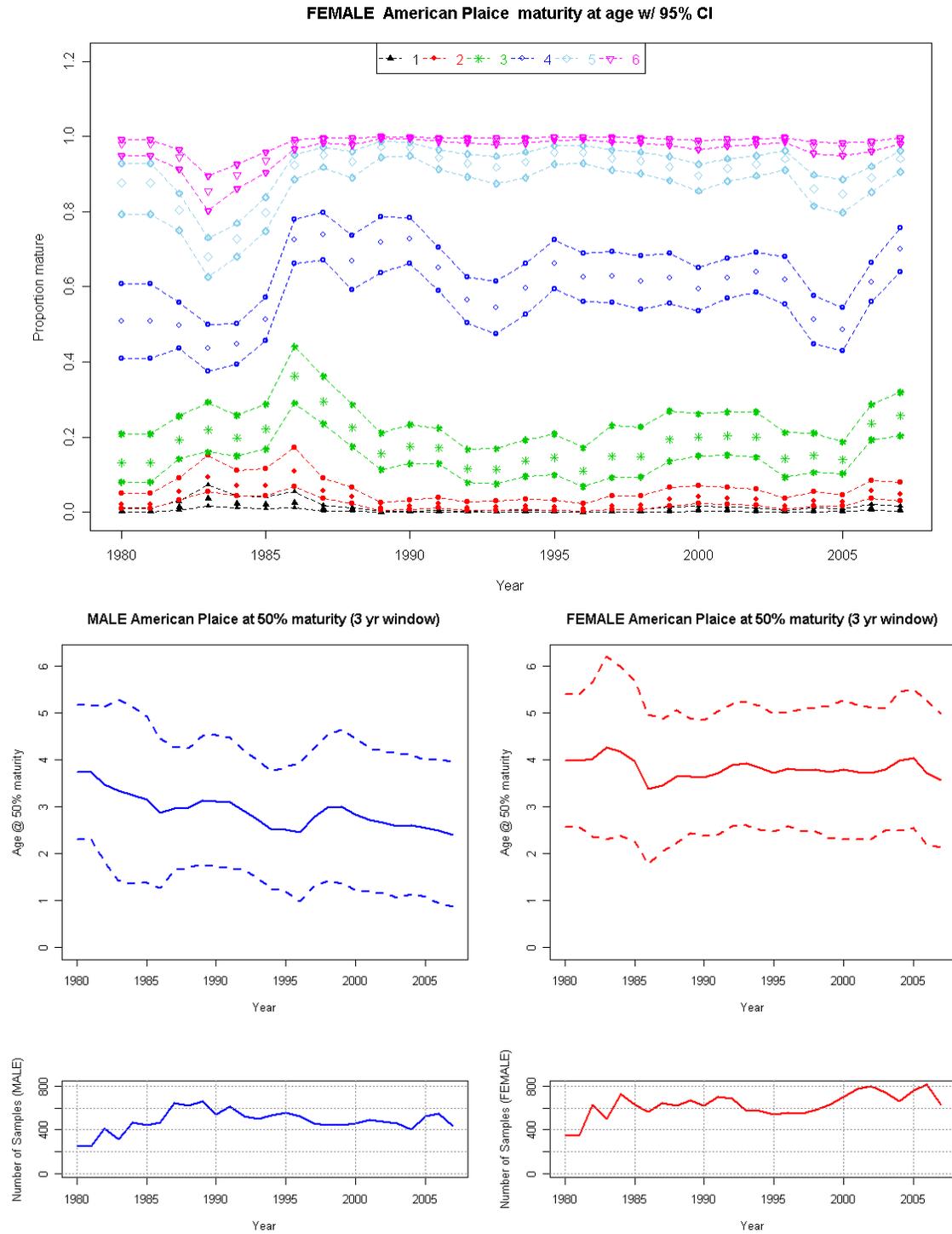


Figure 2.1 H2. Proportion mature at age with 95% confidence intervals for female Gulf of Maine American plaice using a 3-year moving window for ages 1-6 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

American plaice (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ○ | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | 0.3 |
| Length Age2 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.2 |
| Length Age3 | ○ | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 0.2 |
| Length Age4 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.2 |
| Length Age5 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.3 |
| Length Age6 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.3 |
| Length Age7 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.5 |
| Length Age8 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.4 |
| Length Age9 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.4 |
| Length Age10 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.4 |
| Length Age11 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.3 |
| Length Age12 | ○ | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 0.1 |
| Length Age13 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.1 |
| Length Age14 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.7 |
| Weight Age2 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.9 |
| Weight Age3 | ○ | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 0.7 |
| Weight Age4 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.6 |
| Weight Age5 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.0 |
| Weight Age6 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.5 |
| Weight Age7 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.7 |
| Weight Age8 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.3 |
| Weight Age9 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.4 |
| Weight Age10 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.2 |
| Weight Age11 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.0 |
| Weight Age12 | ○ | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 0.4 |
| Weight Age13 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.2 |
| Weight Age14 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 5.9 |
| Number Age2 | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 3.4 |
| Number Age3 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.6 |
| Number Age4 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.6 |
| Number Age5 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.4 |
| Number Age6 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 2.2 |
| Number Age7 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 2.6 |
| Number Age8 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 3.4 |
| Number Age9 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 5.5 |
| Number Age10 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.5 |
| Number Age11 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.9 |
| Number Age12 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.3 |
| Number Age13 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.3 |
| Number Age14 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | | | | | | | ◐ | ◑ | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | 0.0 |
| Maturity Age2 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 2.0 |
| Maturity Age3 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 1.0 |
| Maturity Age4 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.3 |
| Maturity Age5 | ○ | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | 0.1 |
| Maturity Age6 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.0 |
| Maturity Age7 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.0 |
| Maturity Age8 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.0 |
| Maturity Age9 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.0 |
| Maturity Age10 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.0 |

Legend

D = Measure of Dispersion: Range/Median

Figure 2.1.H.3b. Quintiles of stratified mean length and weight, and number per tow, at age, of American plaice sampled during autumn 1992-2007 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

American plaice (Male) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ● | ○ | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age2 | ● | ● | ○ | ○ | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Length Age7 | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age8 | ○ | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age9 | | | | ○ | | | | | ○ | | | | | | ○ | | 0.4 |
| Length Age10 | | | | | | | | | | | | | | | | | |
| Length Age11 | | | | | | | | | | | | | | | | | |
| Length Age12 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age13 | | | | | | | | | | | | | | | | | |
| Length Age14 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.4 |
| Weight Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Weight Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.3 |
| Weight Age7 | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.1 |
| Weight Age8 | ○ | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age9 | | | | ○ | | | | | ○ | | | | | | ○ | | 1.6 |
| Weight Age10 | | | | | | | | | | | | | | | | | |
| Weight Age11 | | | | | | | | | | | | | | | | | |
| Weight Age12 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age13 | | | | | | | | | | | | | | | | | |
| Weight Age14 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.0 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.9 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.6 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.1 |
| Number Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.9 |
| Number Age7 | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.6 |
| Number Age8 | ○ | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Number Age9 | | | | ○ | | | | | ○ | | | | | | ○ | | 0.3 |
| Number Age10 | | | | | | | | | | | | | | | | | |
| Number Age11 | | | | | | | | | | | | | | | | | |
| Number Age12 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age13 | | | | | | | | | | | | | | | | | |
| Number Age14 | | | | | | | | | | | | | | | | | |

Legend

D = Measure of Dispersion: Range/Median

Figure 2.1.H.3c. Quintiles of stratified mean length and weight, and number per tow, at age, of American plaice sampled during autumn 1992-2007 on NEFSC research bottom trawl surveys.

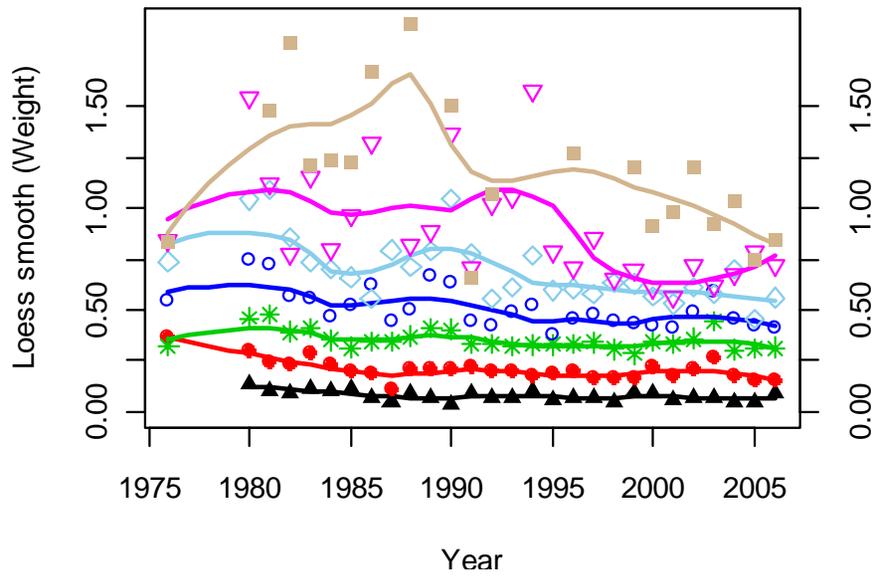
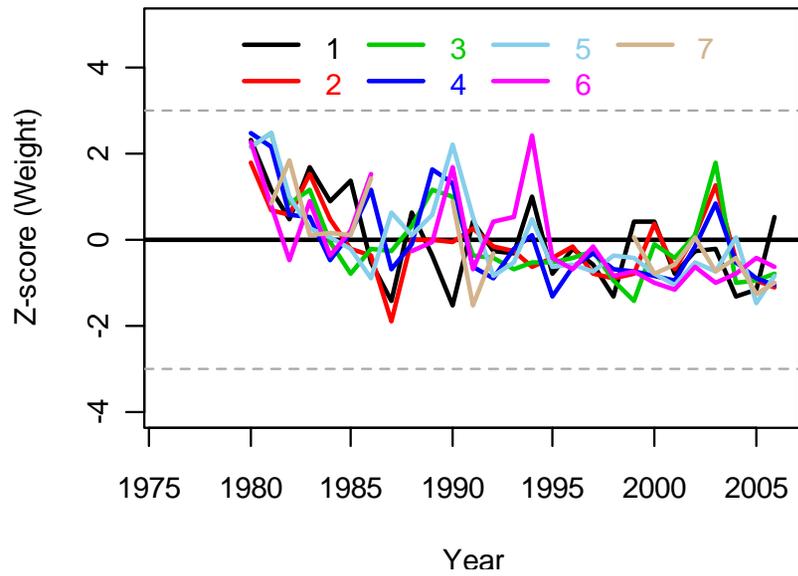
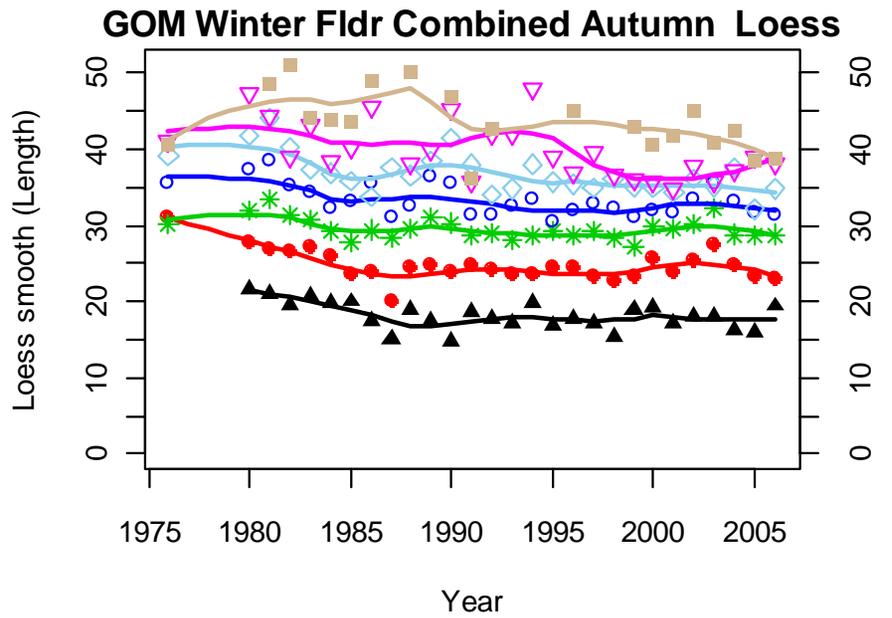
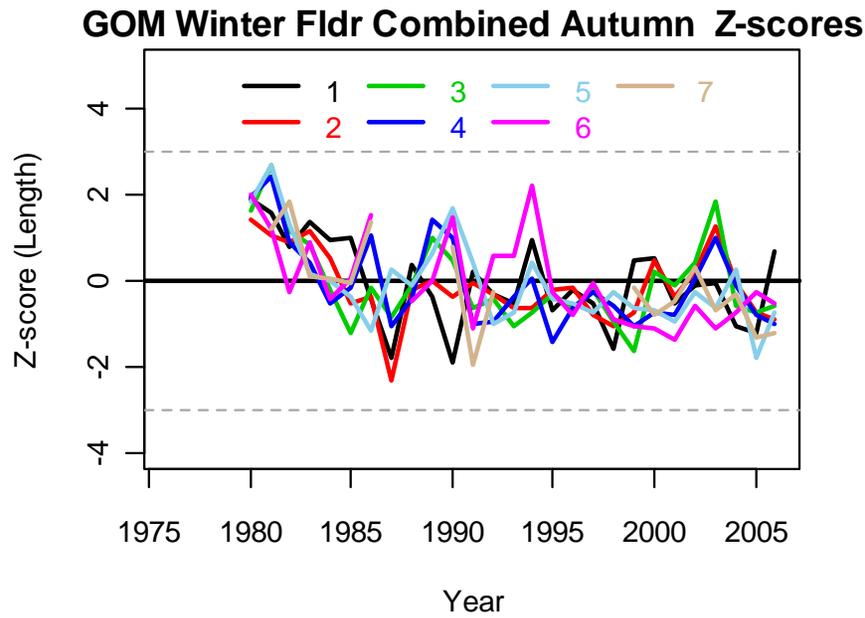


Figure 2.1. IIa. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Gulf of Maine winter flounder, ages 1-7, from autumn bottom trawl research surveys during 1976-2007.

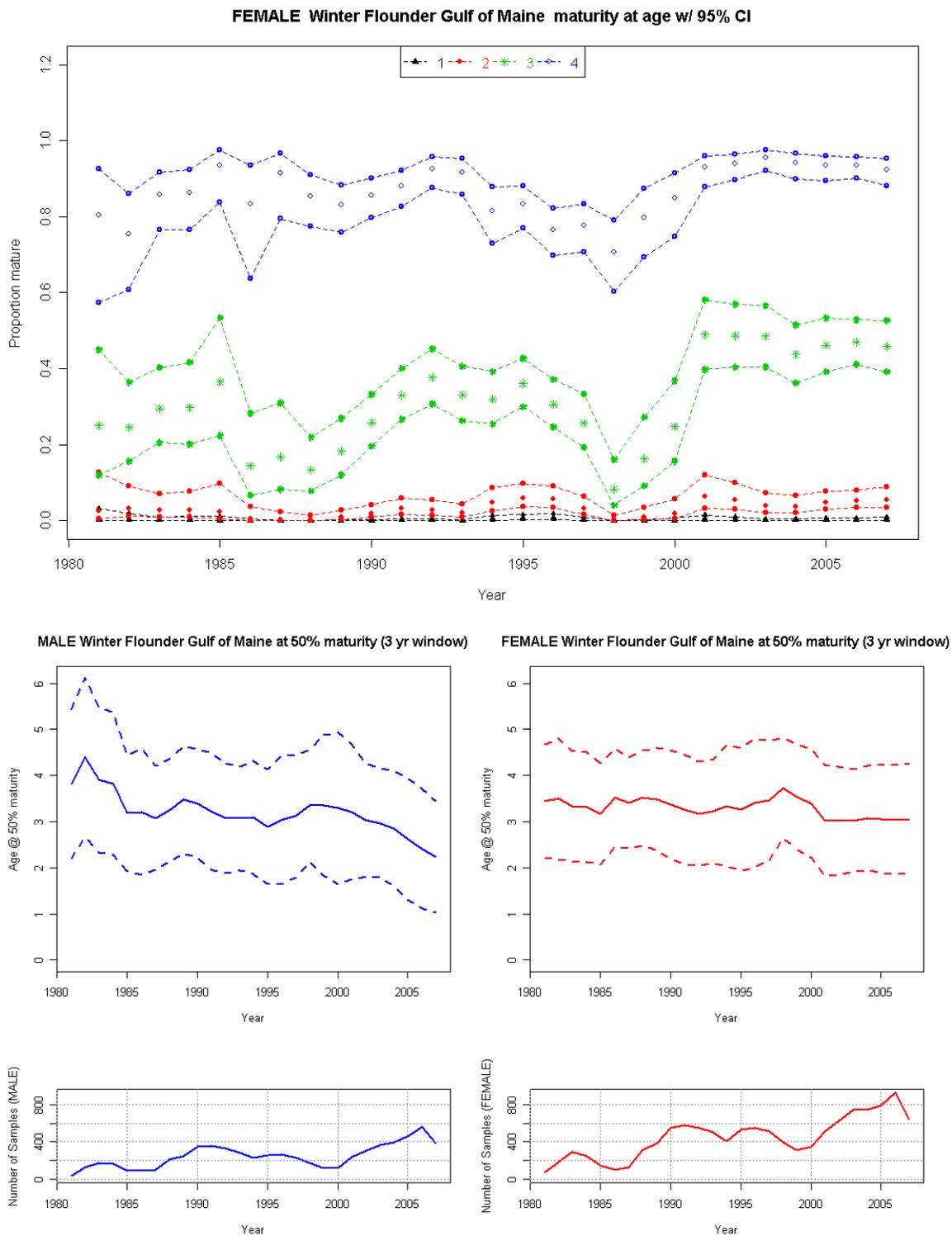


Figure 2.1 I2. Proportion mature at age with 95% confidence intervals for female Gulf of Maine winter flounder using a 3-year moving window for ages 1-4 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

Gulf of Maine Winter flounder (Combined Sex) Autumn 1976-2007

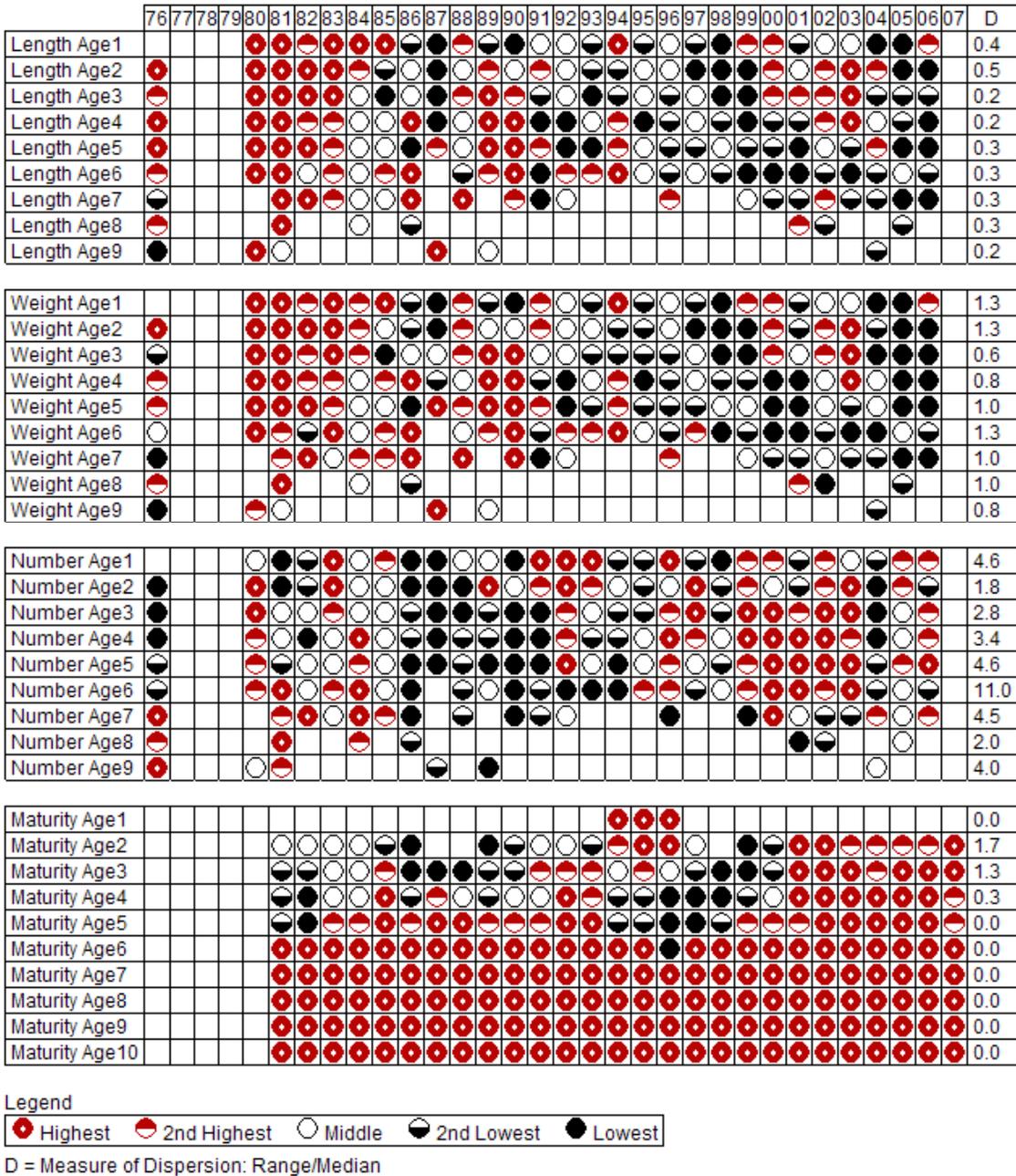


Figure 2.1.I3a. Quintiles of stratified mean length and weight, and number per tow, at age, of Gulf of Maine Winter flounder sampled during autumn 1976-2007 and proportions mature at age sampled during spring 1976-2007 on NEFSC research bottom trawl surveys.

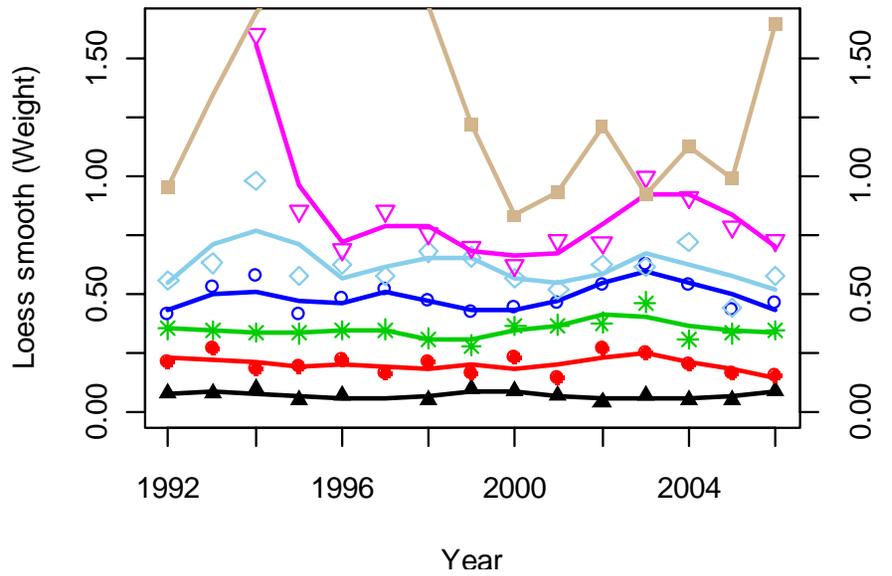
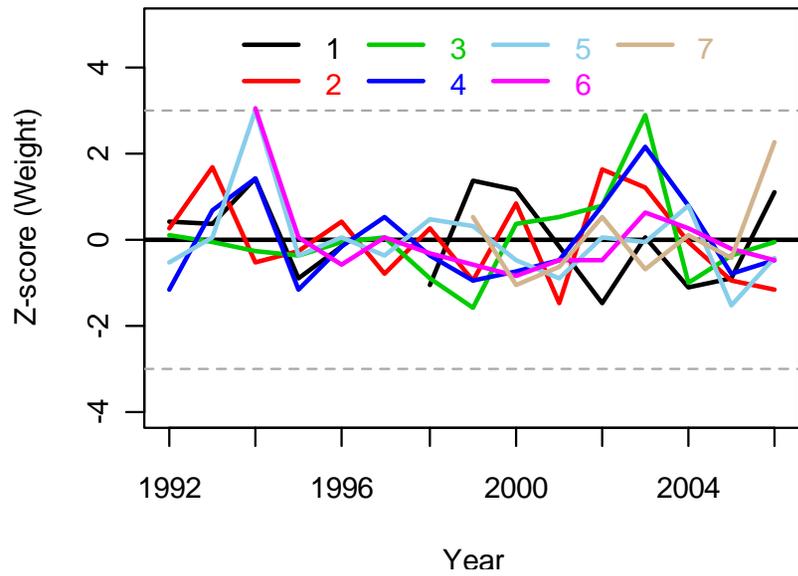
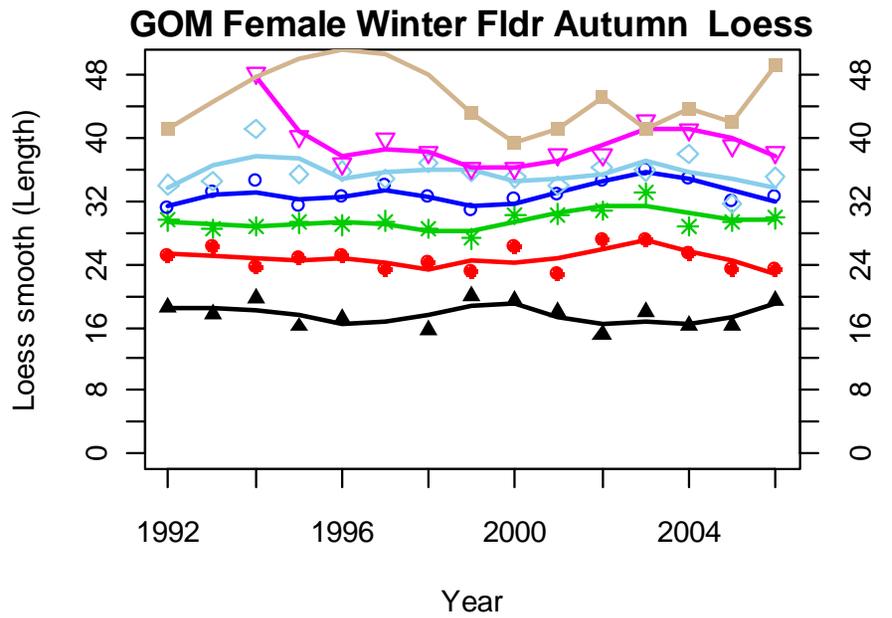
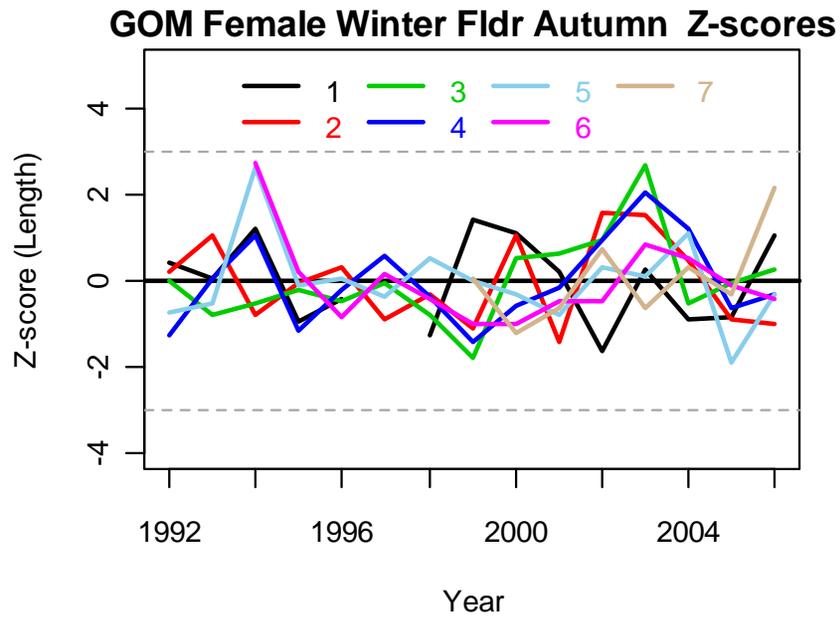


Figure 2.1. I1b. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Gulf of Maine winter flounder, ages 1-7, from autumn bottom trawl research surveys during 1992-2007.

