Age based data - signal in the data

Assignment

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Catch and survey index for the Icelandic cod from 1955 to 2017 is provided. It contains the following variables:

* year: Year sampled
* age: Estimated age
* oC: Observed catch in millions
* cW: Catch weights in kg
* oU: Survey index (spring survey)
* sW: Stock weights in kg

Using the software of your choice:

1. Calculate the total yield (in thousand tonnes) for each of the yearclasses 1985 to 2008.
2. Plot the yield of these yearclasses as a function of the survey index at age 3. Estimate the parameters of a straight linear regression.
3. It has been observed that part of the 1985 year class grew up as juvenile in Greenlandic waters, that part migrating back to Icelandic waters as it reached maturity (age 6-7). In light of that information comment on the appropriateness of including that year class in the above plot.
4. Estimate the likely yield of the incoming yearclasses 2011 to 2014 based on the relationship above
5. Catch curve analysis: Estimate the total mortality of yearclasses 1985, 1990, 1995, 2000 and 2005 from the decline in the catch ate age from age 6 to 12. Comment on the likely development of the fishing mortality over time based on these estimates.