Science, Service, Stewardship

Assessing the Reliability of Species Identifications in the RACE Database

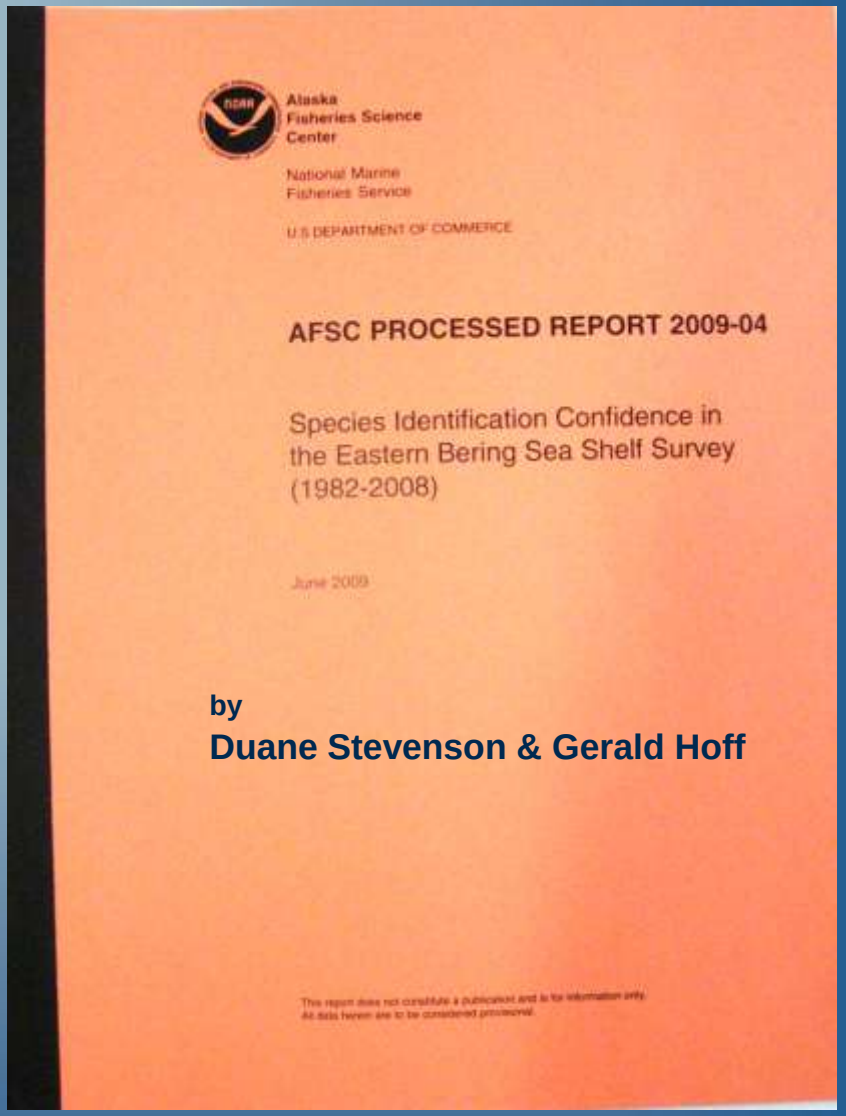
NOAA FISHERIES SERVICE

- Relative susceptibility to bottom trawl gear, precision of catch processing, and identification confidence vary by taxon and through time

- Internal and external users of RACE groundfish survey data are not necessarily aware of all the limitations of these data.

- The Goal: To provide guidance to users of RACE groundfish survey data by helping to answer the question for all fish and invertebrate taxa:

  How reliable and consistent are identifications of the taxon?



http://www.afsc.noaa.gov/Publications/ProcRpt/PR2009-04.pdf

Resources for Assessments

1 - database trends

2 - rare or unusual records

3 - current knowledge of species and accurate identifications

4 - taxonomic changes and species recognitions

Levels of Reliability

Three levels of identification confidence:

1 – **High confidence and consistency in field identifications**. Taxonomy is stable and reliable at this level, and field identification characteristics are well known and reliable. Example: Pacific Halibut