Gulf of Maine Winter flounder (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ○ | ● | ● | ○ | ○ | ● | ● | ● | ○ | ● | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age8 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age9 | | | | | | | | | | | | | | | | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.3 |
| Weight Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age8 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age9 | | | | | | | | | | | | | | | | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.9 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.6 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.2 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.4 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.3 |
| Number Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 16.8 |
| Number Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.5 |
| Number Age8 | | | | | | | | | | | | | | | | | 0.8 |
| Number Age9 | | | | | | | | | | | | | | | | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | | | | | | | | | | | | | | | | | 0.0 |
| Maturity Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Maturity Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.1 |
| Maturity Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Maturity Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

Legend

D = Measure of Dispersion: Range/Median

Figure 2.1.I3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Gulf of Maine Winter flounder sampled during autumn 1992-2007 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

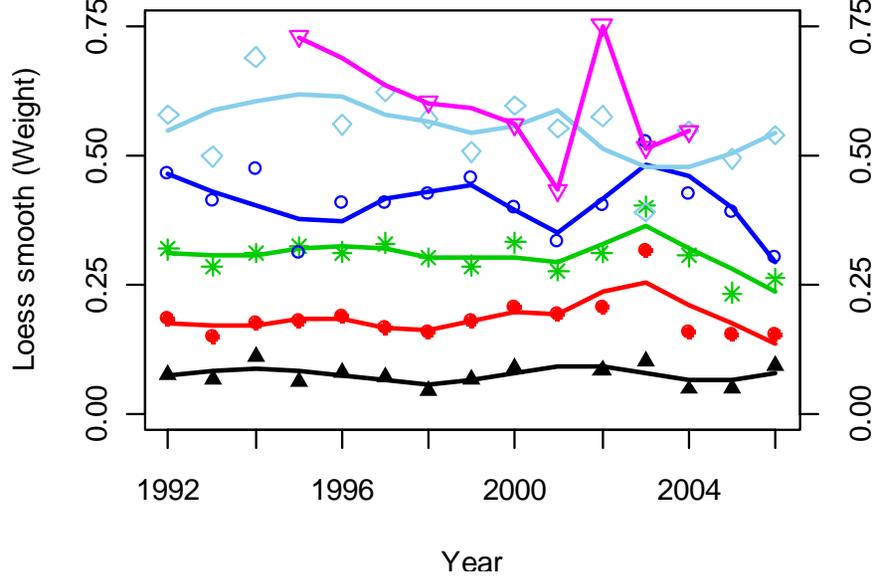
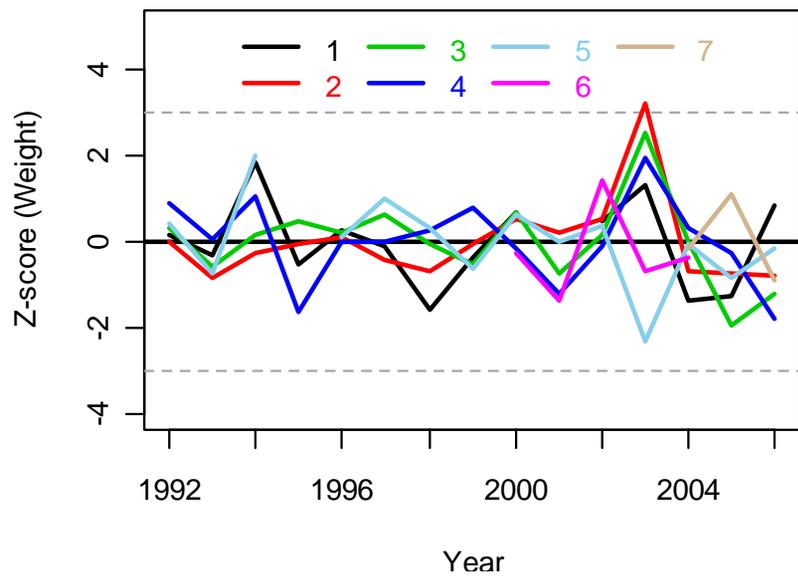
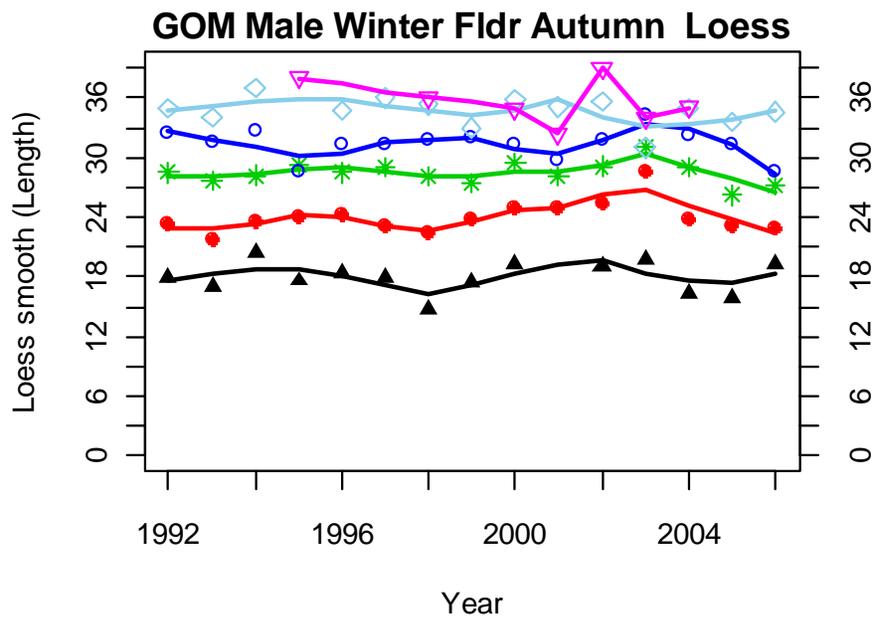
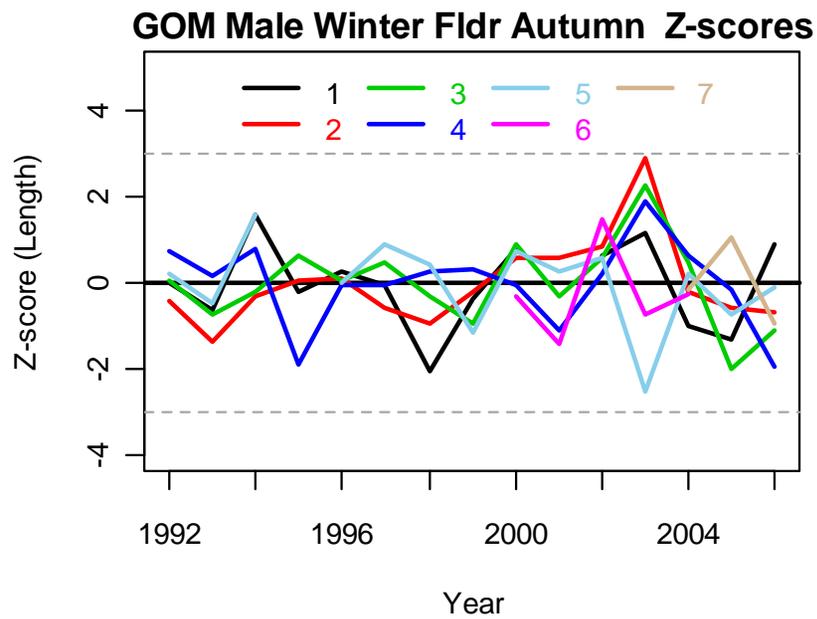


Figure 2.1. 11c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Gulf of Maine winter flounder, ages 1-7, from autumn bottom trawl research surveys during 1992-2007.

Gulf of Maine Winter flounder (Male) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ○ | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age6 | | | | ○ | | | | | | | | | | | | 0.2 |
| Length Age7 | | | | | | | | | | | | | | ○ | ○ | 0.1 |
| Length Age8 | | | | | | | | | | | | | | | | |
| Length Age9 | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age6 | | | | ○ | | | | | | | | | | | | 0.2 |
| Weight Age7 | | | | | | | | | | | | | | ○ | ○ | 0.2 |
| Weight Age8 | | | | | | | | | | | | | | | | |
| Weight Age9 | | | | | | | | | | | | | | | | |

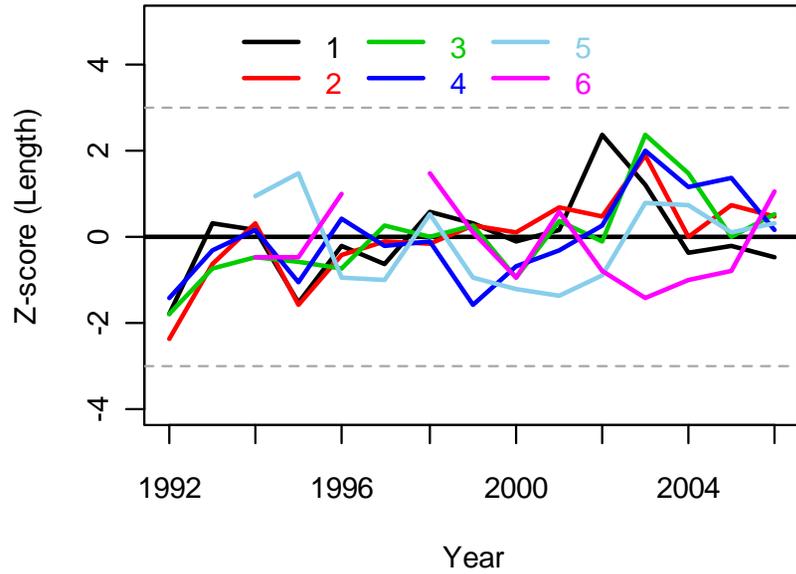
| | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.3 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.1 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.7 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.4 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.3 |
| Number Age6 | | | | ○ | | | | | | | | | | | | 1.8 |
| Number Age7 | | | | | | | | | | | | | | ○ | ○ | 0.9 |
| Number Age8 | | | | | | | | | | | | | | | | |
| Number Age9 | | | | | | | | | | | | | | | | |

Legend

D = Measure of Dispersion: Range/Median

Figure 2.1.I3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Gulf of Maine Winter flounder sampled during autumn 1992-2007 on NEFSC research bottom trawl surveys.

SNE/MA Winter Fldr Combined Autumn Z-score:



SNE/MA Winter Fldr Combined Autumn Loess

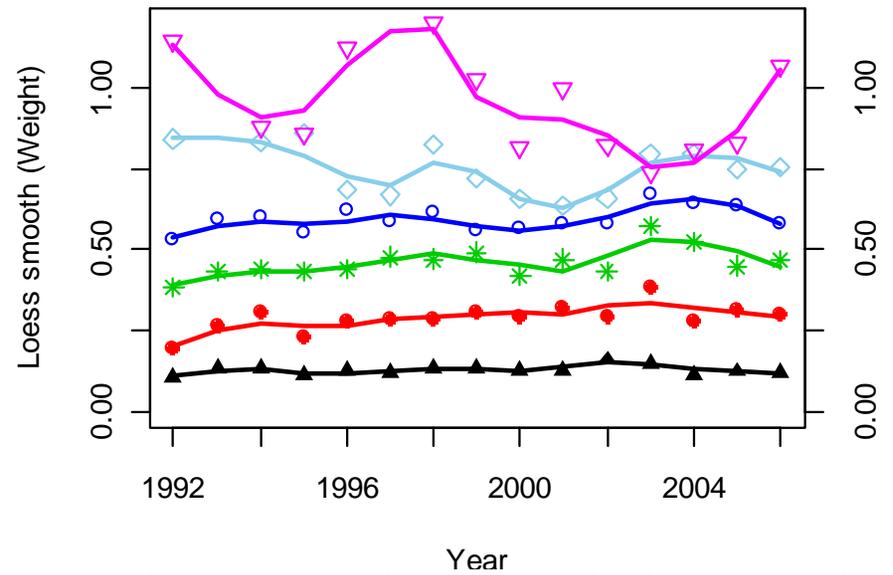
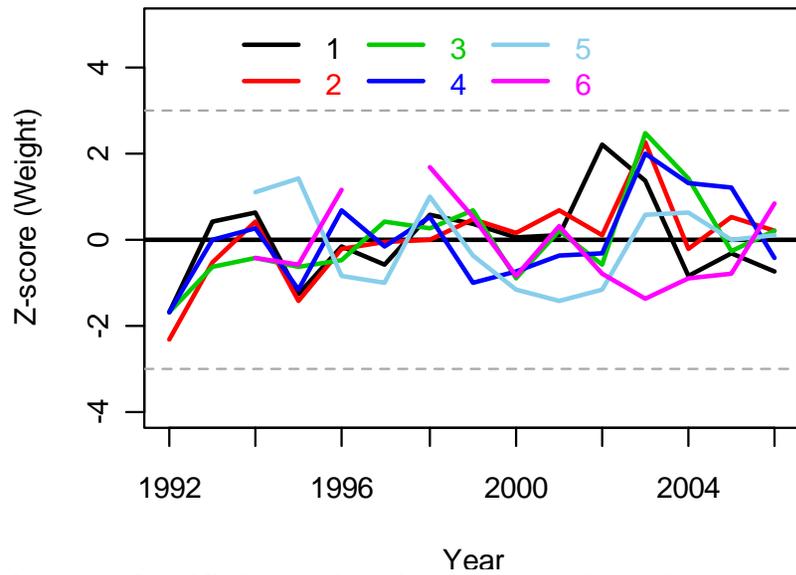
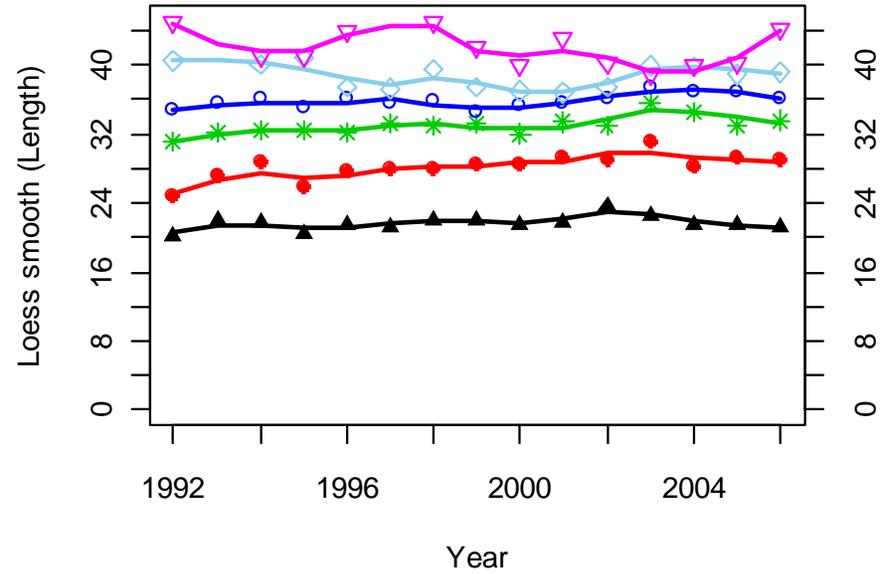


Figure 2.1. J1a. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Southern New England – Mid-Atlantic winter flounder, ages 1-6, from autumn bottom trawl research surveys during 1992-2006.

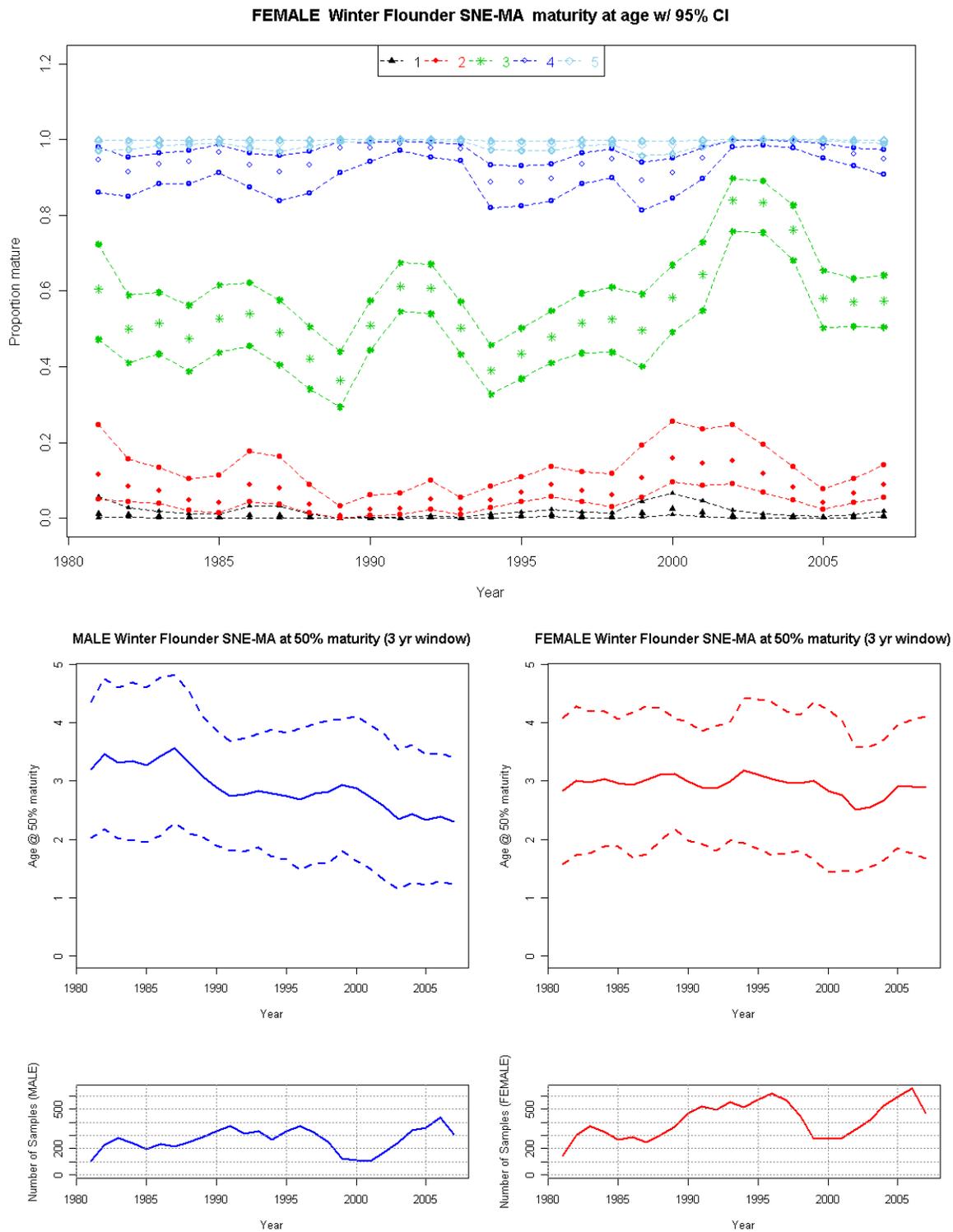


Figure 2.1 J2. Proportion mature at age with 95% confidence intervals for female Southern New England - Mid-Atlantic winter flounder using a 3-year moving window for ages 1-5 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

**Southern New England/Massachusetts Winter flounder (Combined Sex)
Autumn 1979-2007**

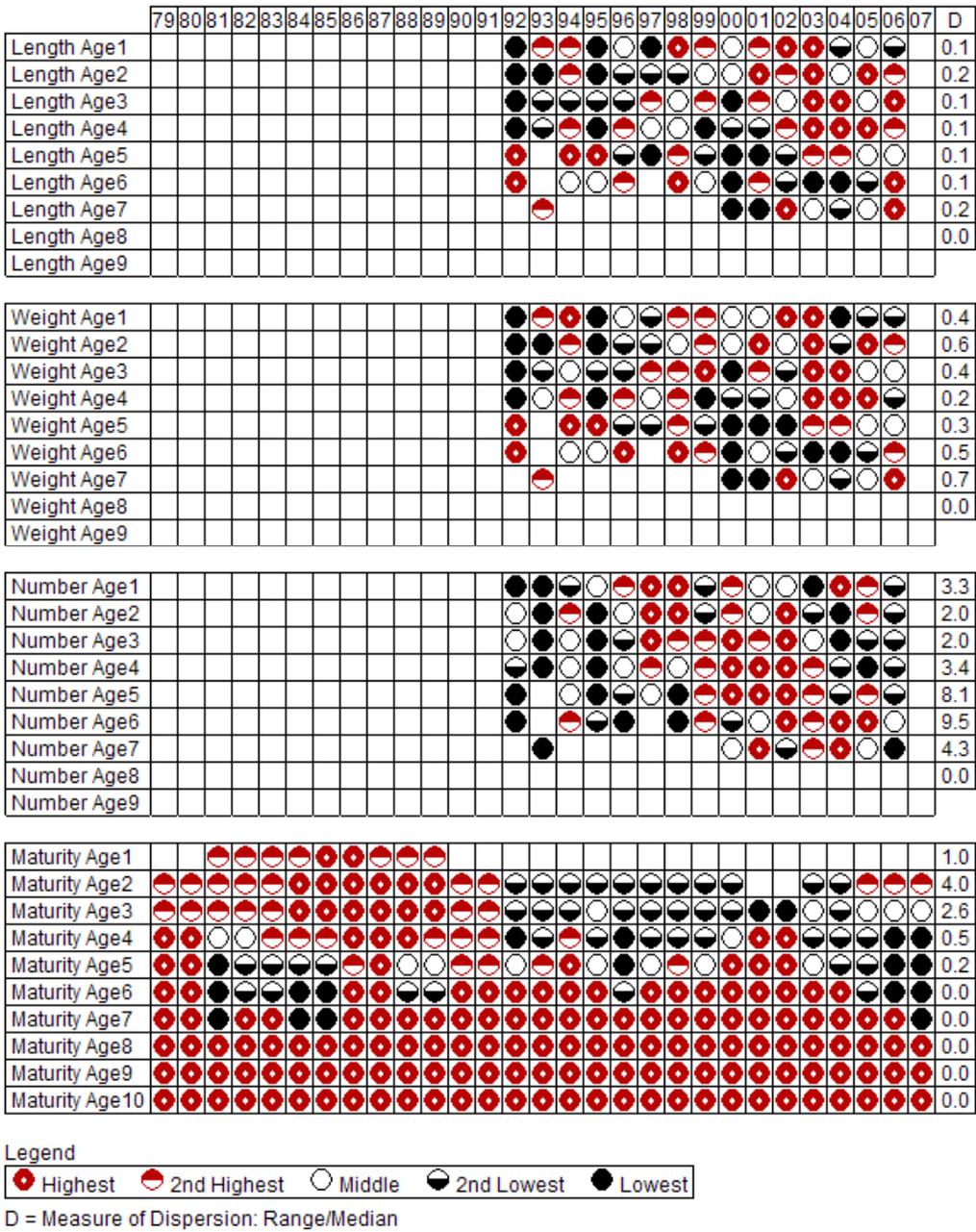


Figure 2.1.J.3a. Quintiles of stratified mean length and weight, and number per tow, at age, of Southern New England/Massachusetts Winter flounder sampled during autumn 1992-2006 and proportions mature at age sampled during spring 1979-2007 on NEFSC research bottom trawl surveys.

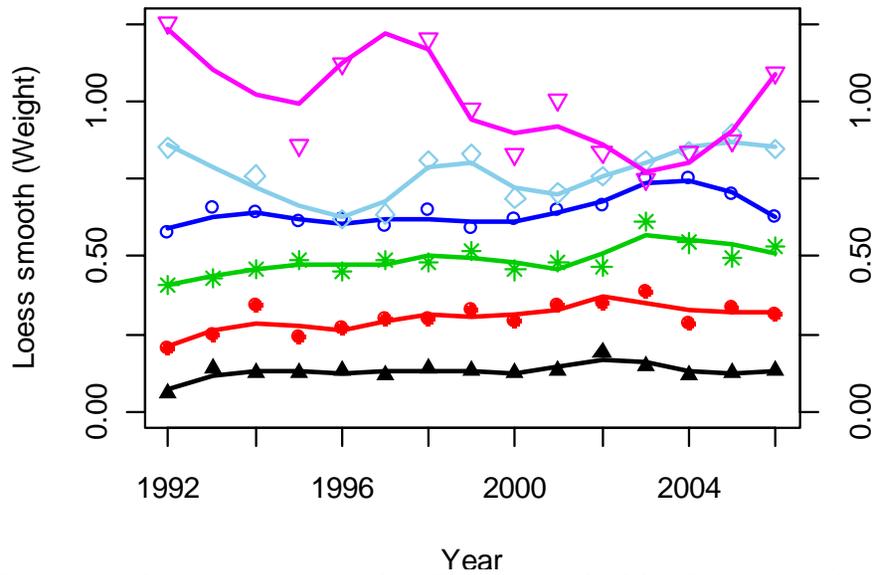
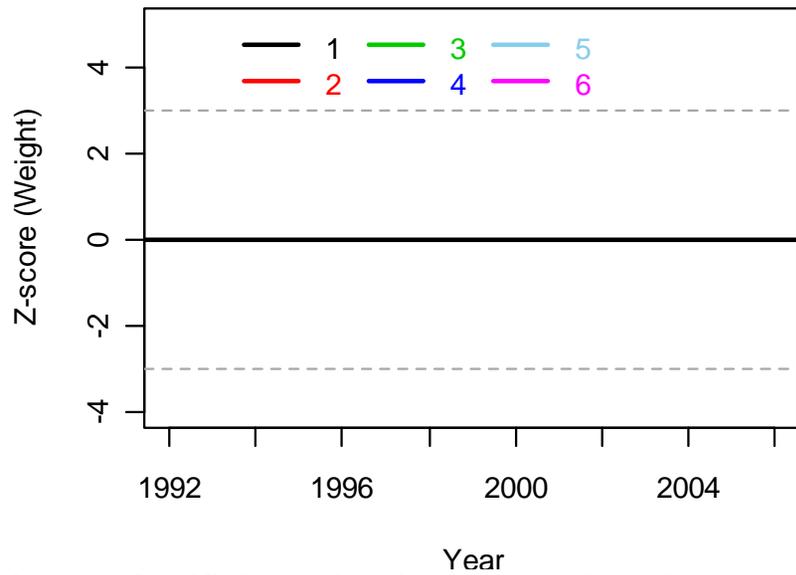
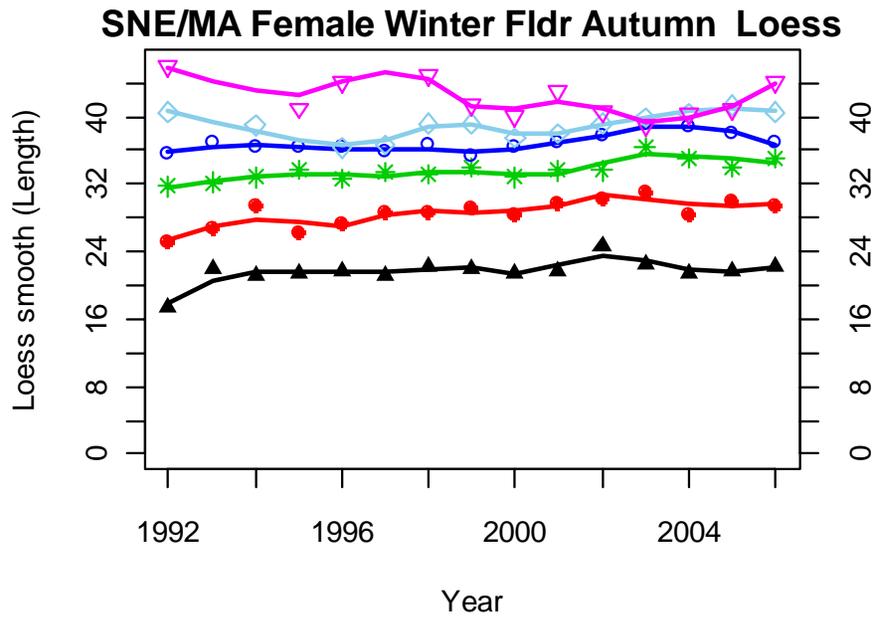
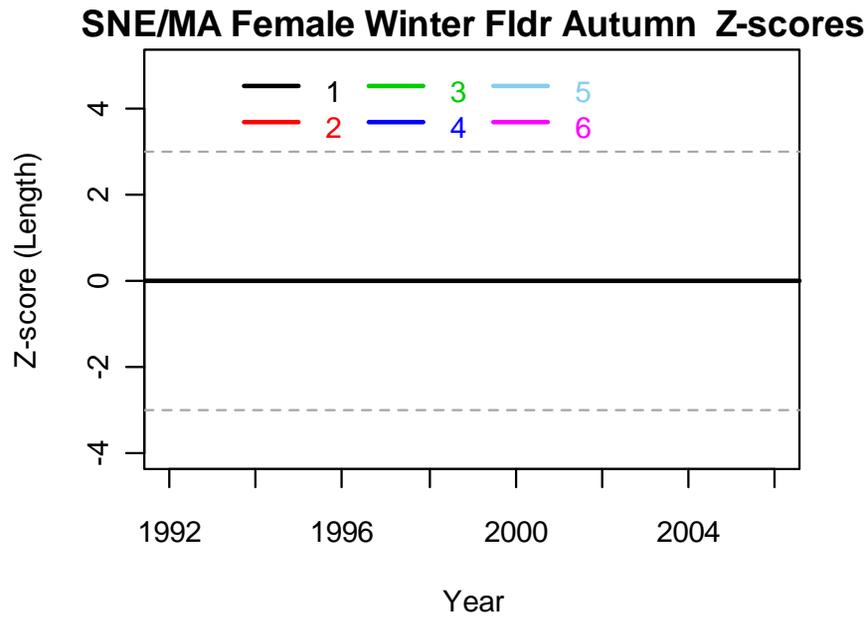


Figure 2.1. J1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Southern New England – Mid-Atlantic winter flounder, ages 1-6, from autumn bottom trawl research surveys during 1992-2006.

Southern New England/Massachusetts Winter flounder (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ● | ● | ● | ○ | ● | ● | ● | ● | ○ | ● | ● | ● | ○ | ● | ● | 0.3 |
| Length Age2 | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age3 | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age4 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age5 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age6 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age8 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age9 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Weight Age2 | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age3 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age4 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Weight Age5 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Weight Age6 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Weight Age8 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age9 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.5 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.9 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.0 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.0 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 5.8 |
| Number Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 8.6 |
| Number Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.4 |
| Number Age8 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age9 | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | | | | | | | | | | | | | | | | | |
| Maturity Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.0 |
| Maturity Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Maturity Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Maturity Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Maturity Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

Legend

D = Measure of Dispersion: Range/Median

Figure 2.1.J.3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Southern New England/Massachusetts Winter flounder sampled during autumn 1992-2006 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

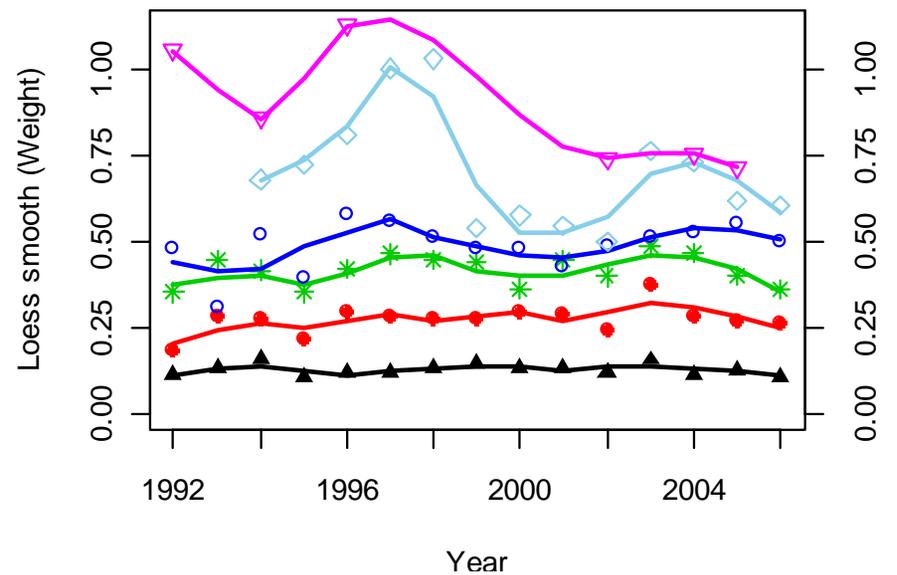
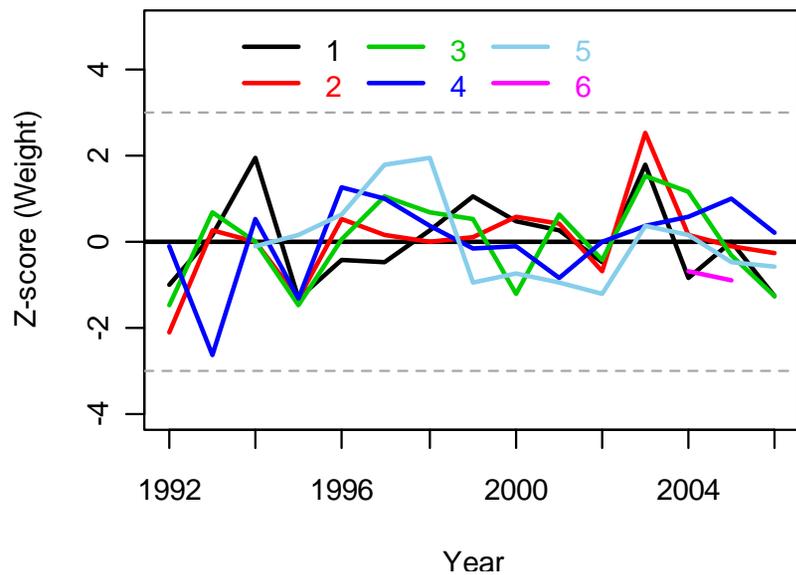
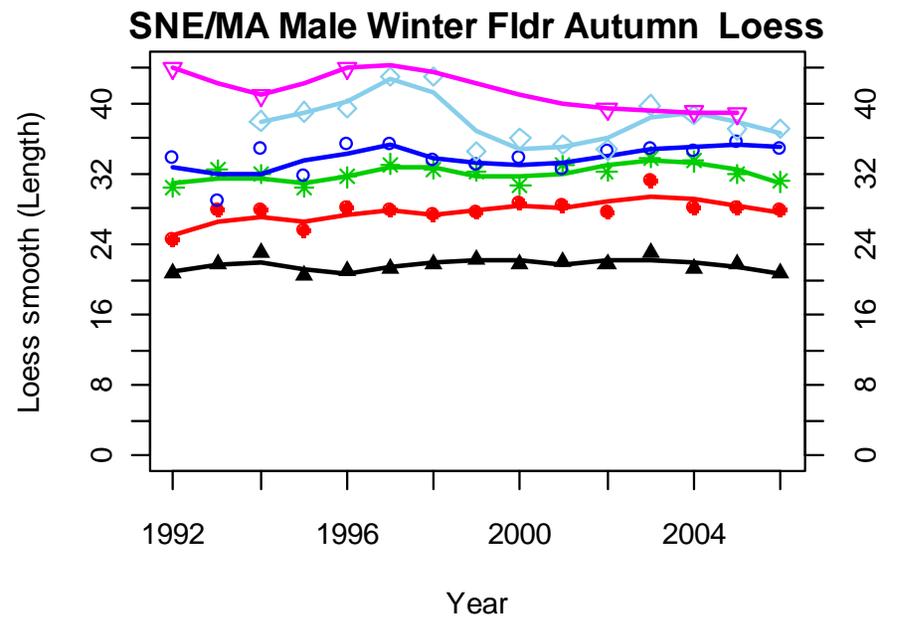
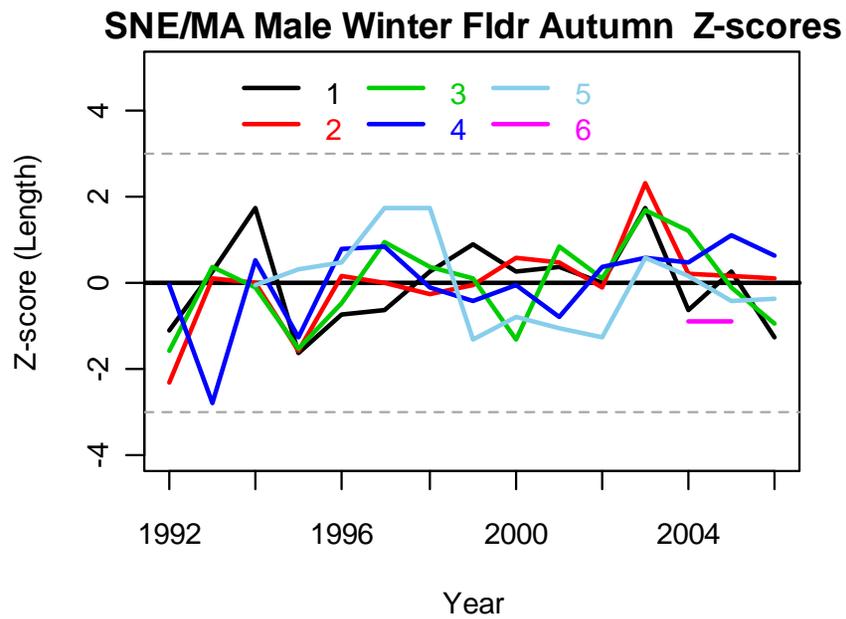


Figure 2.1. J1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Southern New England – Mid-Atlantic winter flounder, ages 1-6, from autumn bottom trawl research surveys during 1992-2006.

Southern New England/Massachusetts Winter flounder (Male) Autumn 1992-2006

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.1 |
| Length Age2 | ● | ○ | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | 0.2 |
| Length Age3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.1 |
| Length Age4 | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age5 | | | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | 0.2 |
| Length Age6 | ● | | ○ | ● | | | | | | | ○ | | ● | ● | | 0.1 |
| Length Age7 | | | | | | | | | | | | | | | | 0.0 |
| Length Age8 | | | | | | | | | | | | | | | | |
| Length Age9 | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ● | ○ | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.4 |
| Weight Age2 | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.7 |
| Weight Age3 | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | 0.3 |
| Weight Age4 | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | 0.5 |
| Weight Age5 | | | ○ | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | 0.8 |
| Weight Age6 | ● | | ○ | ● | | | | | | | ○ | | ● | ● | | 0.5 |
| Weight Age7 | | | | | | | | | | | | | | | | 0.0 |
| Weight Age8 | | | | | | | | | | | | | | | | |
| Weight Age9 | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ● | ○ | ○ | 3.7 |
| Number Age2 | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ● | ○ | ○ | 3.3 |
| Number Age3 | ○ | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ● | ○ | ○ | 2.8 |
| Number Age4 | ○ | ● | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ● | ○ | ○ | 4.9 |
| Number Age5 | | | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ● | ○ | ○ | 9.8 |
| Number Age6 | ○ | | ○ | ● | | | | | | | ○ | | ○ | ○ | | 1.5 |
| Number Age7 | | | | | | | | | | | | | | | | 0.0 |
| Number Age8 | | | | | | | | | | | | | | | | |
| Number Age9 | | | | | | | | | | | | | | | | |

Legend
 ● Highest ● 2nd Highest ○ Middle ○ 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.J.3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Southern New England/Massachusetts Winter flounder sampled during autumn 1992-2006 on NEFSC research bottom trawl surveys.

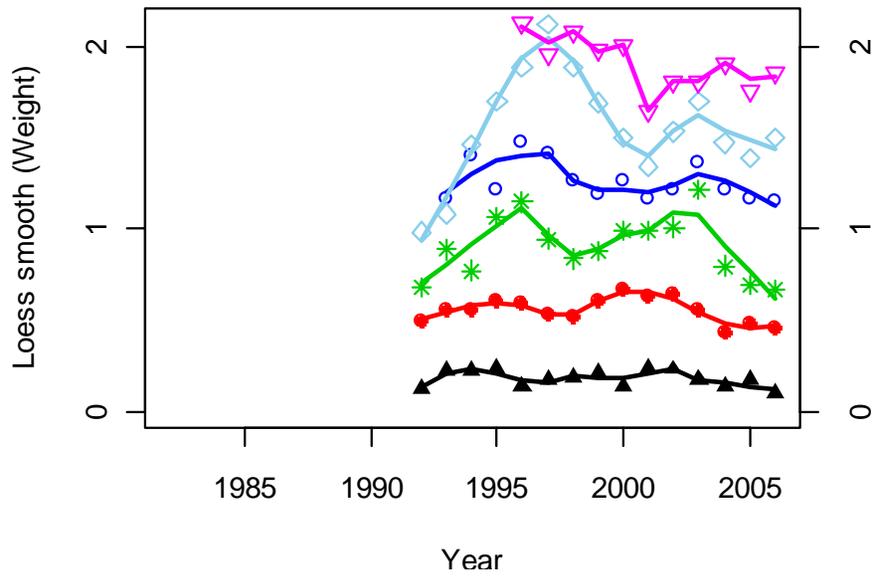
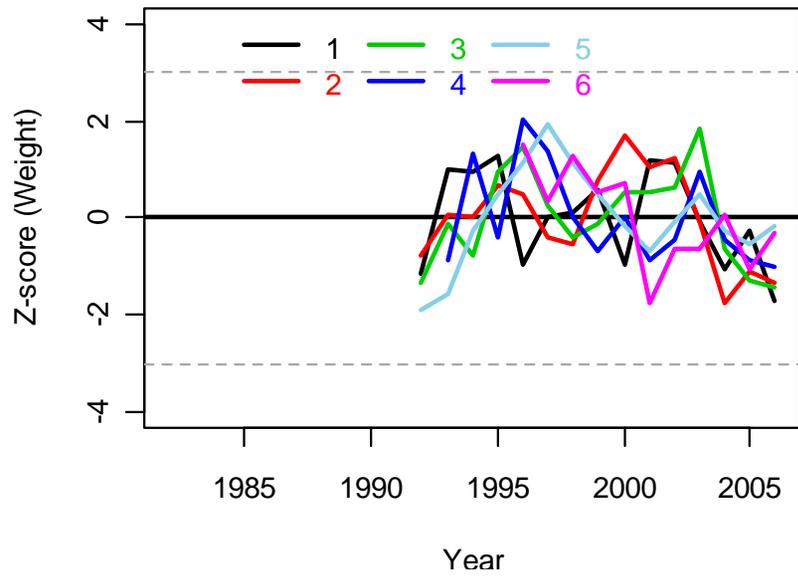
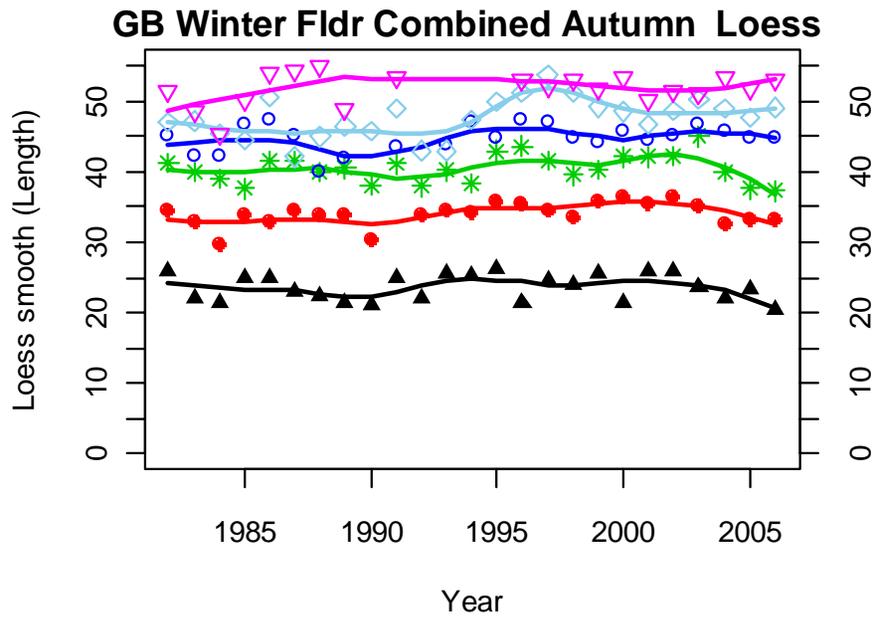
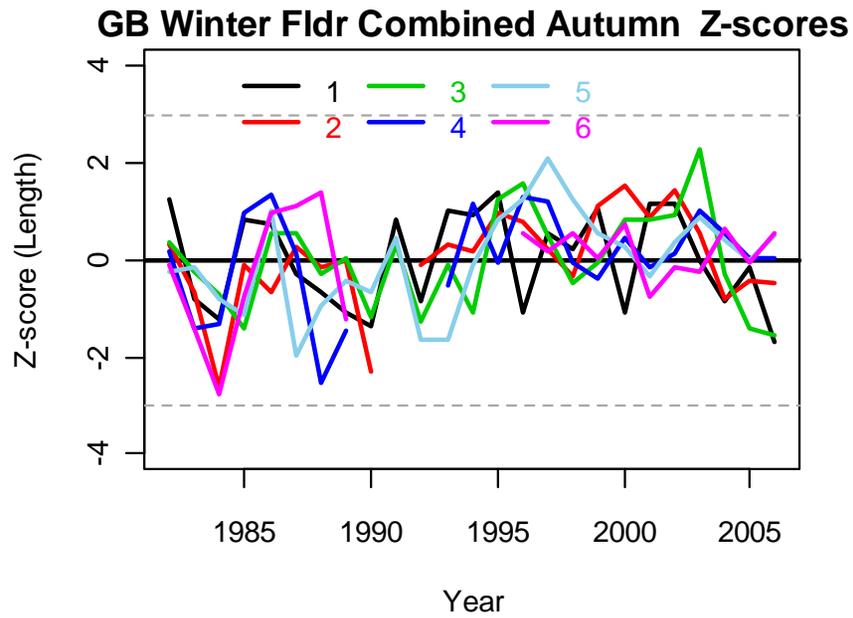
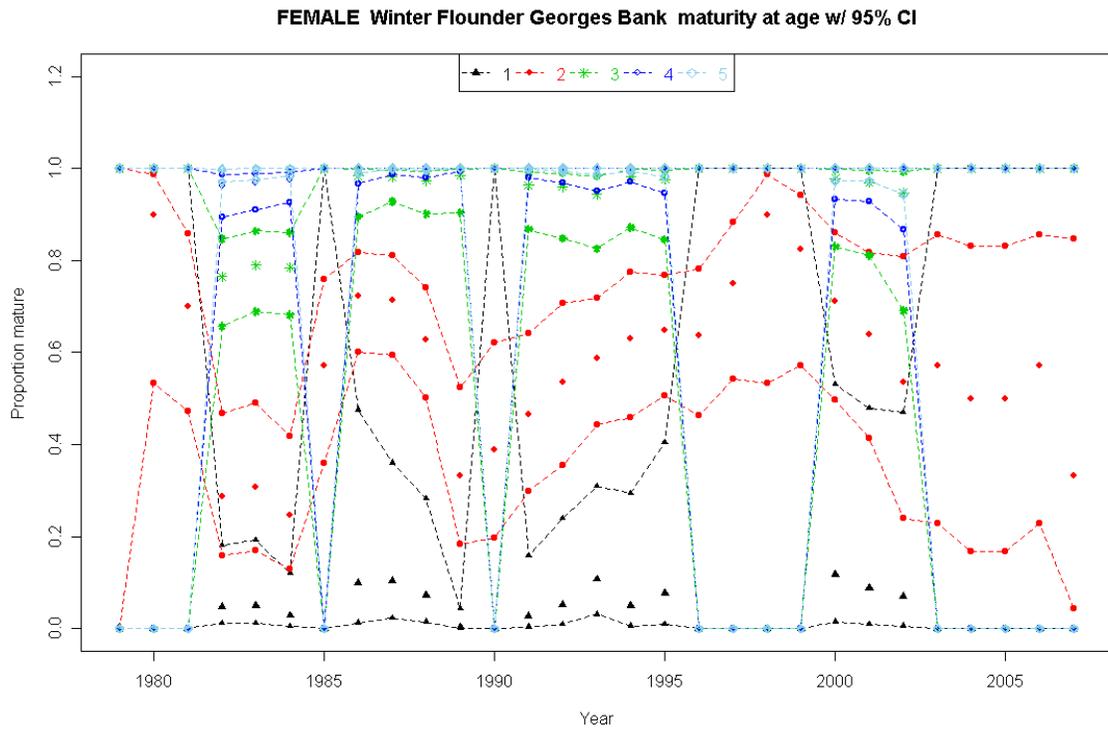


Figure 2.1. K1a. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank winter flounder, ages 1-6, from autumn bottom trawl research surveys during 1982-2006.



MALE Winter Flounder Georges Bank at 50% maturity (3 yr window) FEMALE Winter Flounder Georges Bank at 50% maturity (3 yr window)

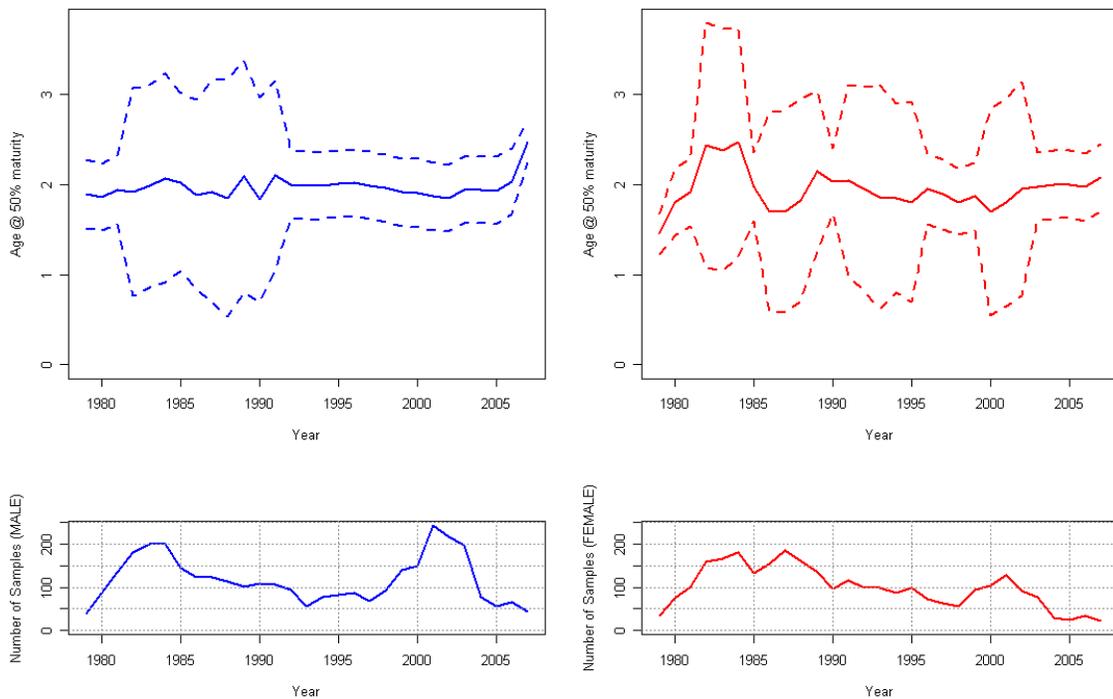
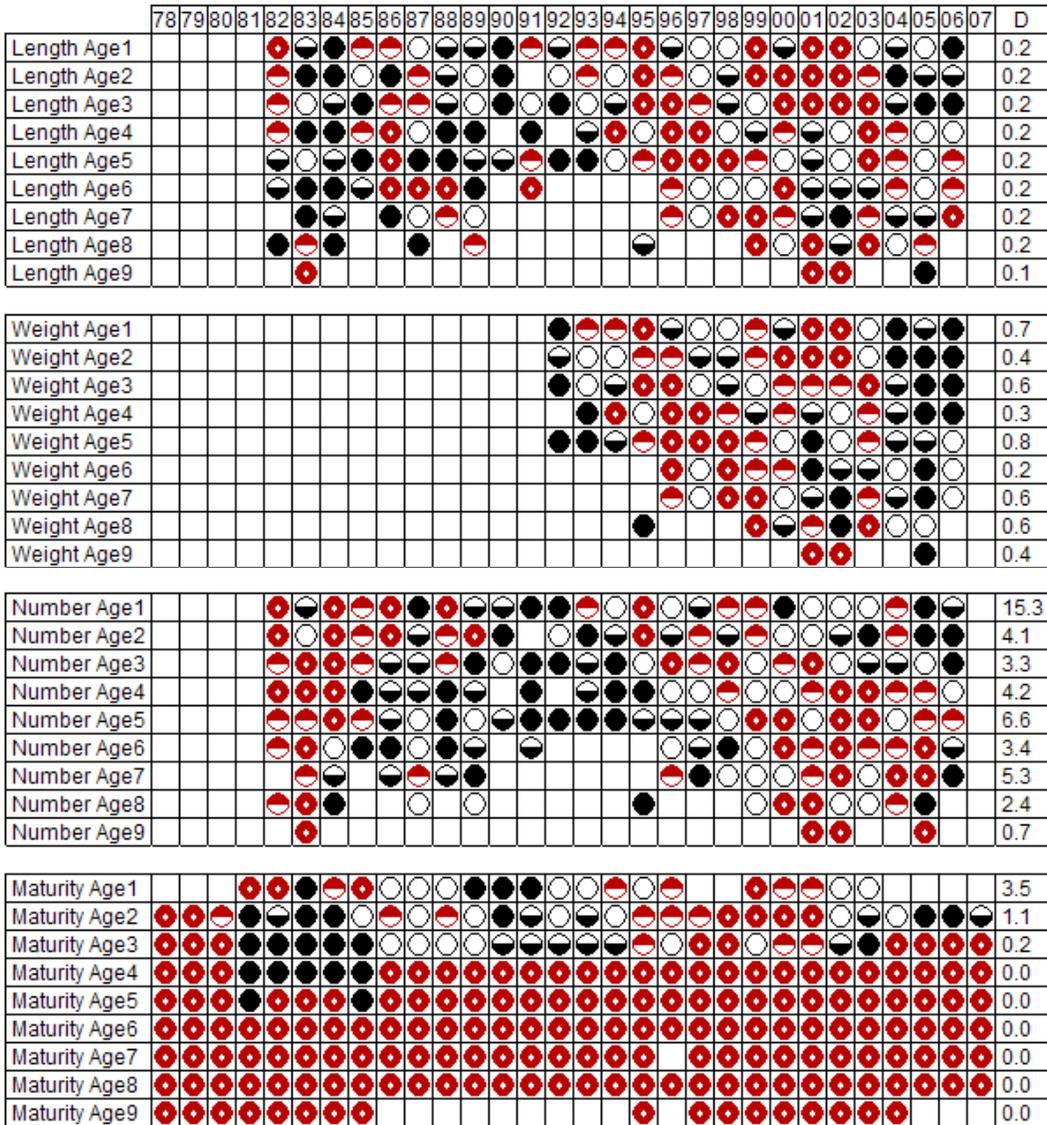


Figure 2.1 K2. Proportion mature at age with 95% confidence intervals for female Georges Bank winter flounder using a 3-year moving window for ages 1-5 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

Georges Bank Winter flounder (Combined Sex) Autumn 1978 -2007



Legend
 ● Highest ● 2nd Highest ○ Middle ● 2nd Lowest ● Lowest

D = Measure of Dispersion: Range/Median

Figure 2.1.K.3a. Quintiles of stratified mean length and weight, and number per tow, at age, of Georges Bank Winter flounder sampled during autumn 1982-2007 and proportions mature at age sampled during spring 1978-2007 on NEFSC research bottom trawl surveys.

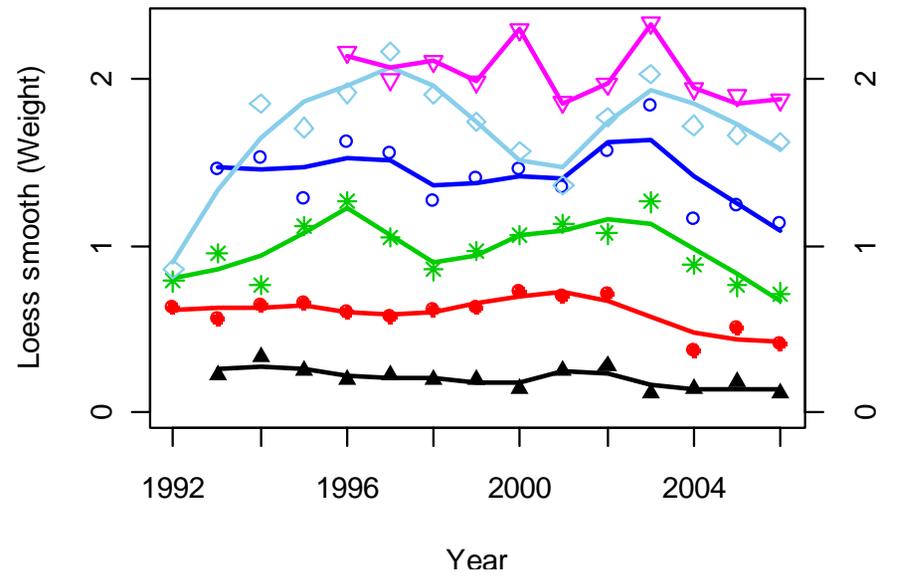
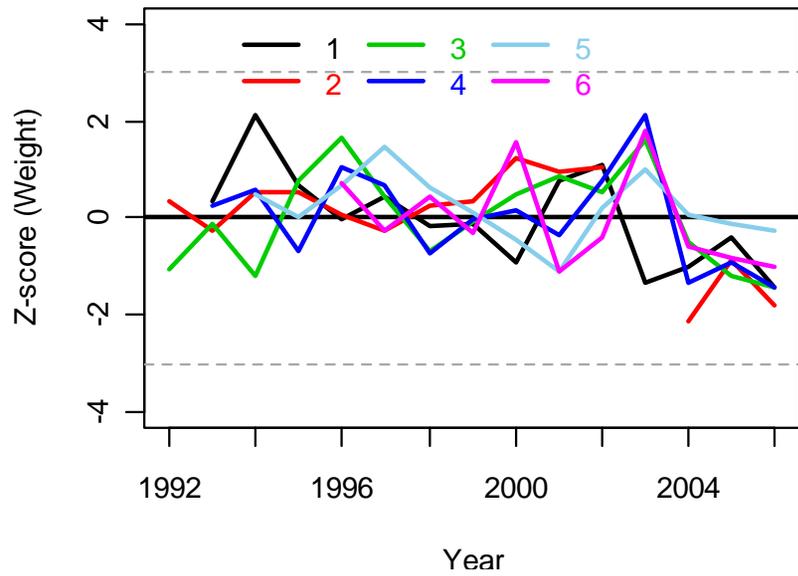
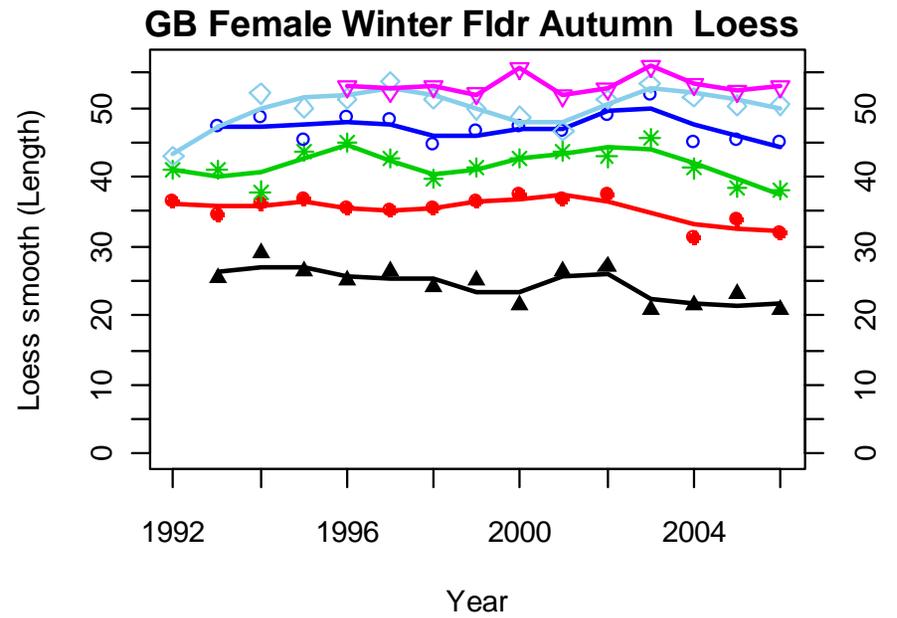
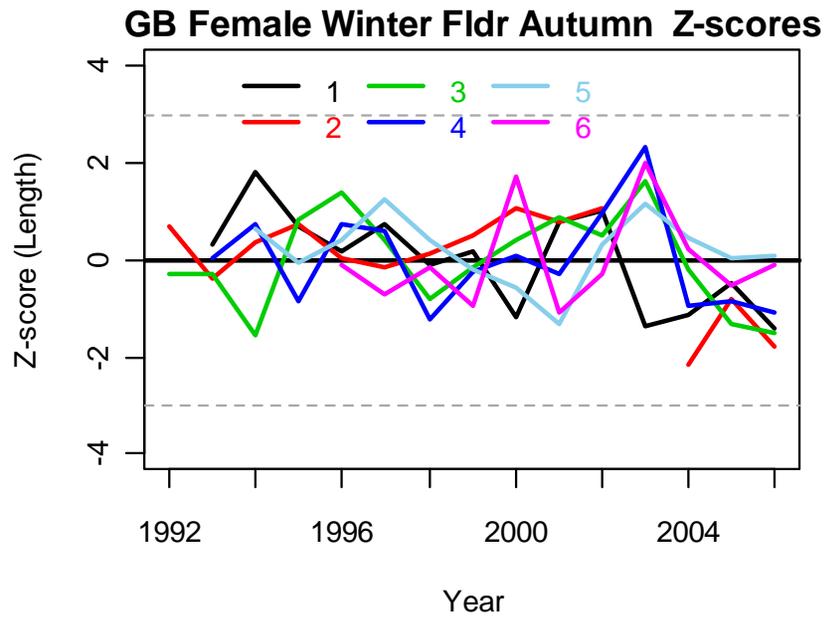


Figure 2.1. K1b. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank winter flounder, ages 1-6, from autumn bottom trawl research surveys during 1992-2006.

Georges Bank Winter flounder (Female) Autumn 1992 -2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | | ● | ● | ● | ○ | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ● | | 0.3 |
| Length Age2 | ● | ○ | ○ | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.2 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.2 |
| Length Age4 | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.2 |
| Length Age5 | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.2 |
| Length Age6 | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.1 |
| Length Age7 | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.1 |
| Length Age8 | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.1 |
| Length Age9 | | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|-----|
| Weight Age1 | | ● | ● | ● | ○ | ● | ● | ○ | ● | ● | ● | ● | ● | ● | ● | | 1.1 |
| Weight Age2 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.6 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.6 |
| Weight Age4 | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.5 |
| Weight Age5 | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.8 |
| Weight Age6 | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.2 |
| Weight Age7 | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.5 |
| Weight Age8 | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.4 |
| Weight Age9 | | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|-----|
| Number Age1 | | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 7.2 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 2.3 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 2.0 |
| Number Age4 | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 1.4 |
| Number Age5 | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 5.5 |
| Number Age6 | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 2.3 |
| Number Age7 | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 6.8 |
| Number Age8 | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 1.2 |
| Number Age9 | | | | | | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |

| | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|-----|
| Maturity Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.8 |
| Maturity Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.5 |
| Maturity Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.1 |
| Maturity Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |
| Maturity Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |
| Maturity Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |
| Maturity Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |
| Maturity Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |
| Maturity Age9 | | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | 0.0 |

Legend

| | | | | | |
|---------|-------------|--------|------------|--------|---|
| ● | ○ | ○ | ○ | ○ | ○ |
| Highest | 2nd Highest | Middle | 2nd Lowest | Lowest | |

D = Measure of Dispersion: Range/Median

Figure 2.1.K3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Georges Bank Winter flounder sampled during autumn 1992-2006 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

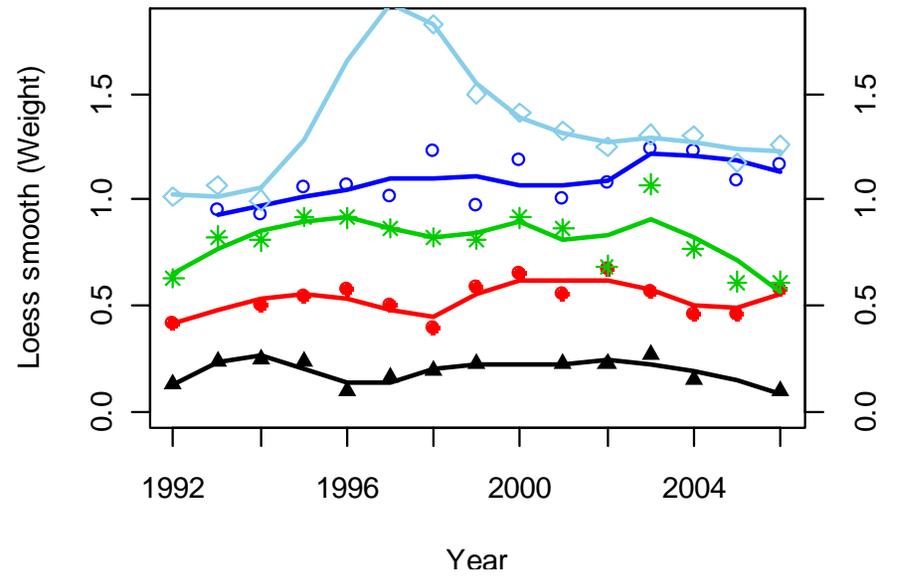
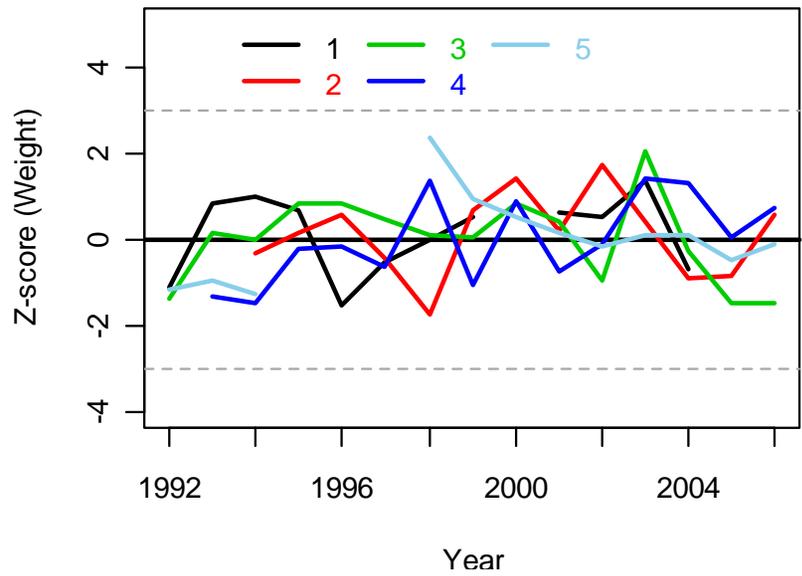
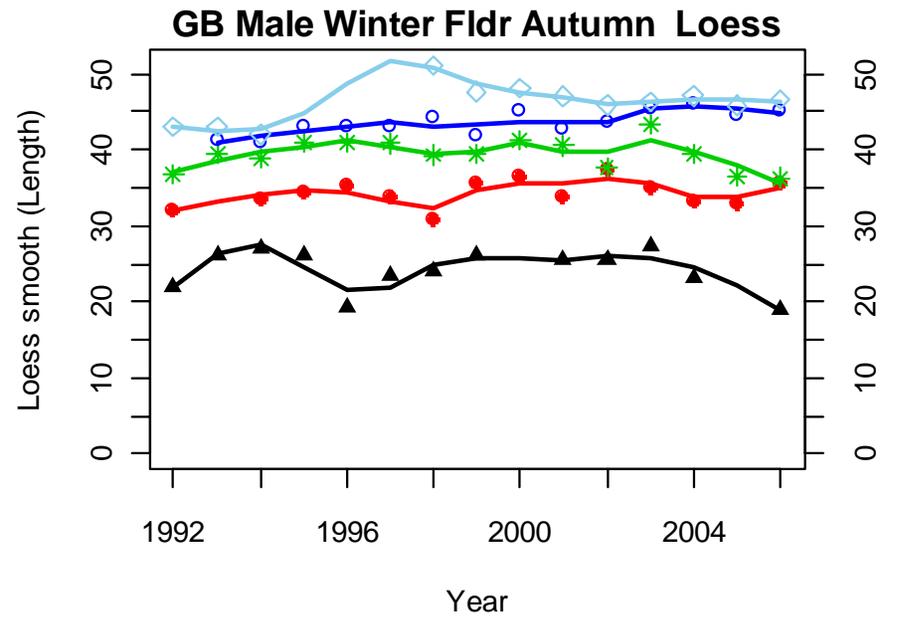
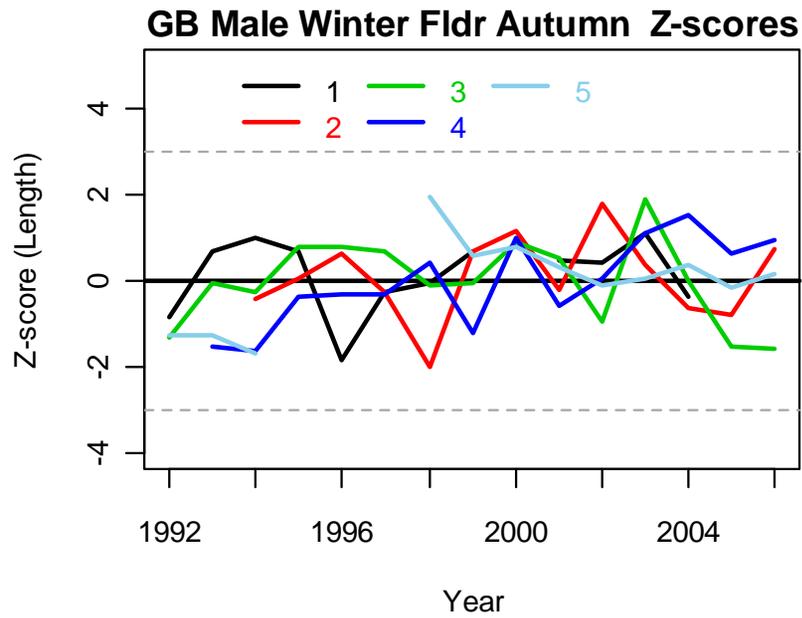


Figure 2.1. K1c. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Georges Bank winter flounder, ages 1-5, from autumn bottom trawl research surveys during 1992-2006.

Georges Bank Winter flounder (Male) Autumn 1992-2006

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | D |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age2 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age3 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age6 | | | | | | | | | | | | | | | | 0.1 |
| Length Age7 | | | | | | | | | | | | | | | | 0.2 |
| Length Age8 | | | | ○ | | | | | | | | | | | | 0.0 |
| Length Age9 | | | | | | | | | | | | | | | | 0.0 |

| | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age2 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age3 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Weight Age6 | | | | | | | | | | | | | | | | 0.3 |
| Weight Age7 | | | | | | | | | | | | | | | | 0.5 |
| Weight Age8 | | | | ○ | | | | | | | | | | | | 0.1 |
| Weight Age9 | | | | | | | | | | | | | | | | 0.0 |

| | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.0 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.6 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.9 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.0 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.5 |
| Number Age6 | | | | | | | | | | | | | | | | 0.9 |
| Number Age7 | | | | | | | | | | | | | | | | 1.9 |
| Number Age8 | | | | ○ | | | | | | | | | | | | 0.6 |
| Number Age9 | | | | | | | | | | | | | | | | 0.0 |

Legend
 ● Highest ● 2nd Highest ○ Middle ● 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.K3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Georges Bank Winter flounder sampled during autumn 1992-2006 on NEFSC research bottom trawl surveys.

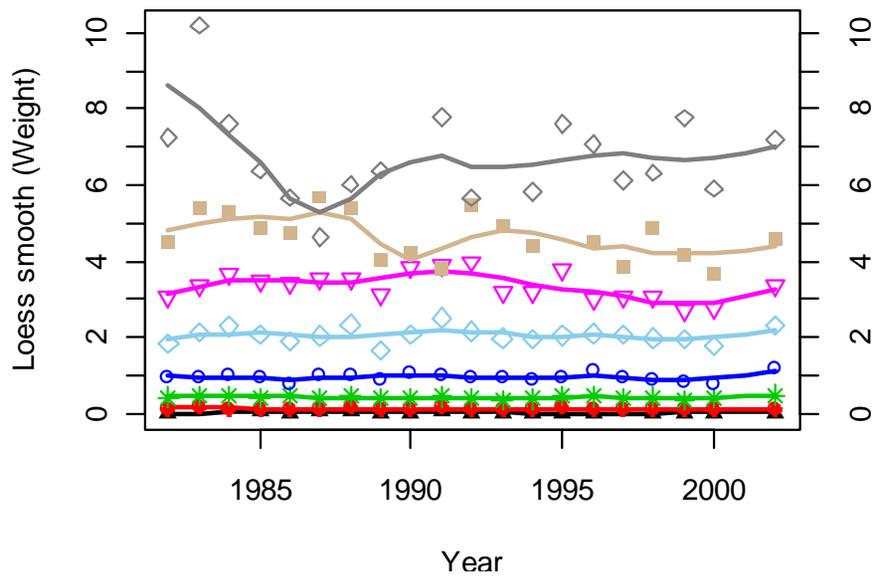
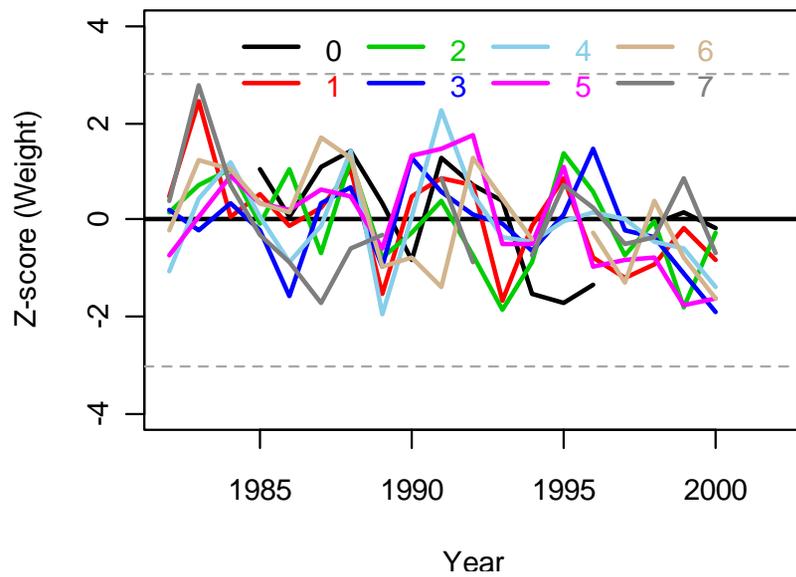
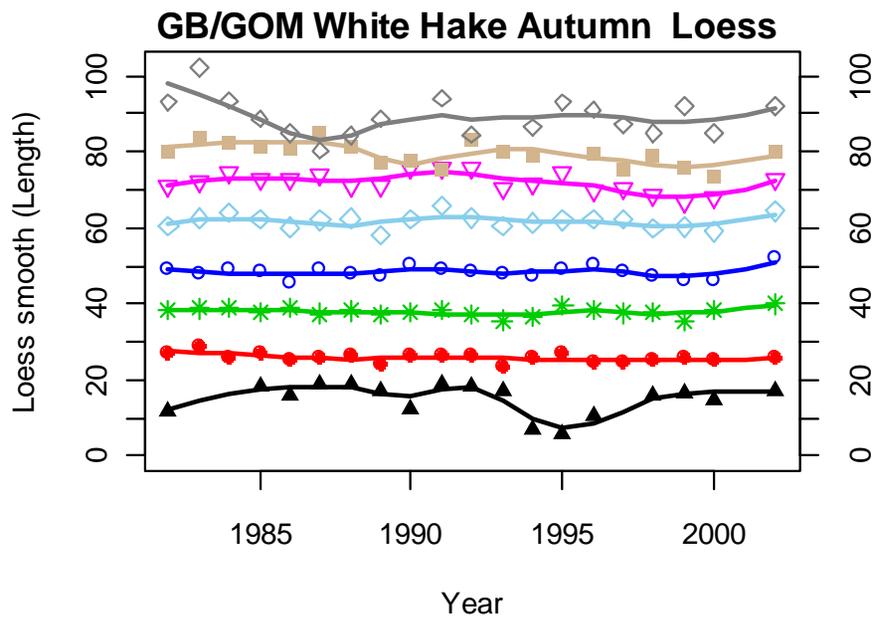
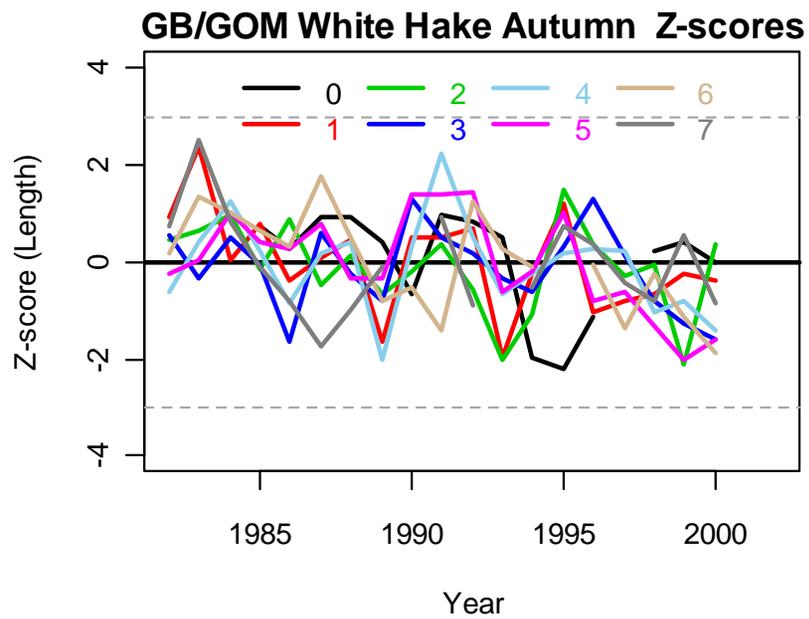


Figure 2.1. L1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for white hake, ages 0-7, from autumn bottom trawl research surveys during 1982-2002.

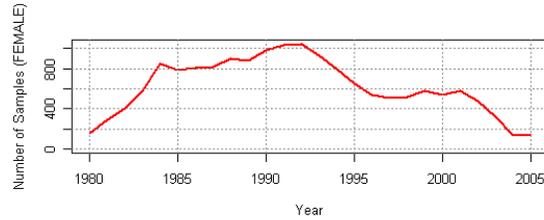
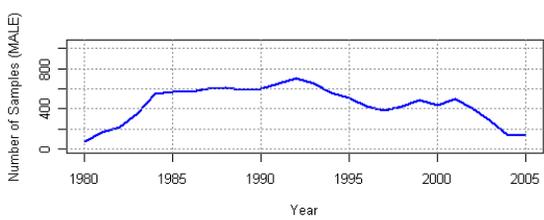
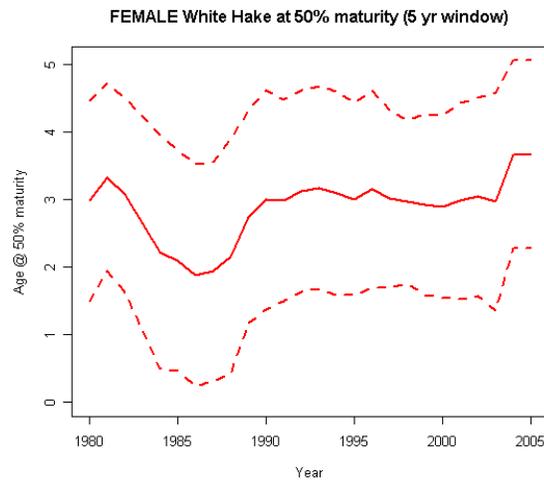
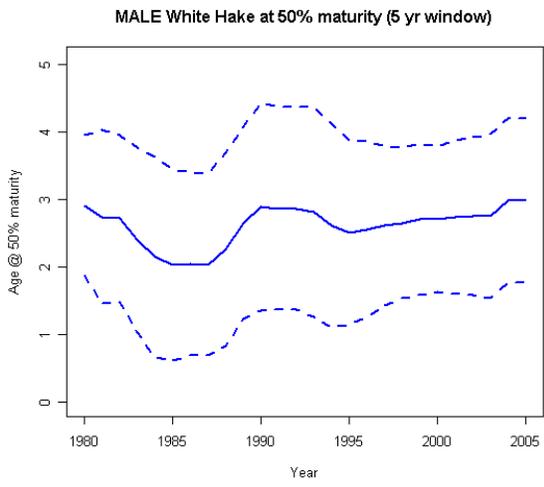
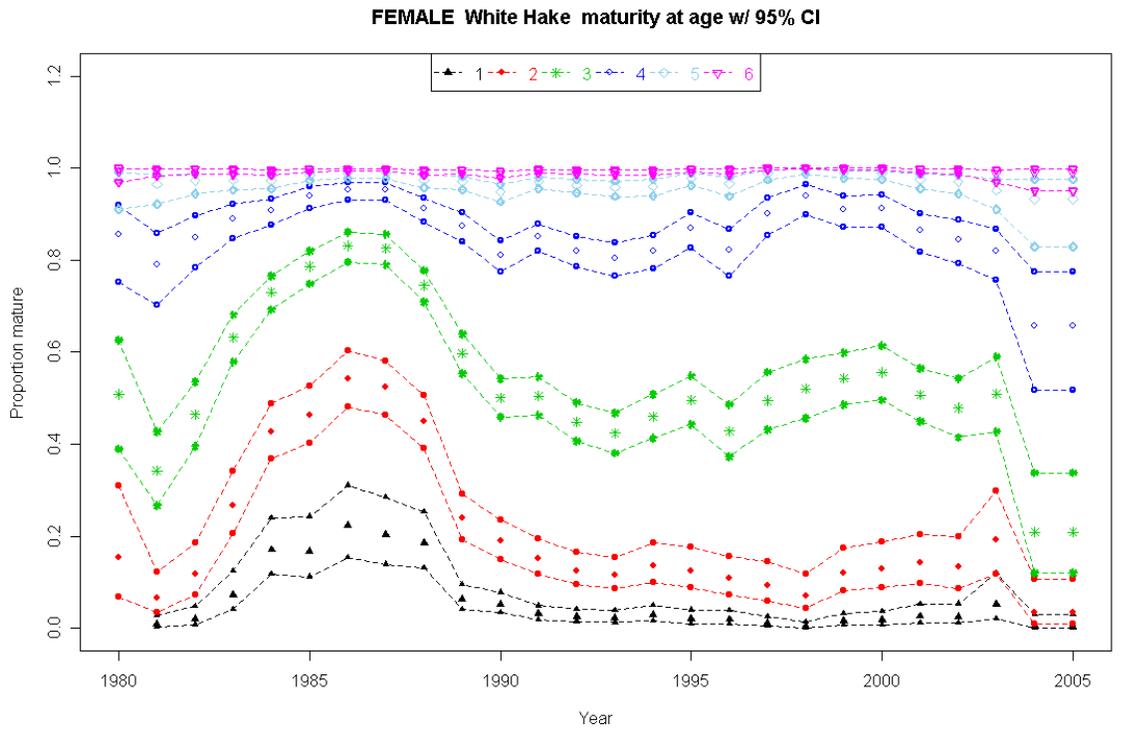


Figure 2.1 L2. Proportion mature at age with 95% confidence intervals for female white hake using a 5-year moving window for ages 1-6 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 5-year moving average for males (lower left panel) and females (lower right panel).

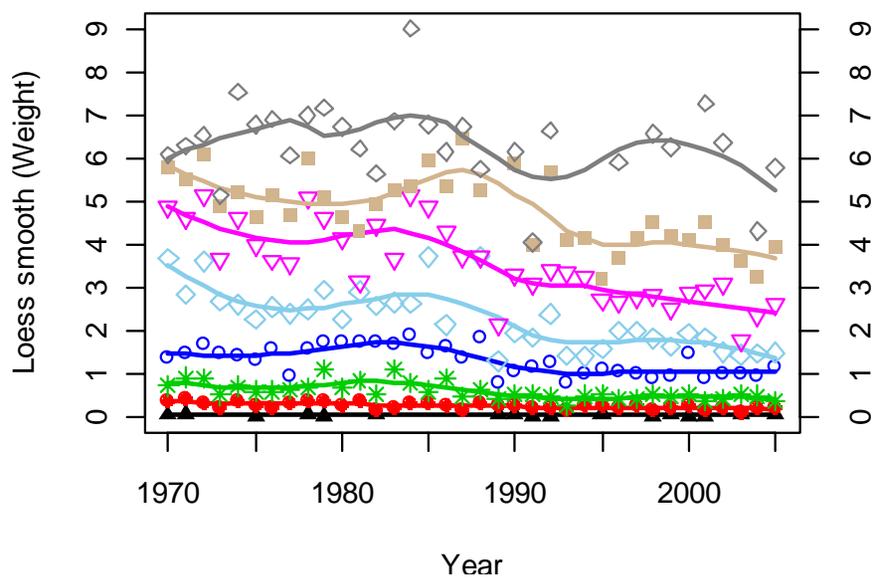
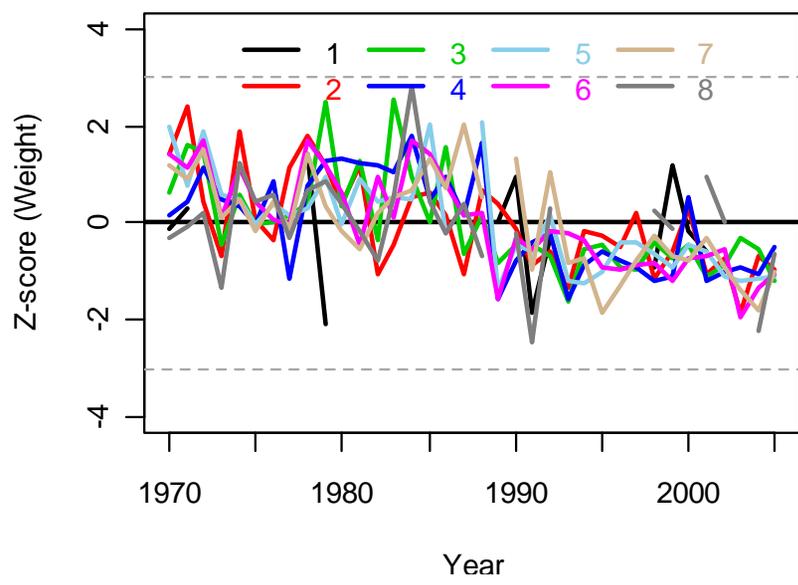
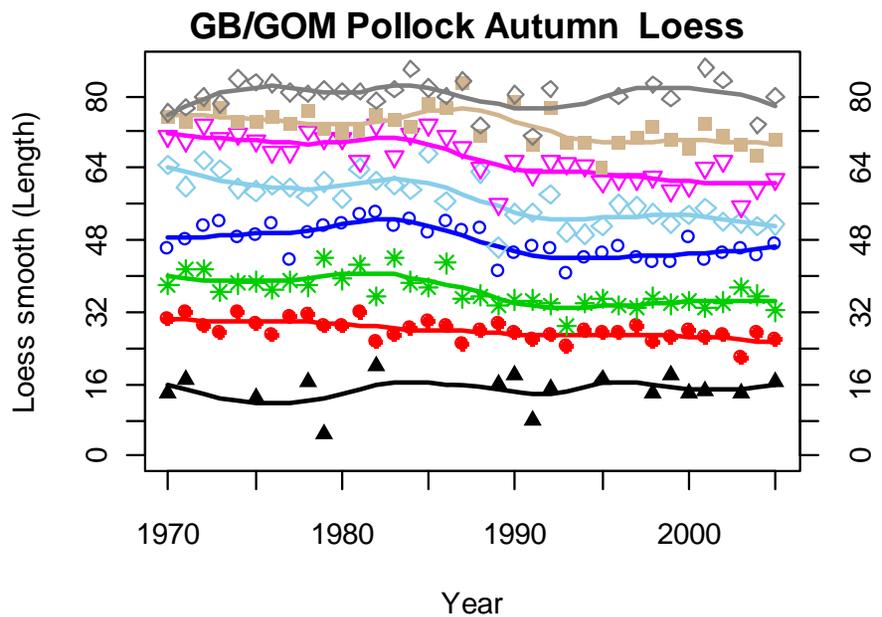
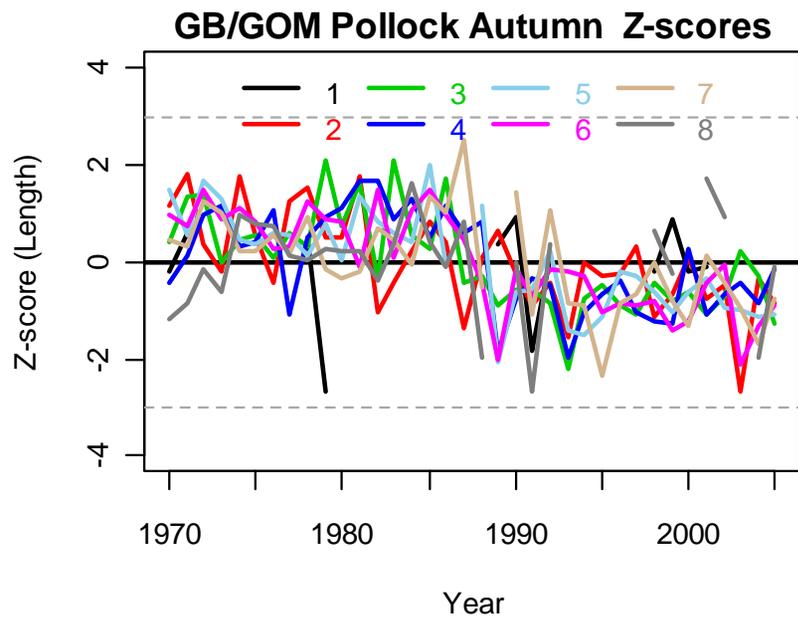


Figure 2.1. M1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for pollock, ages 1-8, from autumn bottom trawl research surveys during 1970-2005.

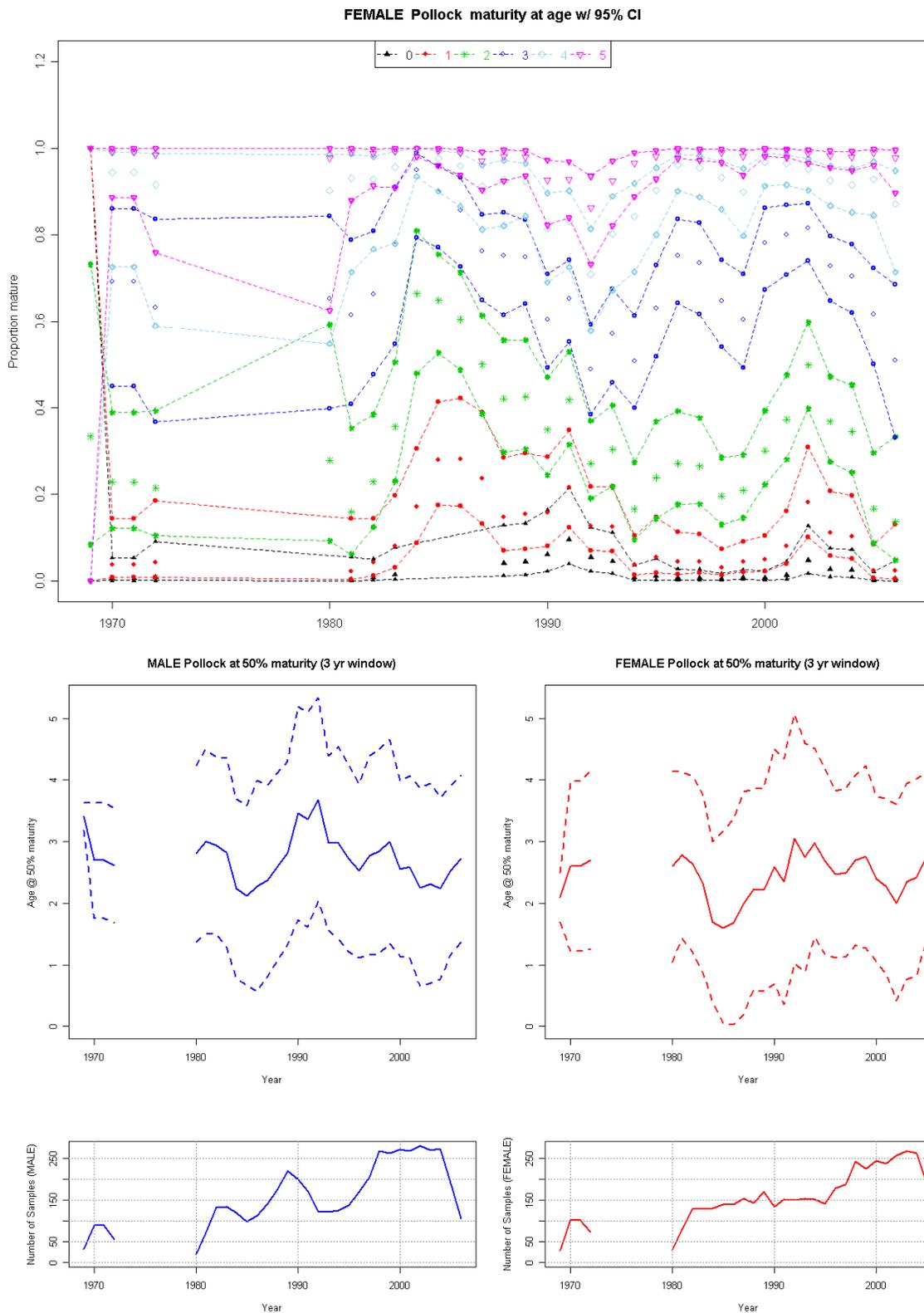


Figure 2.1 M2. Proportion mature at age with 95% confidence intervals for female pollock using a 3-year moving window for ages 0-5 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

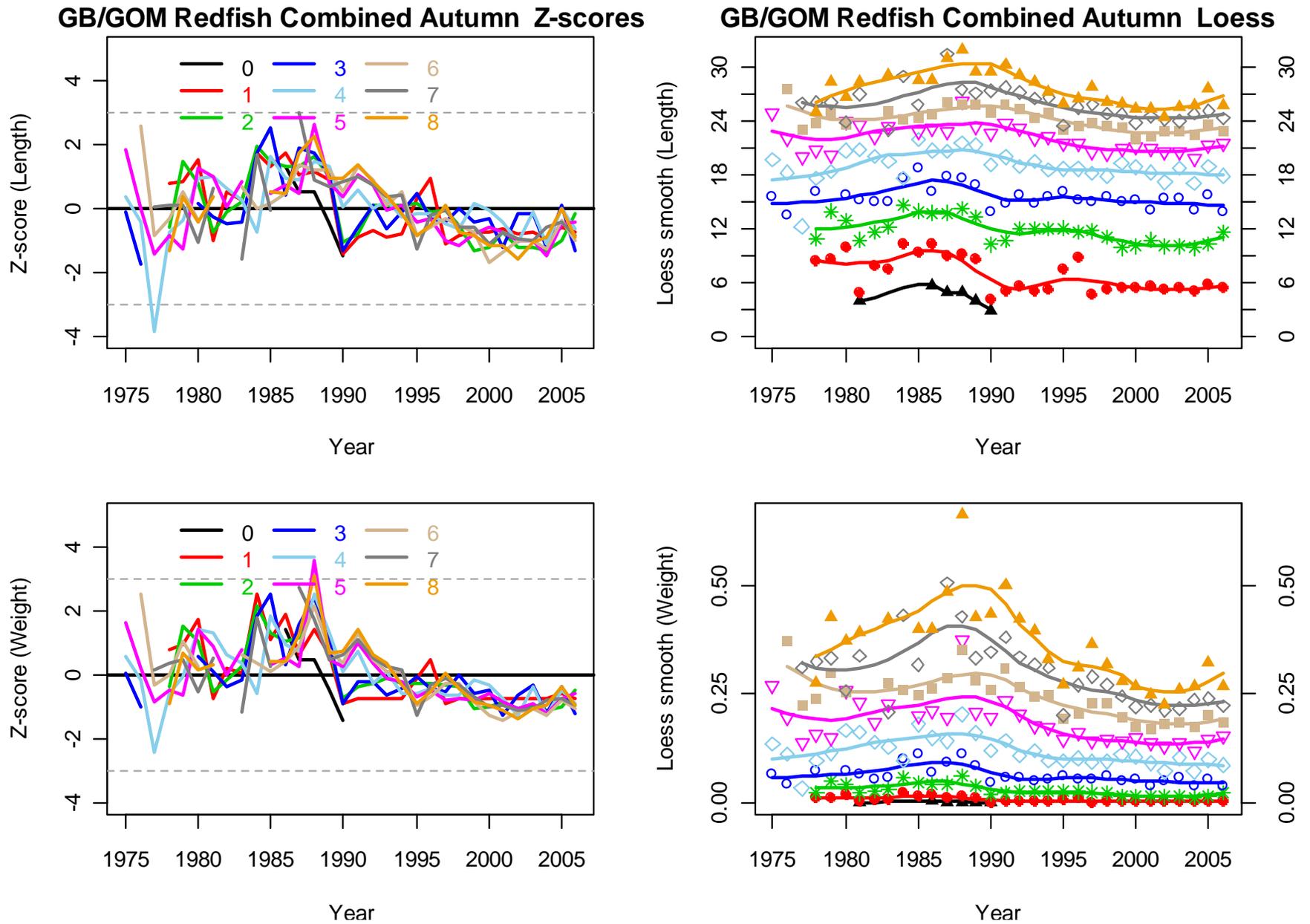


Figure 2.1. N1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for redfish, ages 0-8, from autumn bottom trawl research surveys during 1975-2006.

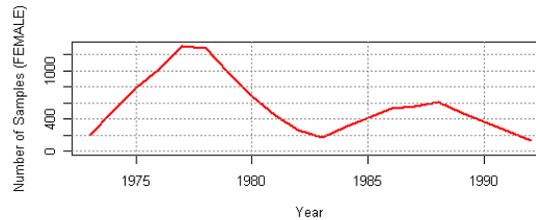
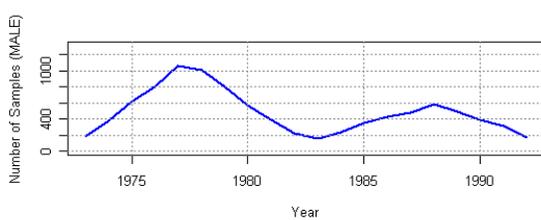
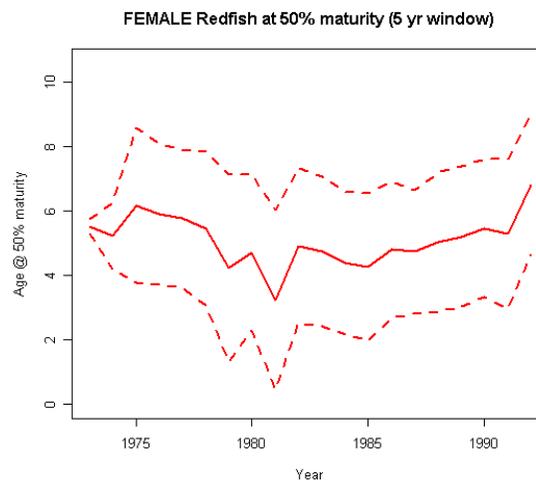
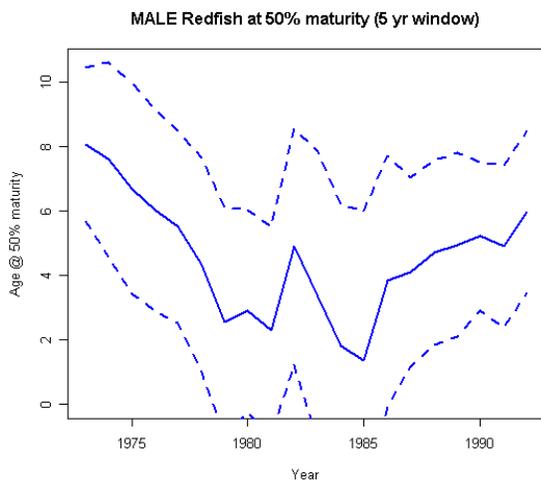
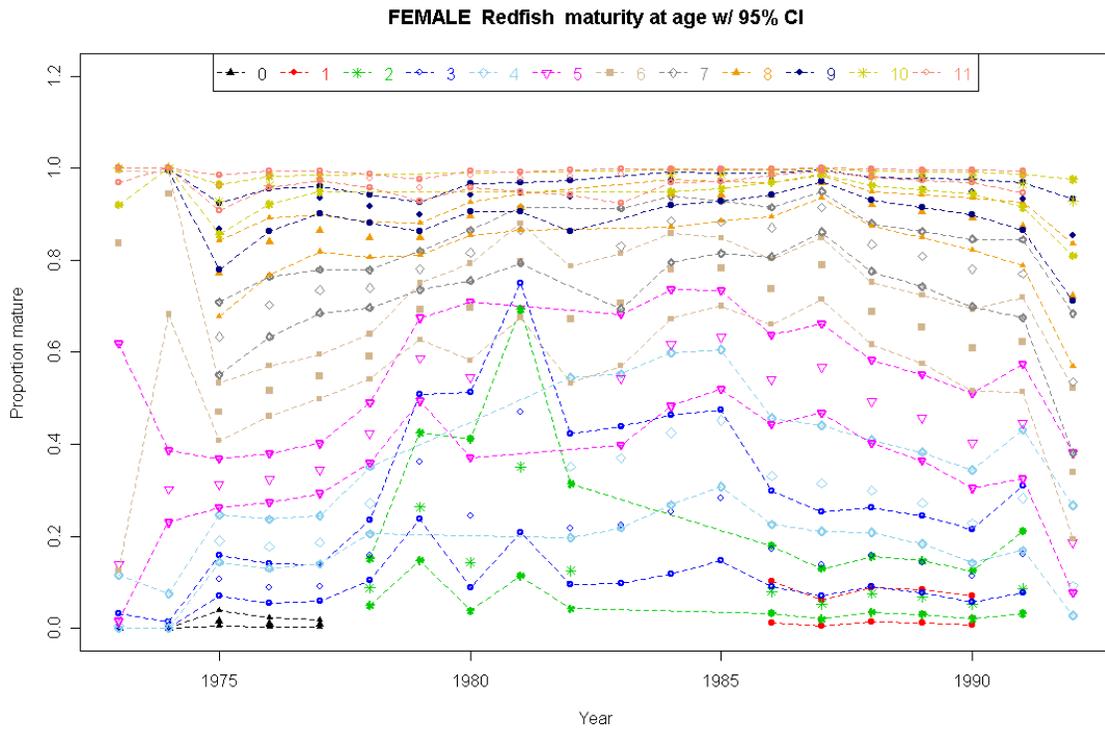


Figure 2.1 N2. Proportion mature at age with 95% confidence intervals for female redfish using a 5-year moving window for ages 0-11 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 5-year moving average for males (lower left panel) and females (lower right panel).

Georges Bank/Gulf of Maine Redfish (Combined Sex) Autumn 1975-2007

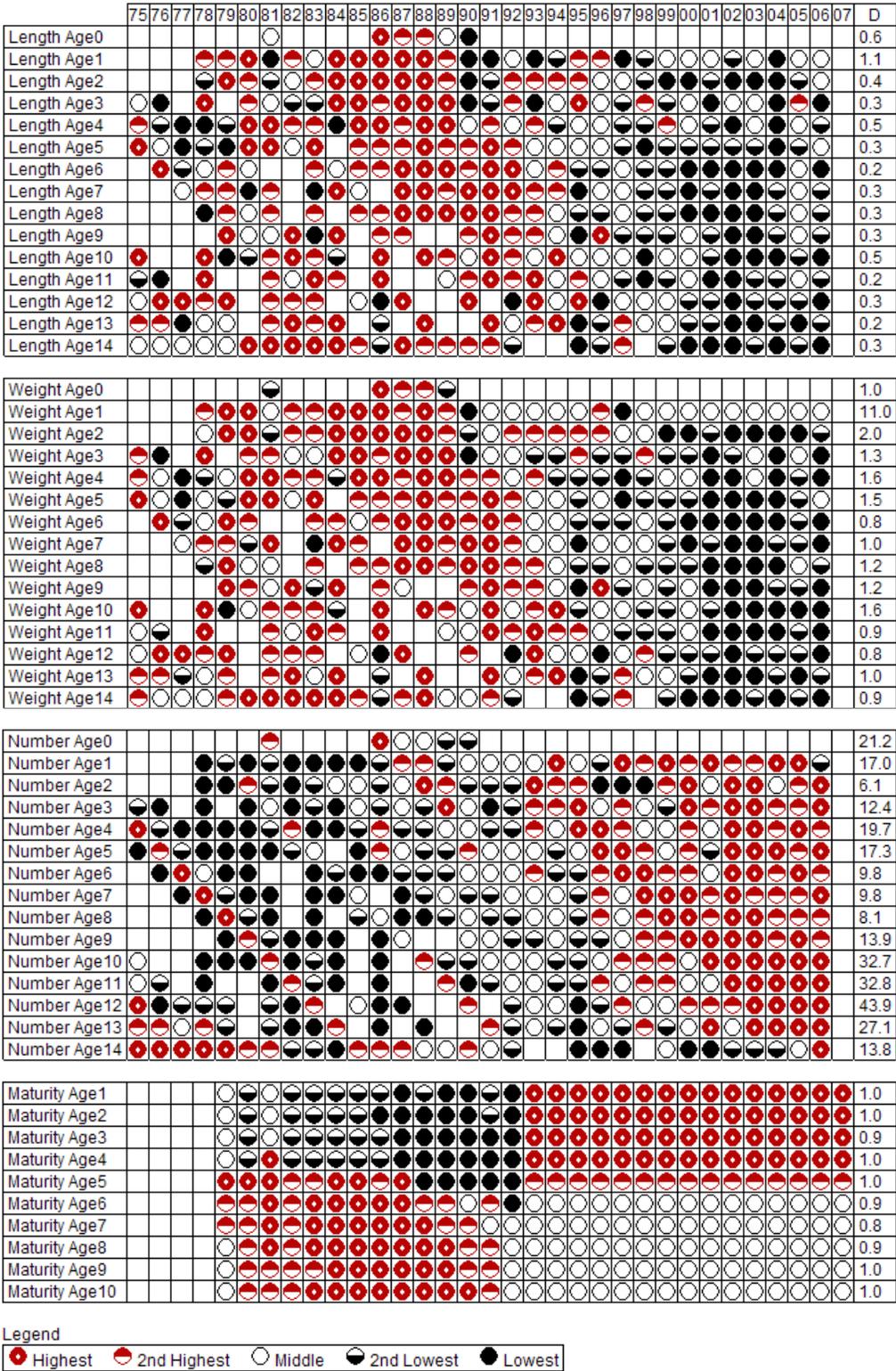


Figure 2.1.N3a. Quintiles of stratified mean length and weight, and number per tow, at age, of Georges Bank/Gulf of Maine Redfish sampled during autumn 1975-2006 and proportions mature at age sampled during spring 1979-2007 on NEFSC research bottom trawl surveys.

Georges Bank/Gulf of Maine Redfish (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.3 |
| Length Age3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age5 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age7 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.3 |
| Length Age9 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.3 |
| Length Age11 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age13 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |
| Length Age14 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.2 |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 1.0 |
| Weight Age3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |
| Weight Age4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.5 |
| Weight Age5 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |
| Weight Age6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |
| Weight Age7 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.7 |
| Weight Age8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 1.0 |
| Weight Age9 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |
| Weight Age10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 1.0 |
| Weight Age11 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |
| Weight Age12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.9 |
| Weight Age13 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.7 |
| Weight Age14 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |

| | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|
| Number Age1 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 5.6 |
| Number Age3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 4.6 |
| Number Age4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 12.3 |
| Number Age5 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 6.7 |
| Number Age6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 4.3 |
| Number Age7 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 3.9 |
| Number Age8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 2.5 |
| Number Age9 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 3.1 |
| Number Age10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 9.4 |
| Number Age11 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 13.5 |
| Number Age12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 11.0 |
| Number Age13 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 26.1 |
| Number Age14 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 9.0 |

| | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 1.0 |
| Maturity Age2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 1.0 |
| Maturity Age3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.9 |
| Maturity Age4 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.8 |
| Maturity Age5 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.6 |
| Maturity Age6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.3 |
| Maturity Age7 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.1 |
| Maturity Age8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.4 |
| Maturity Age9 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.7 |
| Maturity Age10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 0.9 |

Legend

 D = Measure of Dispersion: Range/Median

Figure 2.1.N3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Georges Bank/Gulf of Maine Redfish sampled during autumn 1992-2006 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

Georges Bank/Gulf of Maine Redfish (Male) Autumn 1992-2006

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | | | | | ● | | | | | | ● | | | | | 0.4 |
| Length Age2 | ○ | ● | ○ | ● | ● | ● | ● | ○ | ● | ● | ● | | | ○ | ● | 0.3 |
| Length Age3 | ● | ○ | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age4 | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age5 | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age6 | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age7 | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age8 | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age14 | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |

| | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | | | | | ● | | | | | | ● | | | | | 1.4 |
| Weight Age2 | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | 1.2 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.7 |
| Weight Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.6 |
| Weight Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.1 |
| Weight Age14 | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |

| | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|------|
| Number Age1 | | | | | ● | | | | | | ● | | | | | 0.4 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | 4.2 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 13.9 |
| Number Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 8.9 |
| Number Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 6.3 |
| Number Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.6 |
| Number Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.3 |
| Number Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.6 |
| Number Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 4.7 |
| Number Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 7.8 |
| Number Age11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 9.9 |
| Number Age12 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 11.7 |
| Number Age13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 16.6 |
| Number Age14 | ○ | | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 17.2 |

Legend
 ● Highest ● 2nd Highest ○ Middle ○ 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.N3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Georges Bank/Gulf of Maine Redfish sampled during autumn 1992-2006 on NEFSC research bottom trawl surveys.

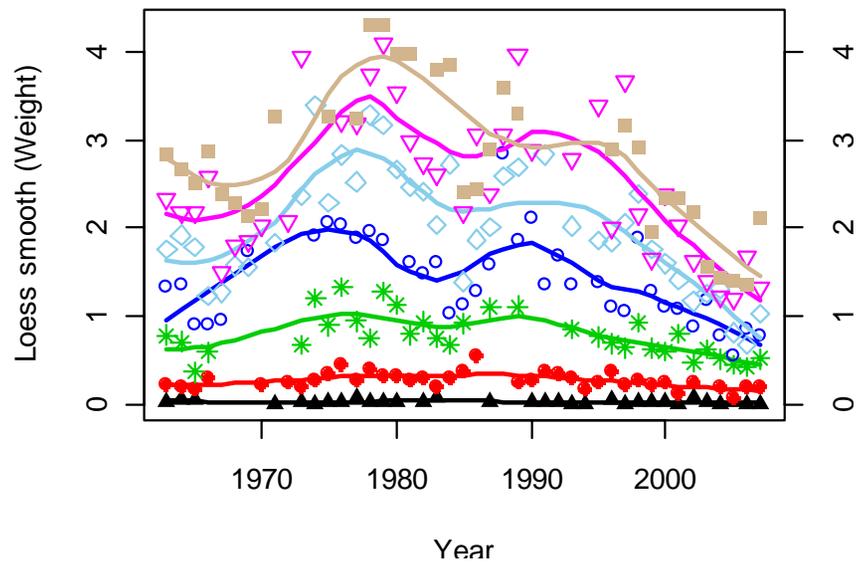
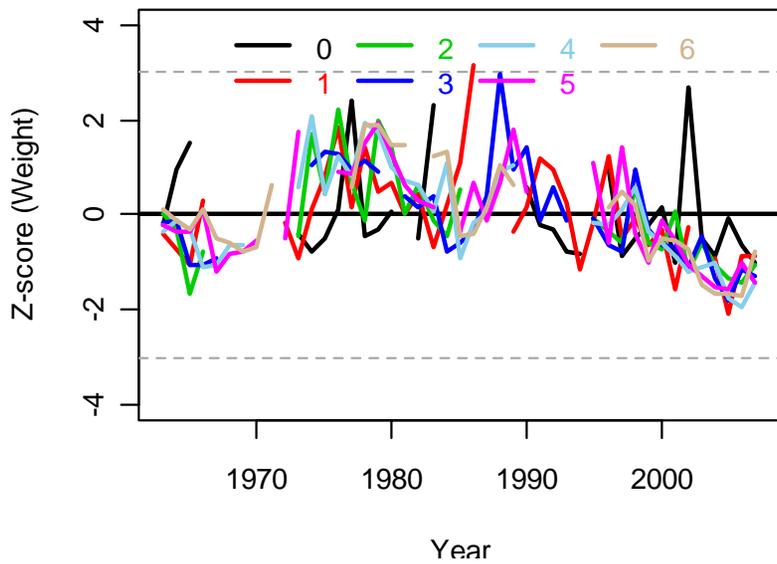
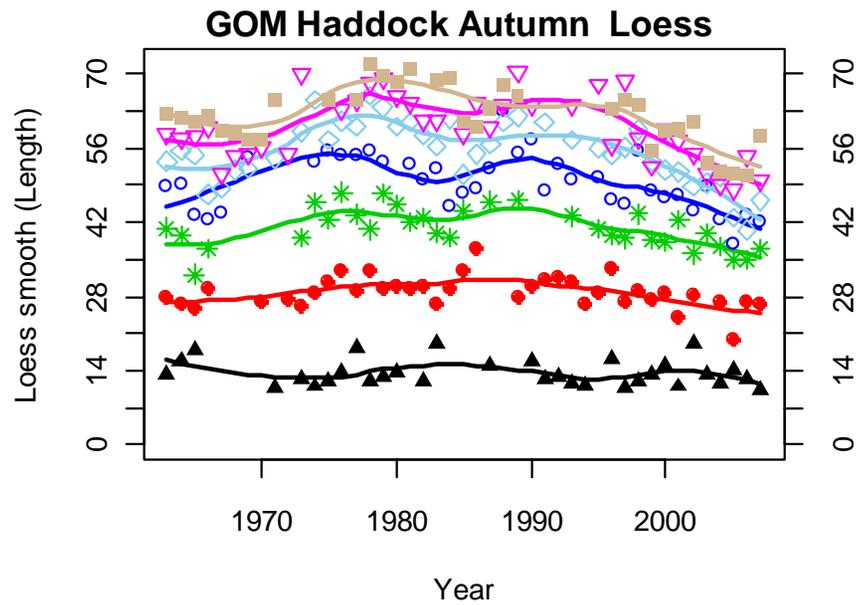
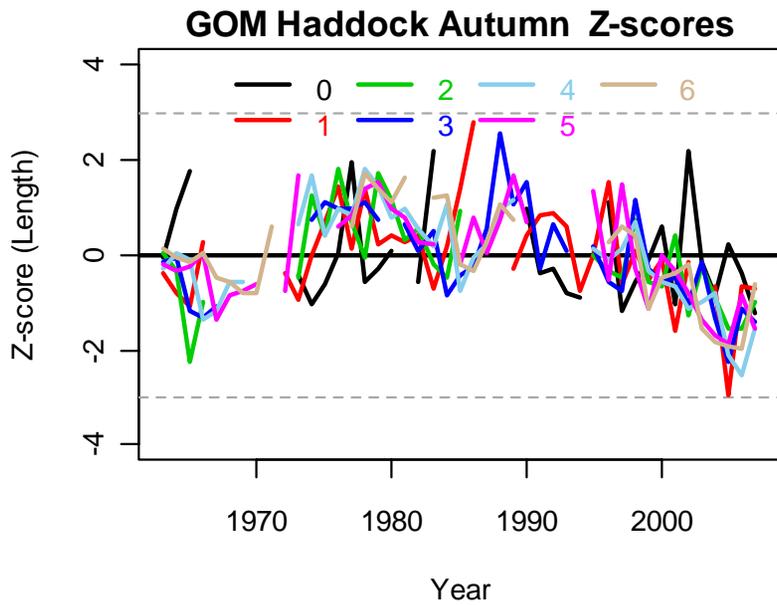


Figure 2.1. R1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for Gulf of Maine haddock, ages 0-6, from autumn bottom trawl research surveys during 1963-2007.

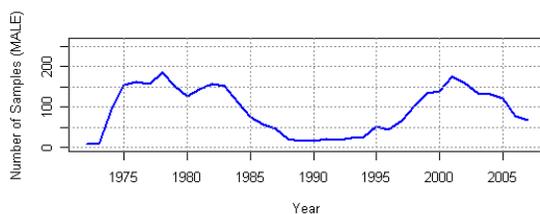
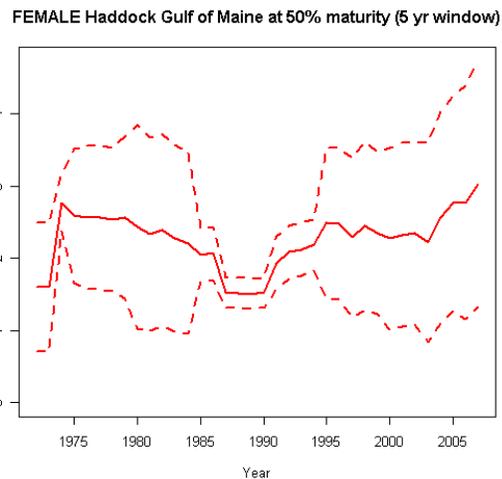
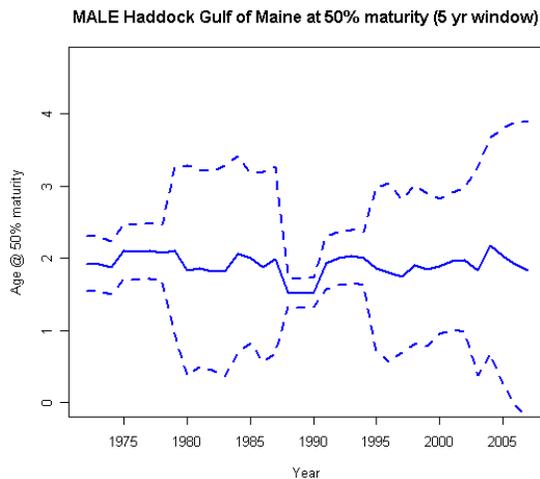
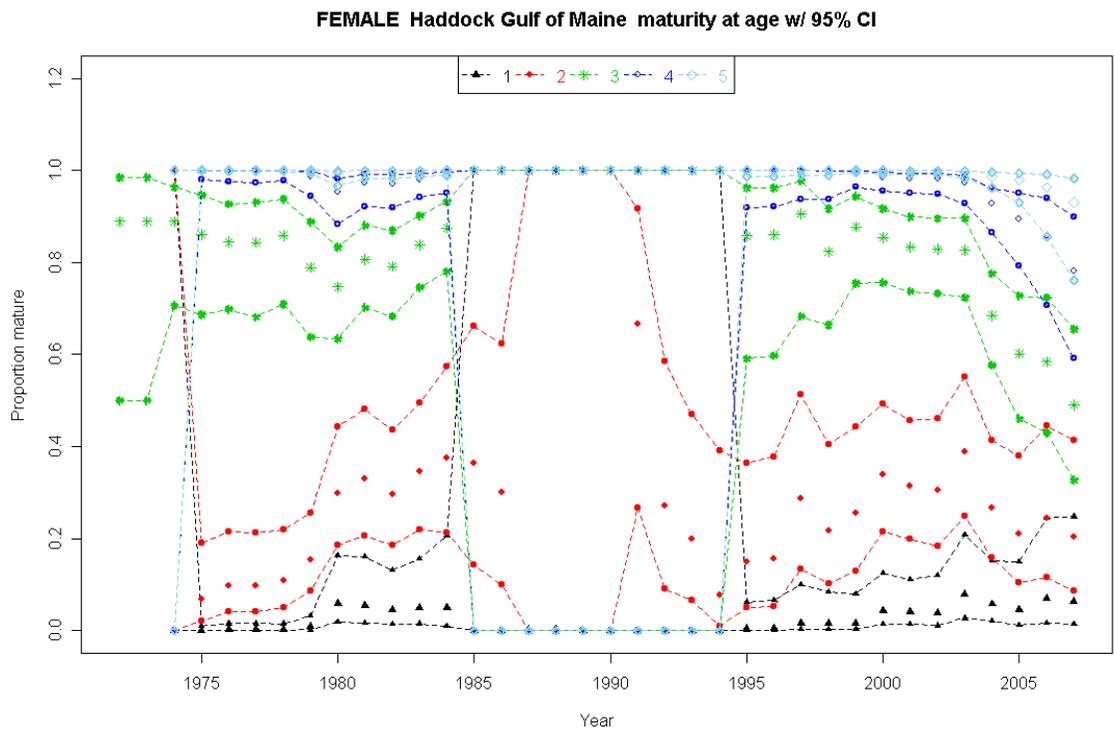


Figure 2.1 R2. Proportion mature at age with 95% confidence intervals for female Gulf of Maine haddock using a 5-year moving window for ages 1-5 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 5-year moving average for males (lower left panel) and females (lower right panel).

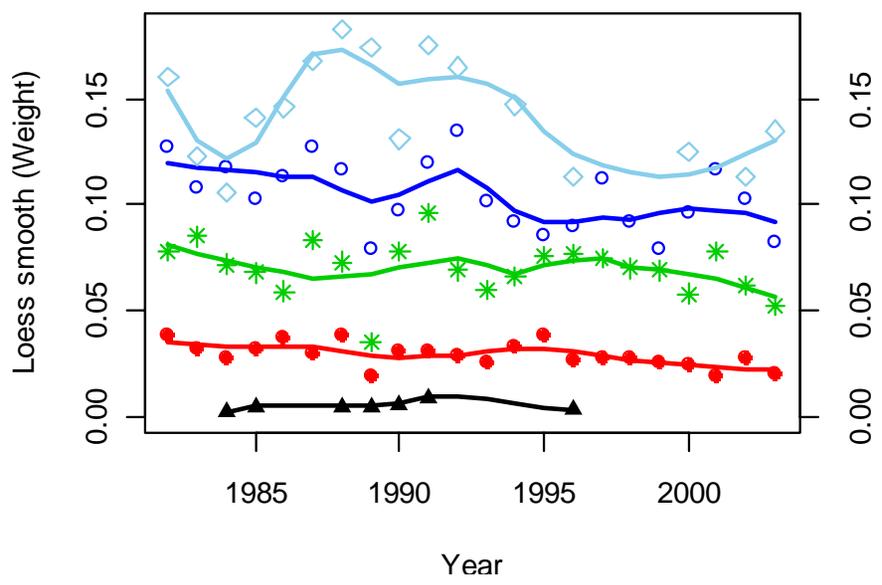
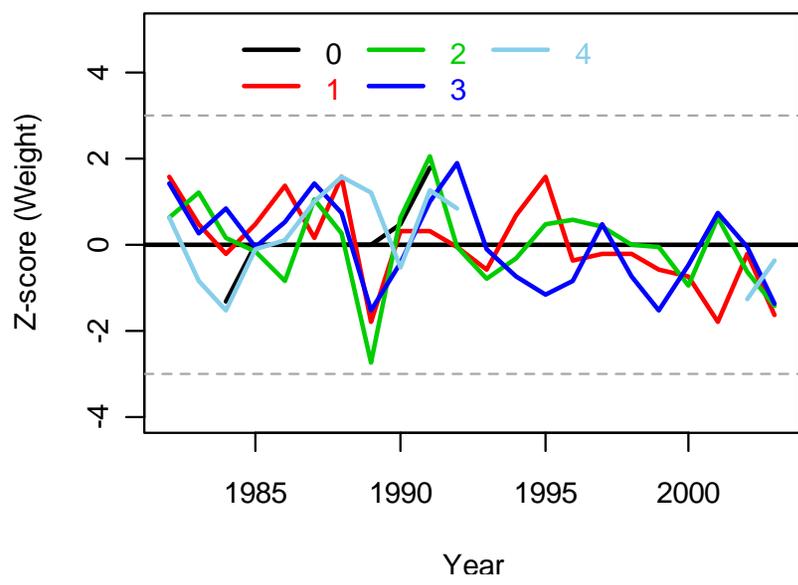
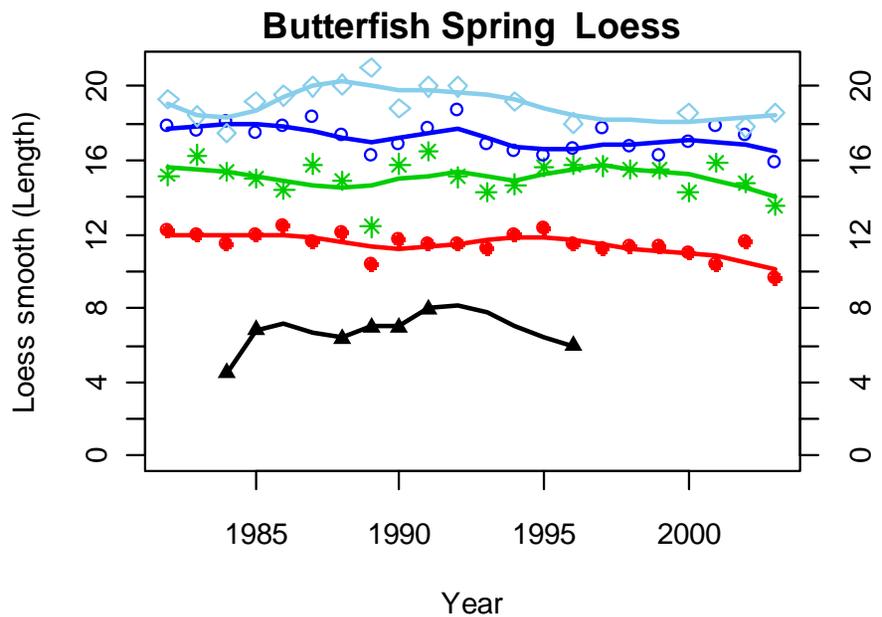
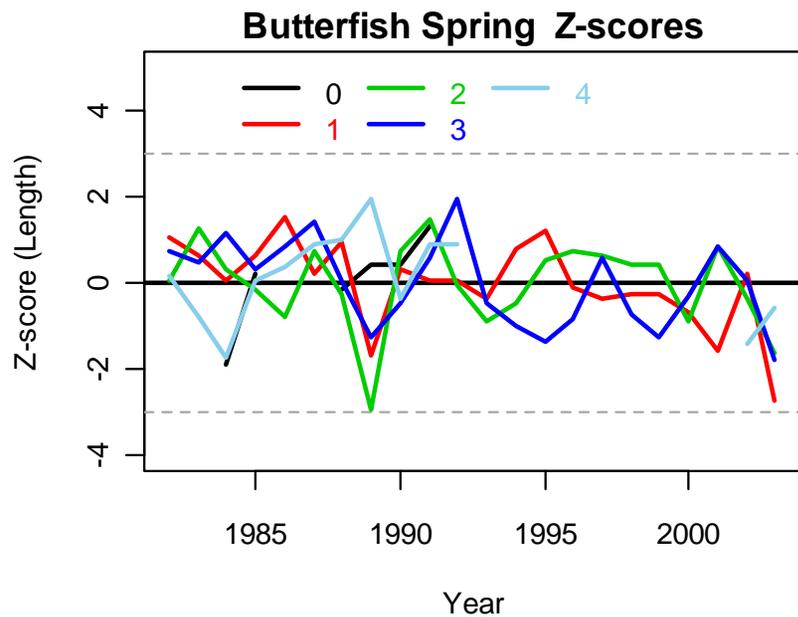


Figure 2.1. U1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for butterfish, ages 0-4, from spring bottom trawl research surveys during 1982-2003.

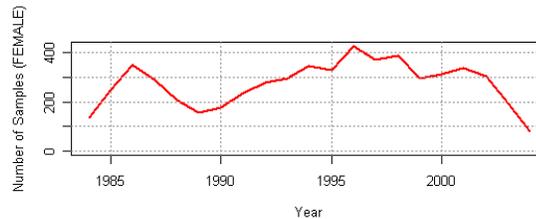
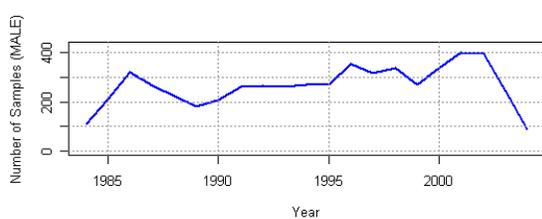
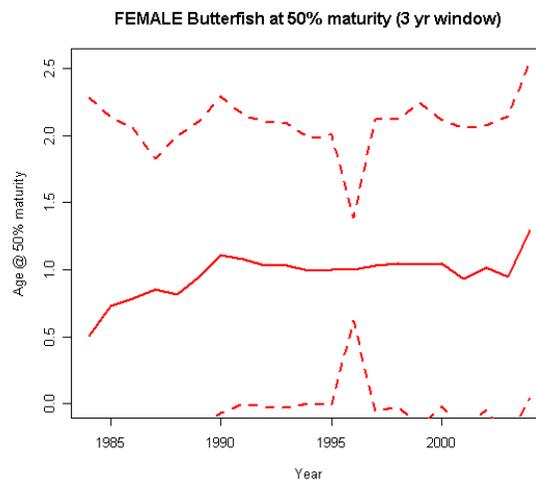
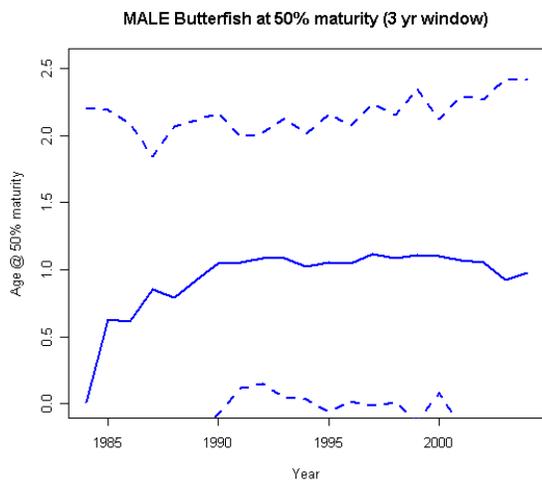
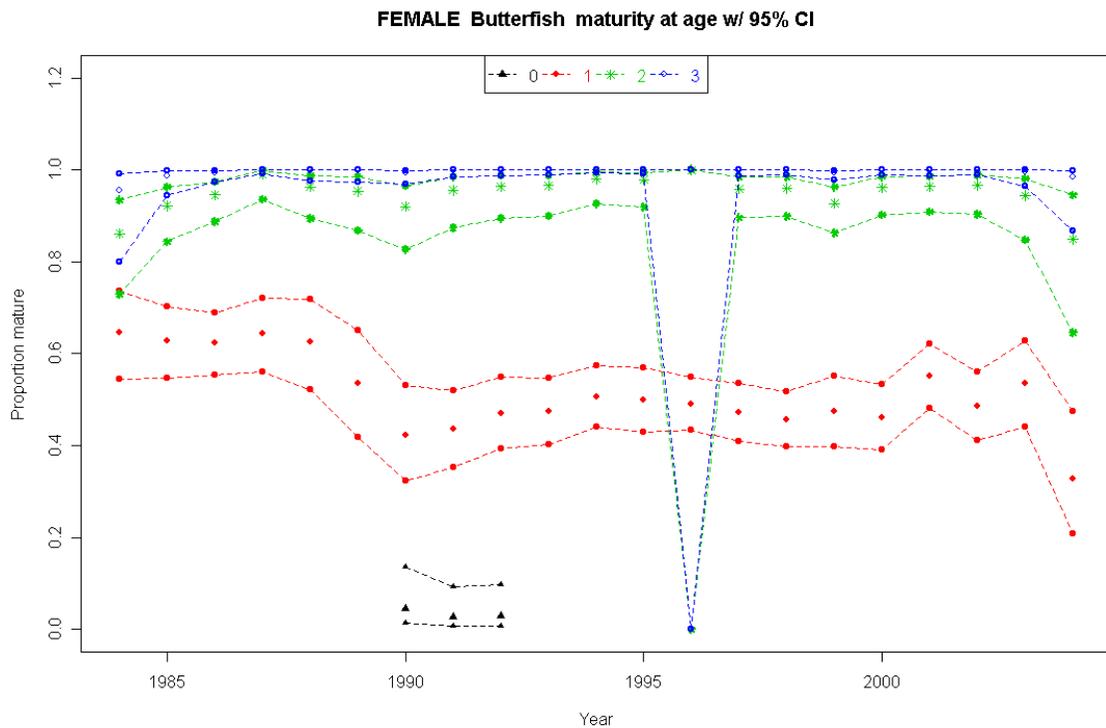
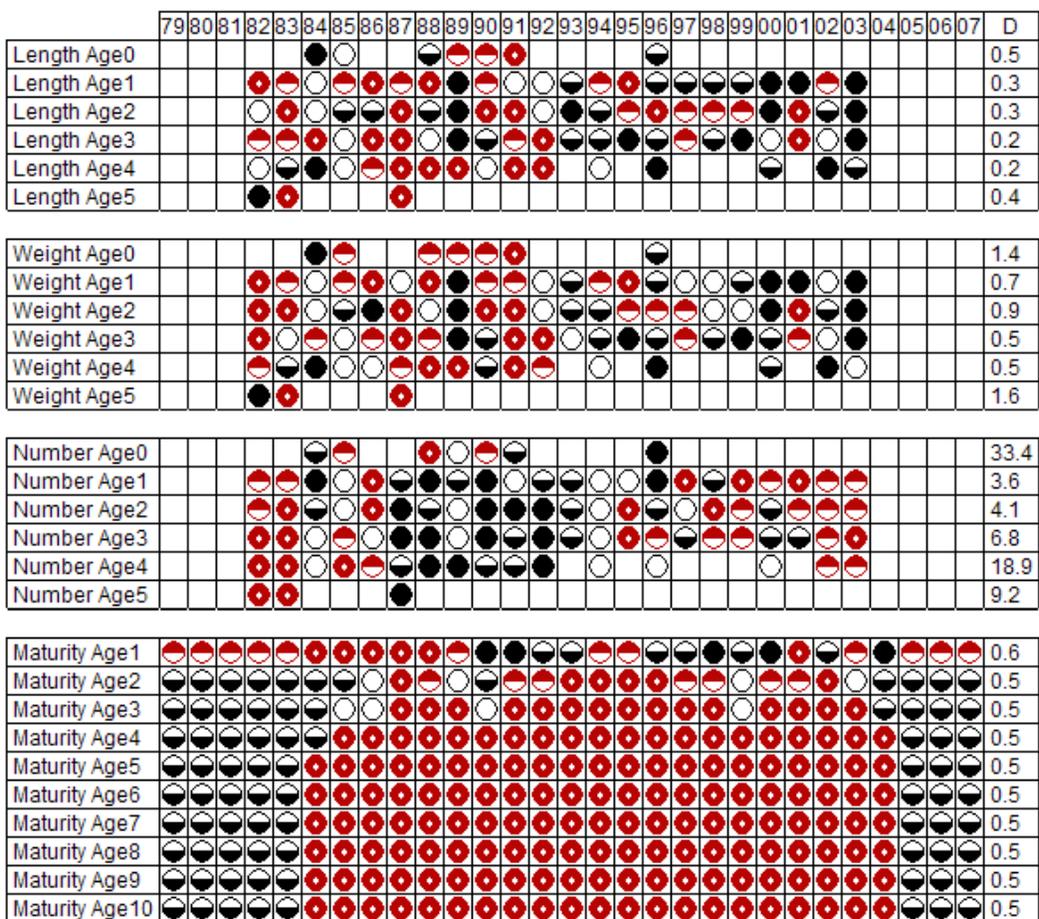


Figure 2.1 U2. Proportion mature at age with 95% confidence intervals for female butterfish using a 3-year moving window for ages 0-3 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

Butterfish Autumn 1979-2007



Legend
 ● Highest ○ 2nd Highest ○ Middle ○ 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.U3. Quintiles of stratified mean length and weight, and number per tow, at age, of Butterfish sampled during autumn 1982-2003 and proportions mature at age sampled during spring 1979-2007 on NEFSC research bottom trawl surveys.

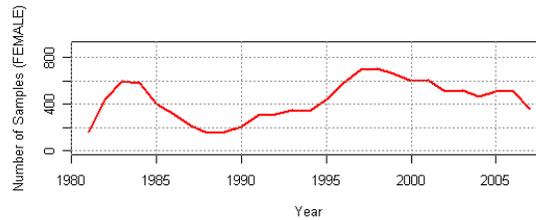
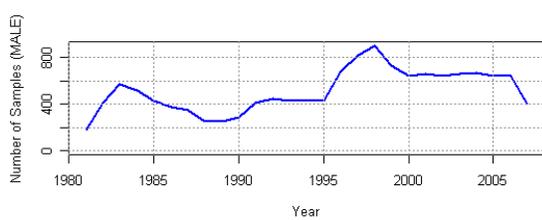
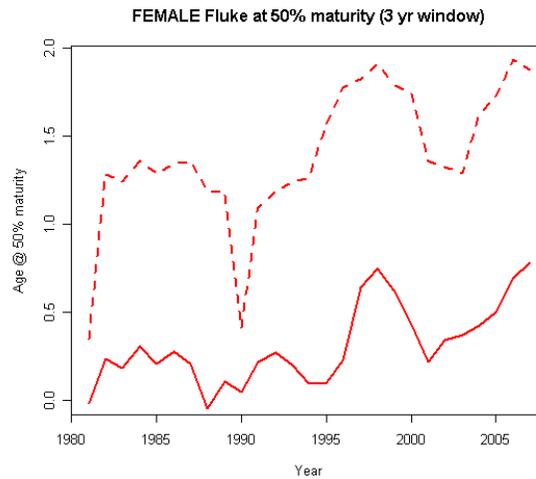
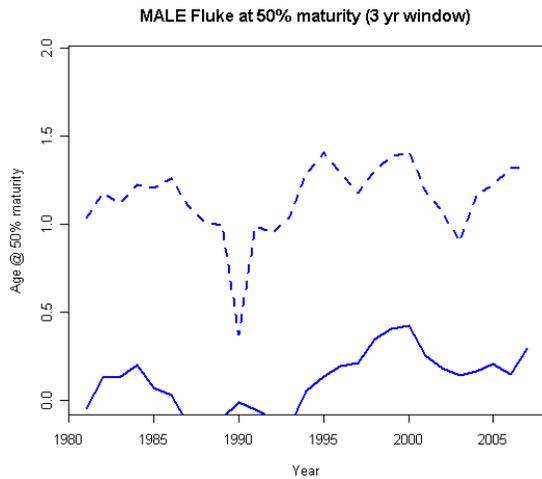
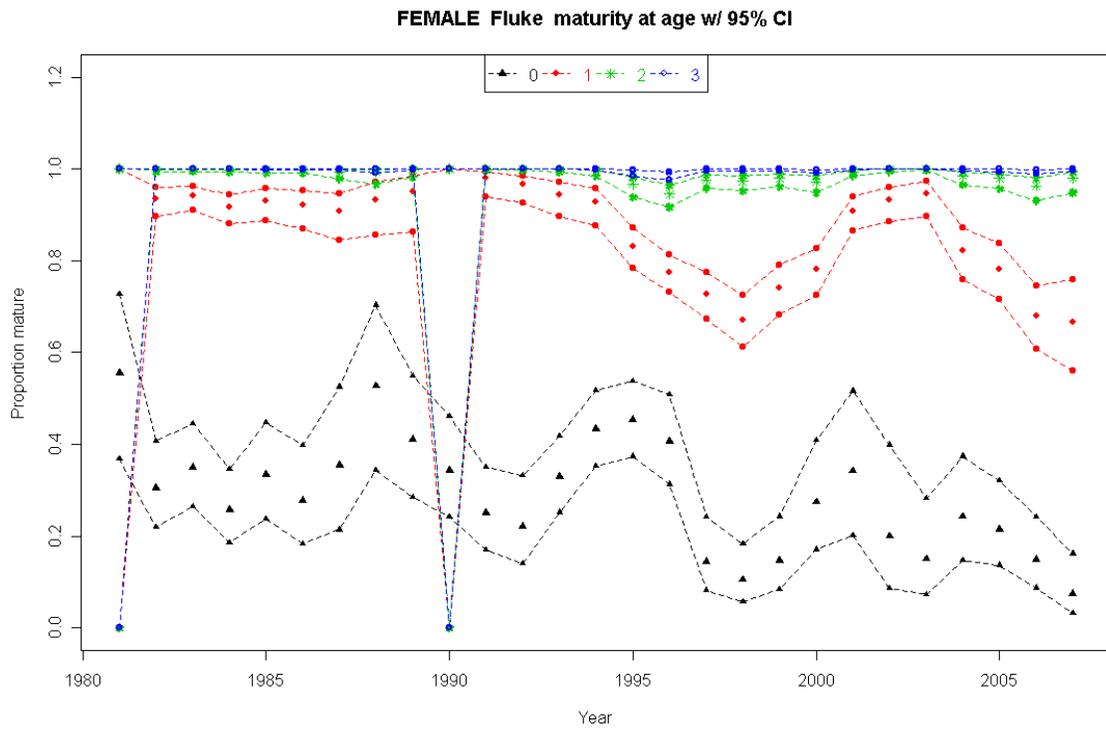
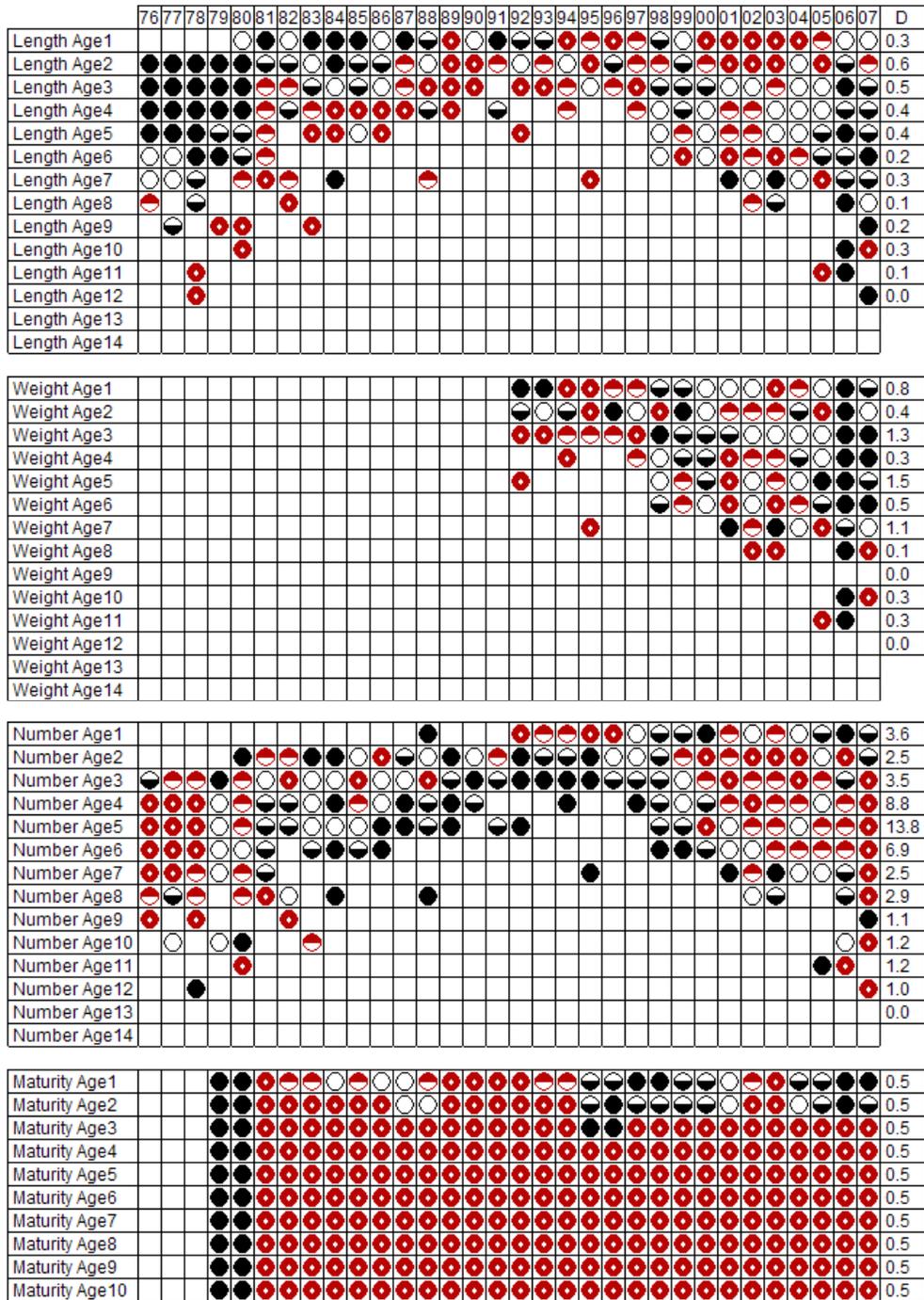


Figure 2.1 V2. Proportion mature at age with 95% confidence intervals for female fluke using a 3-year moving window for ages 0-3 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

Fluke (Combined Sex) Autumn 1976-2007



Legend
 ● Highest ● 2nd Highest ○ Middle ● 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.V3a. Quintiles of stratified mean length and weight, and number per tow, at age, of Fluke sampled during autumn 1976-2007 and proportions mature at age sampled during spring 1979-2007 on NEFSC research bottom trawl surveys.

Fluke (Female) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.2 |
| Length Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Length Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.3 |
| Length Age4 | | | | | | | | | | | | | | | | | 0.1 |
| Length Age5 | ○ | | | | | | | | | | | | | | | | 0.3 |
| Length Age6 | | | | | | | | | | | | | | | | | 0.2 |
| Length Age7 | | | | | | | | | | | | | | | | | 0.1 |
| Length Age8 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age9 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age10 | | | | | | | | | | | | | | | | | 0.1 |
| Length Age11 | | | | | | | | | | | | | | | | | 0.1 |
| Length Age12 | | | | | | | | | | | | | | | | | |
| Length Age13 | | | | | | | | | | | | | | | | | |
| Length Age14 | | | | | | | | | | | | | | | | | |

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|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.8 |
| Weight Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.5 |
| Weight Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.9 |
| Weight Age4 | | | | | | | | | | | | | | | | | 0.3 |
| Weight Age5 | ○ | | | | | | | | | | | | | | | | 1.2 |
| Weight Age6 | | | | | | | | | | | | | | | | | 0.5 |
| Weight Age7 | | | | | | | | | | | | | | | | | 0.5 |
| Weight Age8 | | | | | | | | | | | | | | | | | 0.1 |
| Weight Age9 | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age10 | | | | | | | | | | | | | | | | | 0.3 |
| Weight Age11 | | | | | | | | | | | | | | | | | 0.3 |
| Weight Age12 | | | | | | | | | | | | | | | | | |
| Weight Age13 | | | | | | | | | | | | | | | | | |
| Weight Age14 | | | | | | | | | | | | | | | | | |

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|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Number Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2.4 |
| Number Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1.3 |
| Number Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 3.9 |
| Number Age4 | | | | | | | | | | | | | | | | | 2.9 |
| Number Age5 | ○ | | | | | | | | | | | | | | | | 2.7 |
| Number Age6 | | | | | | | | | | | | | | | | | 2.6 |
| Number Age7 | | | | | | | | | | | | | | | | | 1.4 |
| Number Age8 | | | | | | | | | | | | | | | | | 2.8 |
| Number Age9 | | | | | | | | | | | | | | | | | 0.0 |
| Number Age10 | | | | | | | | | | | | | | | | | 0.7 |
| Number Age11 | | | | | | | | | | | | | | | | | 1.3 |
| Number Age12 | | | | | | | | | | | | | | | | | |
| Number Age13 | | | | | | | | | | | | | | | | | |
| Number Age14 | | | | | | | | | | | | | | | | | |

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|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Maturity Age1 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.4 |
| Maturity Age2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.1 |
| Maturity Age3 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age6 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age7 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |
| Maturity Age10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 0.0 |

Legend
 ○ Highest ○ 2nd Highest ○ Middle ○ 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.V3b. Quintiles of stratified mean length and weight, and number per tow, at age, of Fluke sampled during autumn 1992-2007 and proportions mature at age sampled during spring 1992-2007 on NEFSC research bottom trawl surveys.

Fluke (Male) Autumn 1992-2007

| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | D |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| Length Age1 | ○ | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | 0.2 |
| Length Age2 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.1 |
| Length Age3 | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | 0.1 |
| Length Age4 | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | 0.2 |
| Length Age5 | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | 0.2 |
| Length Age6 | | | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | 0.0 |
| Length Age7 | | | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | 0.1 |
| Length Age8 | | | | | | | | | | | | | | | | | |
| Length Age9 | | | | | | | | | | | | | | | | | |
| Length Age10 | | | | | | | | | | | | | | | | | |
| Length Age11 | | | | | | | | | | | | | | | | | |
| Length Age12 | | | | | | | | | | | | | | | | | 0.0 |
| Length Age13 | | | | | | | | | | | | | | | | | |
| Length Age14 | | | | | | | | | | | | | | | | | |

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|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Weight Age1 | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.7 |
| Weight Age2 | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 0.4 |
| Weight Age3 | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | 0.4 |
| Weight Age4 | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | 0.7 |
| Weight Age5 | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | 0.6 |
| Weight Age6 | | | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | 0.2 |
| Weight Age7 | | | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | 0.3 |
| Weight Age8 | | | | | | | | | | | | | | | | | | |
| Weight Age9 | | | | | | | | | | | | | | | | | | |
| Weight Age10 | | | | | | | | | | | | | | | | | | |
| Weight Age11 | | | | | | | | | | | | | | | | | | |
| Weight Age12 | | | | | | | | | | | | | | | | | | 0.0 |
| Weight Age13 | | | | | | | | | | | | | | | | | | |
| Weight Age14 | | | | | | | | | | | | | | | | | | |

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|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|-----|
| Number Age1 | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 3.7 | |
| Number Age2 | ● | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | ◞ | ◟ | 2.3 |
| Number Age3 | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | ◝ | 2.5 |
| Number Age4 | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | ◜ | 3.7 |
| Number Age5 | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | ◙ | ◚ | ◛ | 1.3 |
| Number Age6 | | | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | 3.2 |
| Number Age7 | | | | | | | | | ◐ | ◑ | ◒ | ◓ | ◔ | ◕ | ◖ | ◗ | ◘ | 1.2 |
| Number Age8 | | | | | | | | | | | | | | | | | | |
| Number Age9 | | | | | | | | | | | | | | | | | | |
| Number Age10 | | | | | | | | | | | | | | | | | | |
| Number Age11 | | | | | | | | | | | | | | | | | | |
| Number Age12 | | | | | | | | | | | | | | | | | | 0.0 |
| Number Age13 | | | | | | | | | | | | | | | | | | |
| Number Age14 | | | | | | | | | | | | | | | | | | |

Legend
 ◐ Highest ◑ 2nd Highest ○ Middle ◒ 2nd Lowest ● Lowest
 D = Measure of Dispersion: Range/Median

Figure 2.1.V3c. Quintiles of stratified mean length and weight, and number per tow, at age, of Fluke sampled during autumn 1992-2007 on NEFSC research bottom trawl surveys.

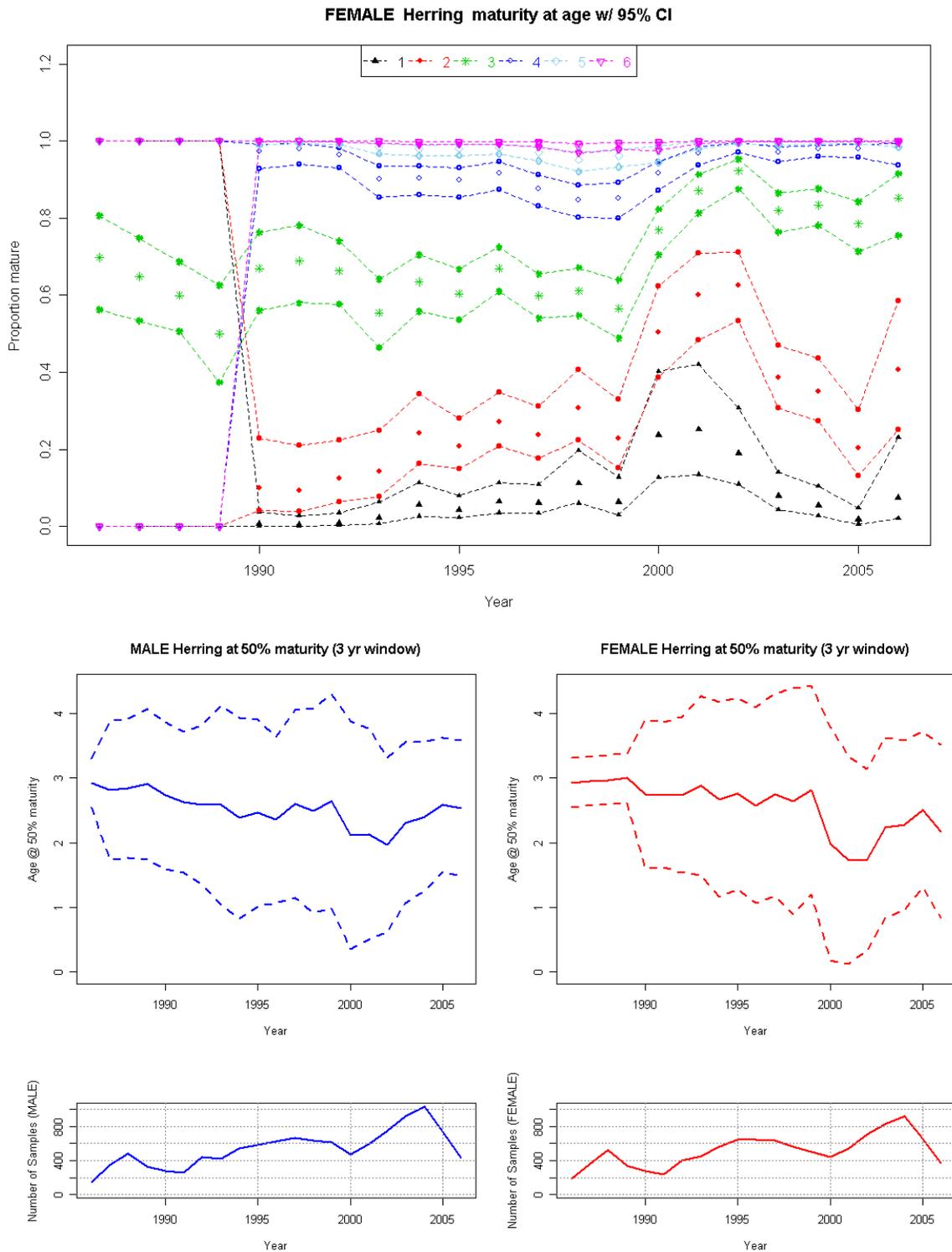


Figure 2.1 W2. Proportion mature at age with 95% confidence intervals for female Atlantic herring using a 3-year moving window for ages 1-6 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

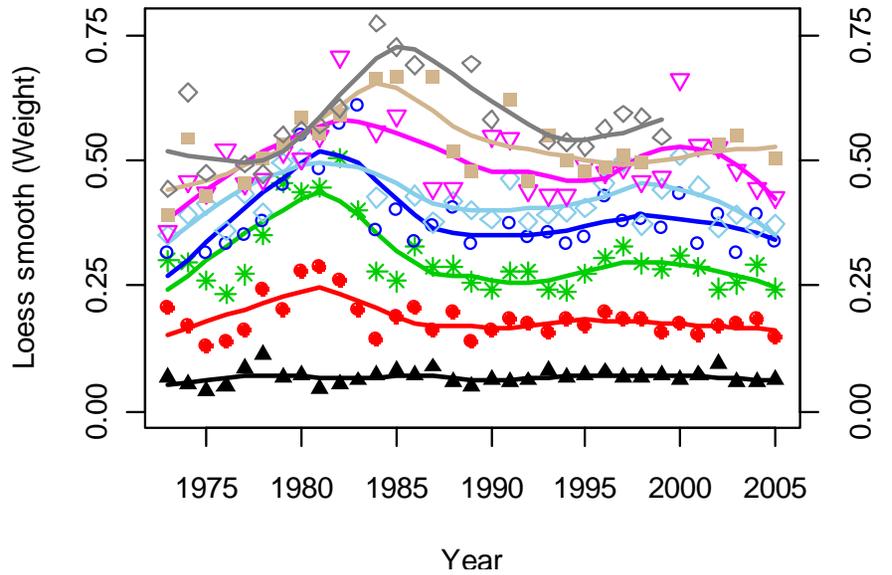
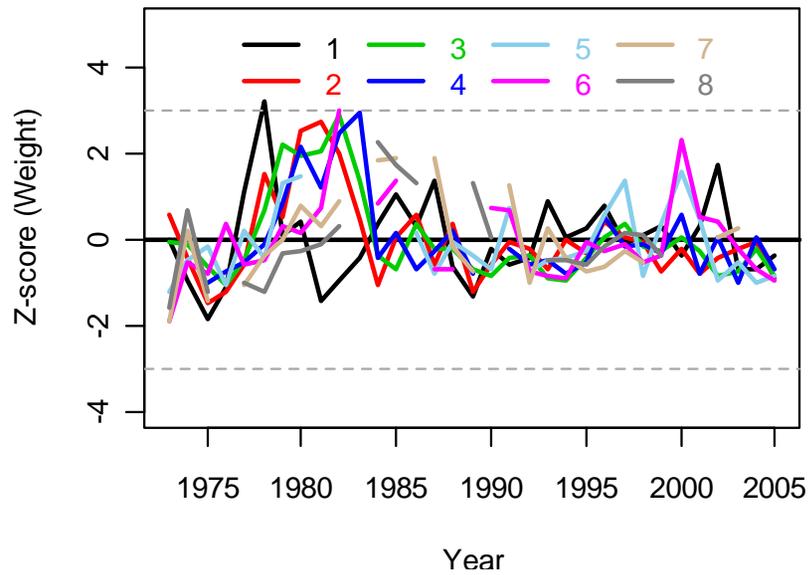
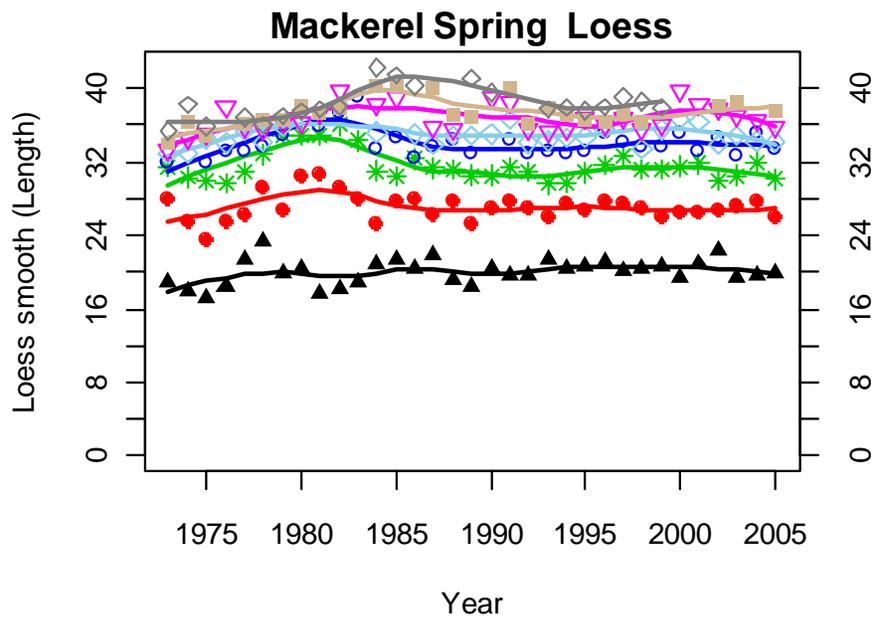
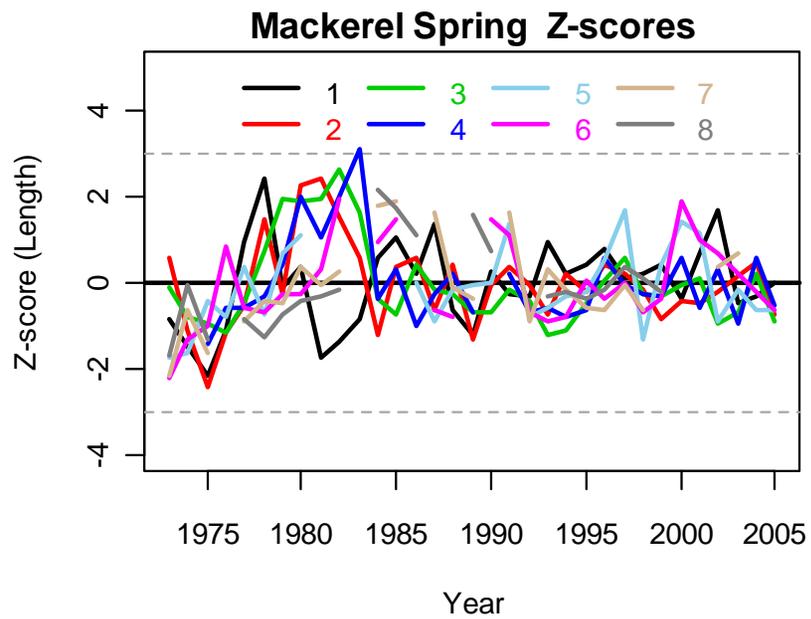


Figure 2.1. X1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for mackerel, ages 1-8, from spring bottom trawl research surveys during 1973-2005.

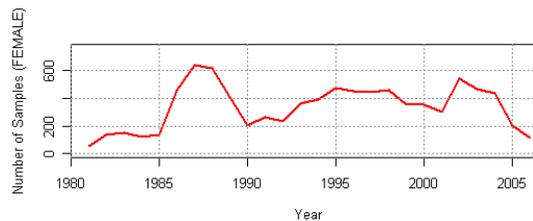
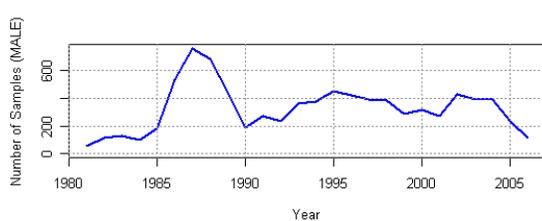
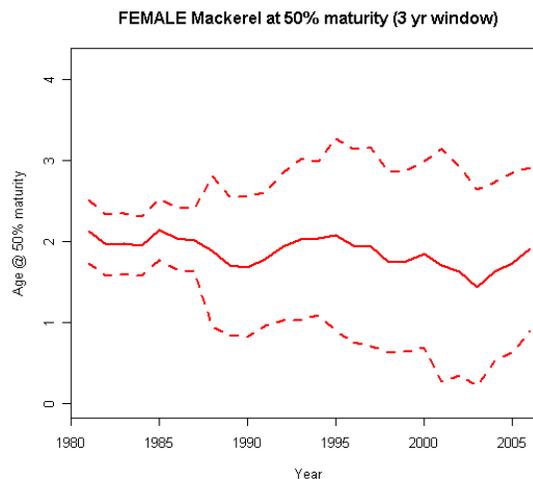
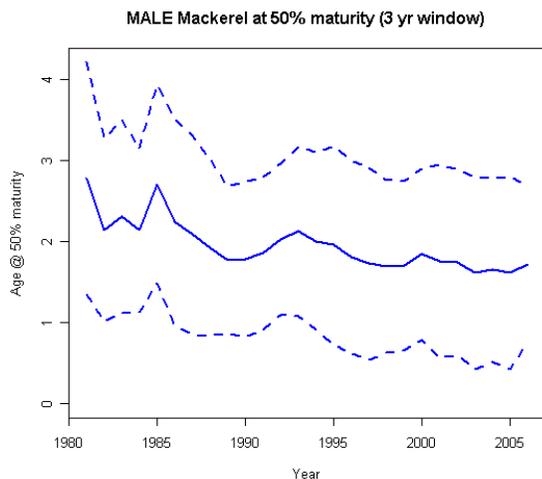
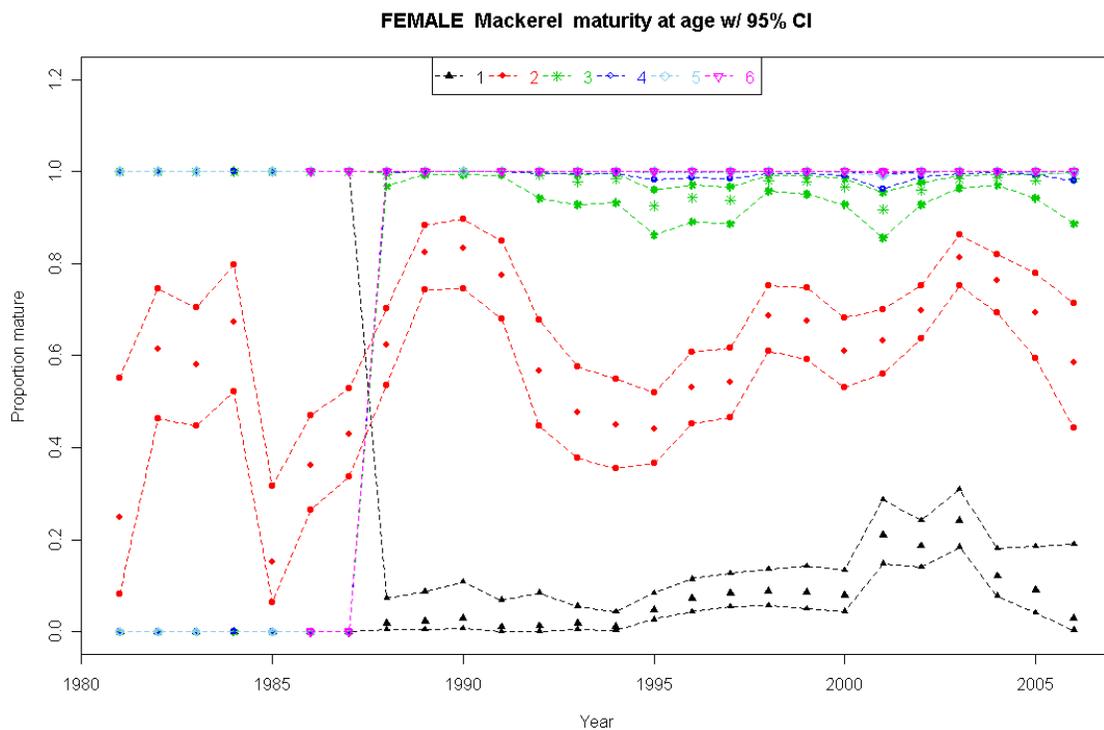


Figure 2.1 X2. Proportion mature at age with 95% confidence intervals for female mackerel using a 3-year moving window for ages 1-6 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

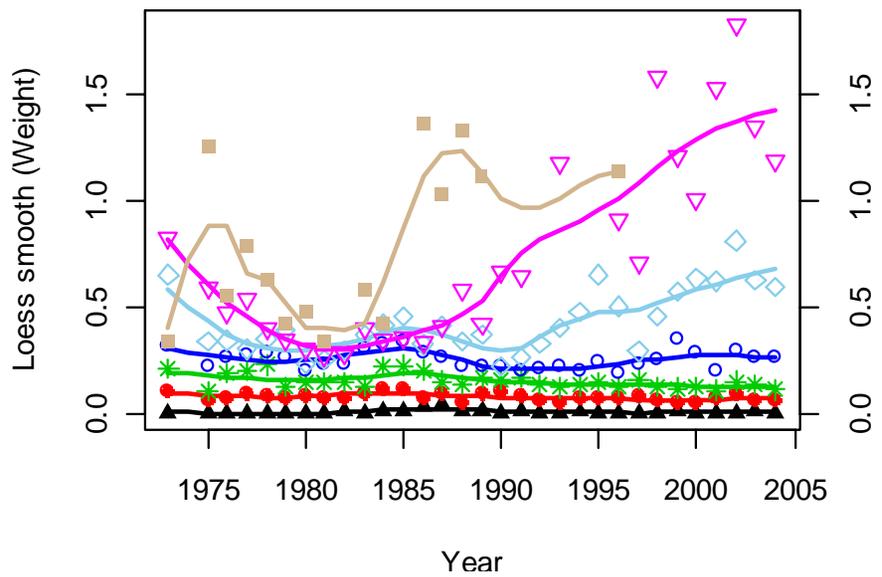
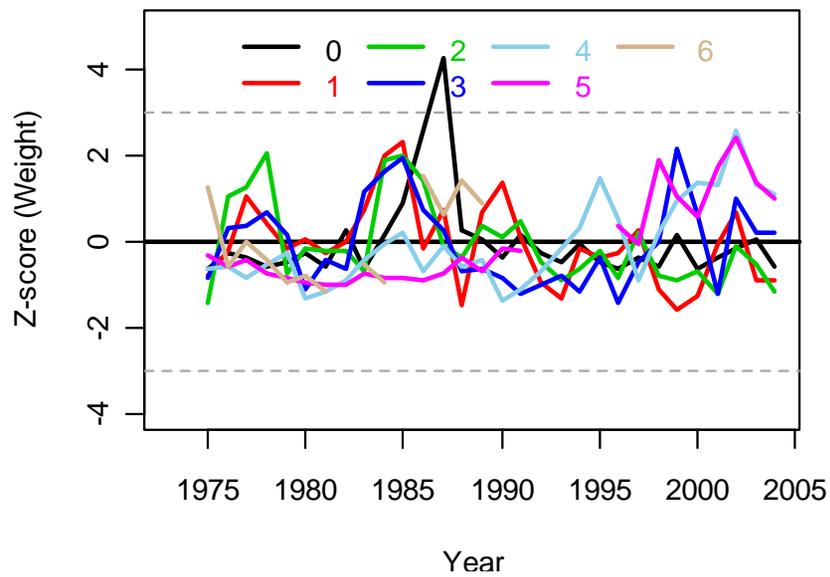
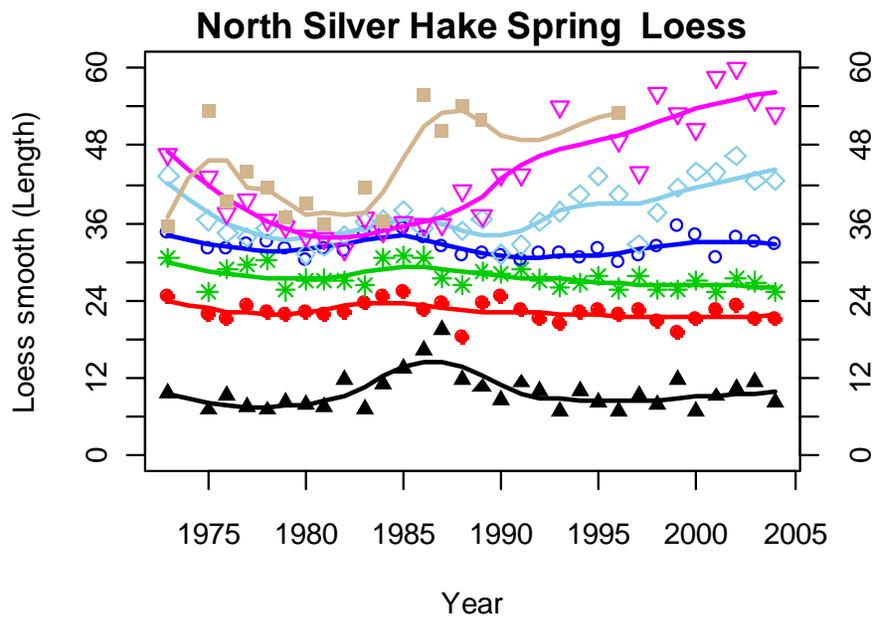
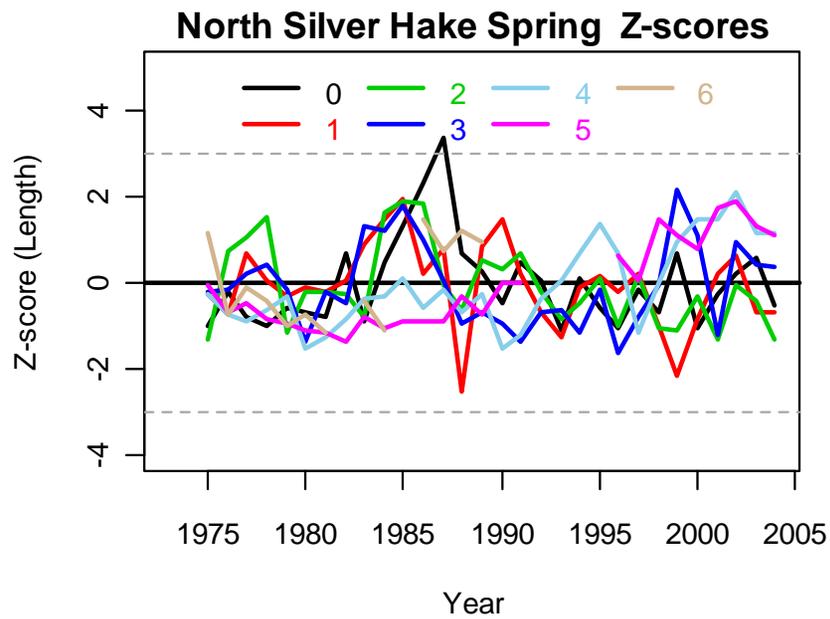


Figure 2.1. Y1. Stratified mean lengths (upper panels) and mean weights (lower panels) at age presented as Z-scores and with a loess smoother (tension=0.5) for northern silver hake, ages 0-6, from spring bottom trawl research surveys during 1973-2004.

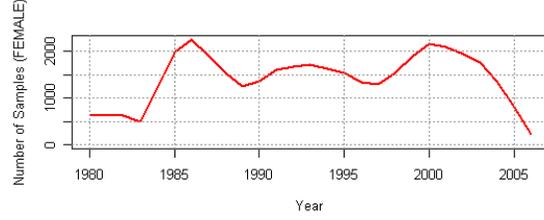
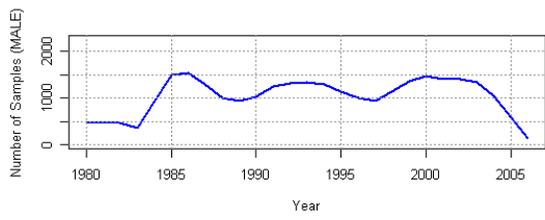
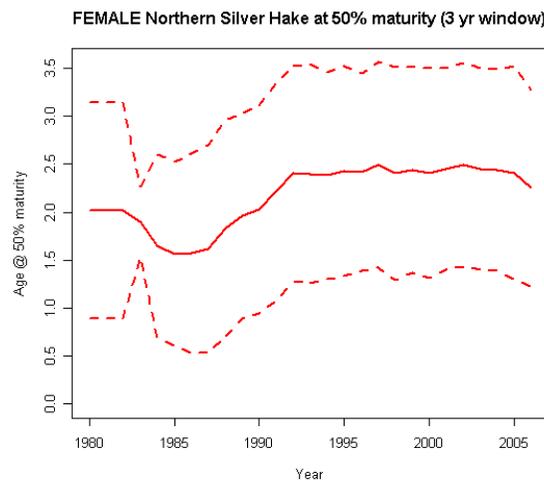
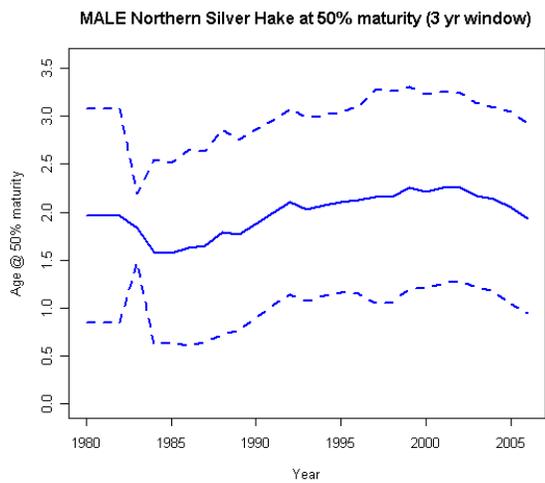
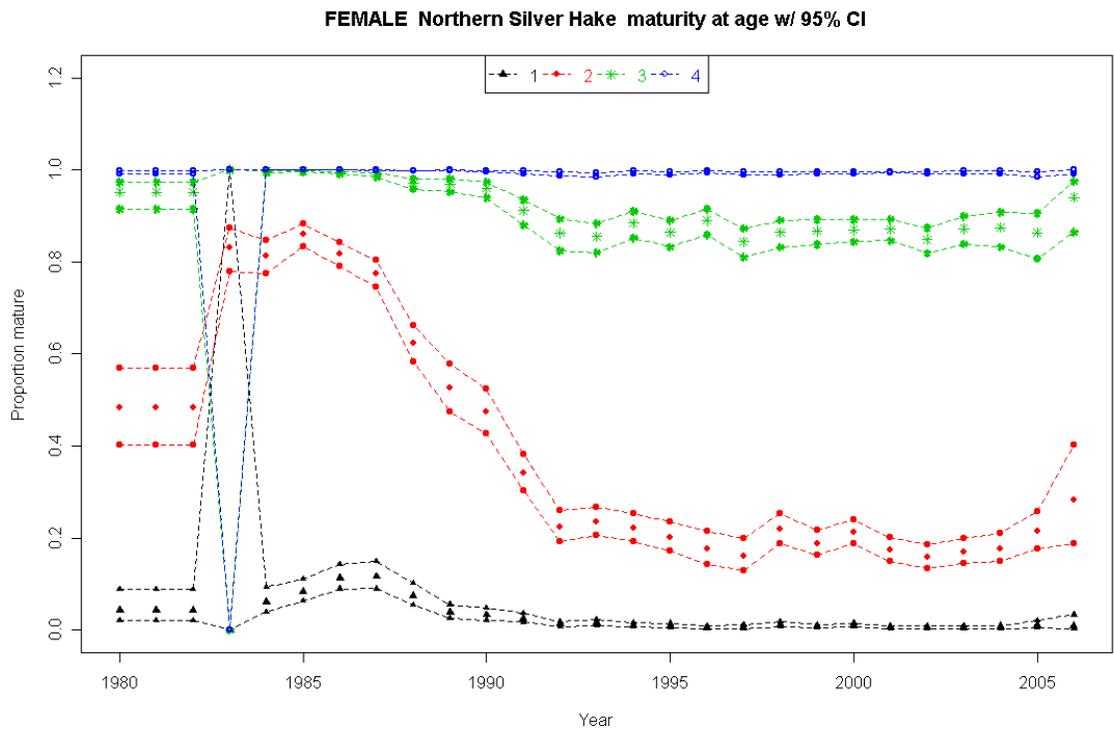


Figure 2.1 Y2. Proportion mature at age with 95% confidence intervals for female northern silver hake using a 3-year moving window for ages 1-4 (upper panel), median age at maturity (A_{50}) for males (middle left panel) and females (middle right panel) with 95% confidence intervals, and number of samples in the combined 3-year moving average for males (lower left panel) and females (lower right panel).