2 – **Moderate confidence and/or consistency**. Taxonomy may be questionable at this level, field identification characteristics may be variable or difficult to assess consistently, or new field identification tools or protocols are being implemented. Example: Bering flounder

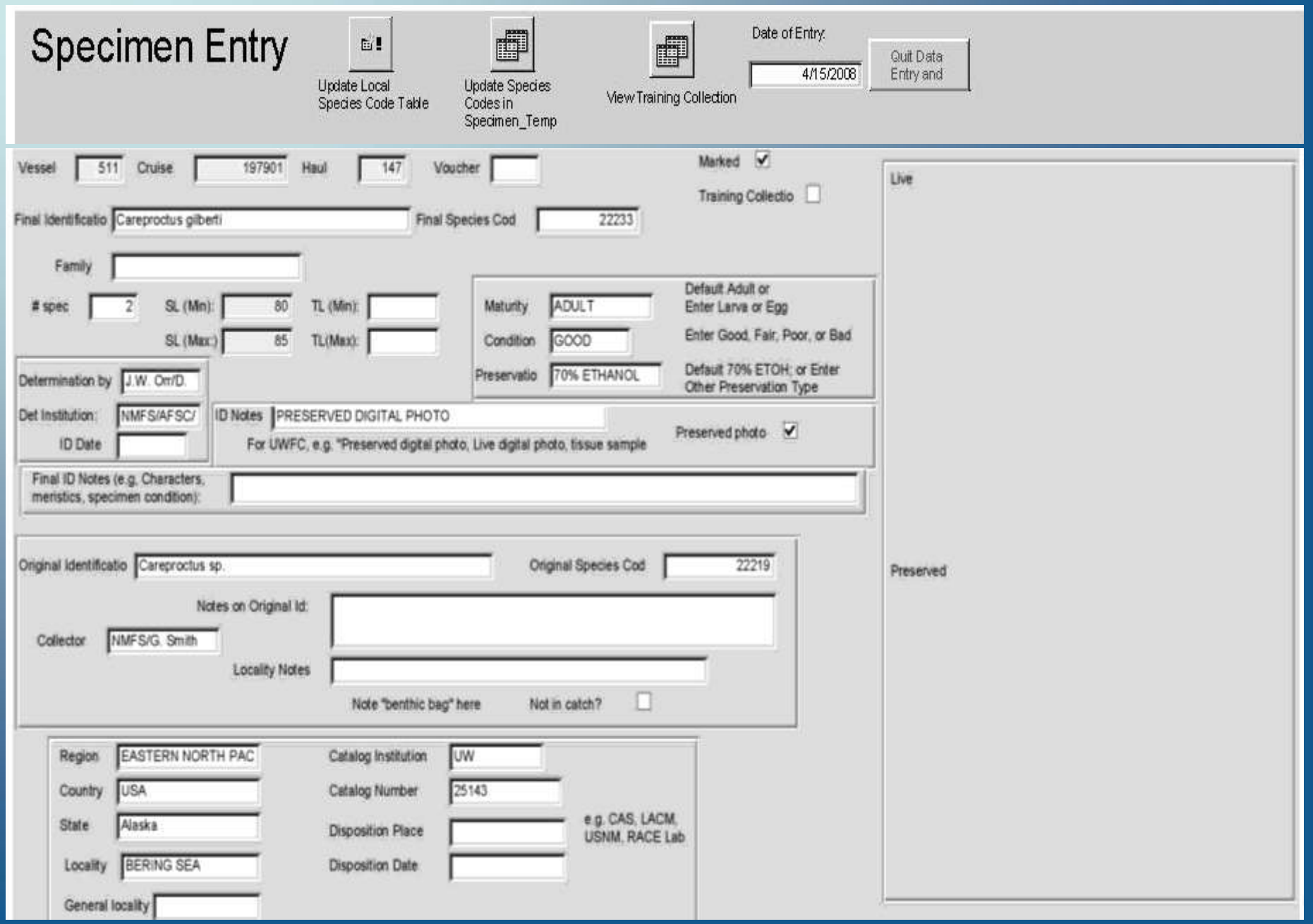
3 – **Low confidence**. Taxonomy is incompletely known or controversial, or reliable field identification characteristics are unknown, or the species is unknown from the region. Example: *Raja stellulata* starry skate

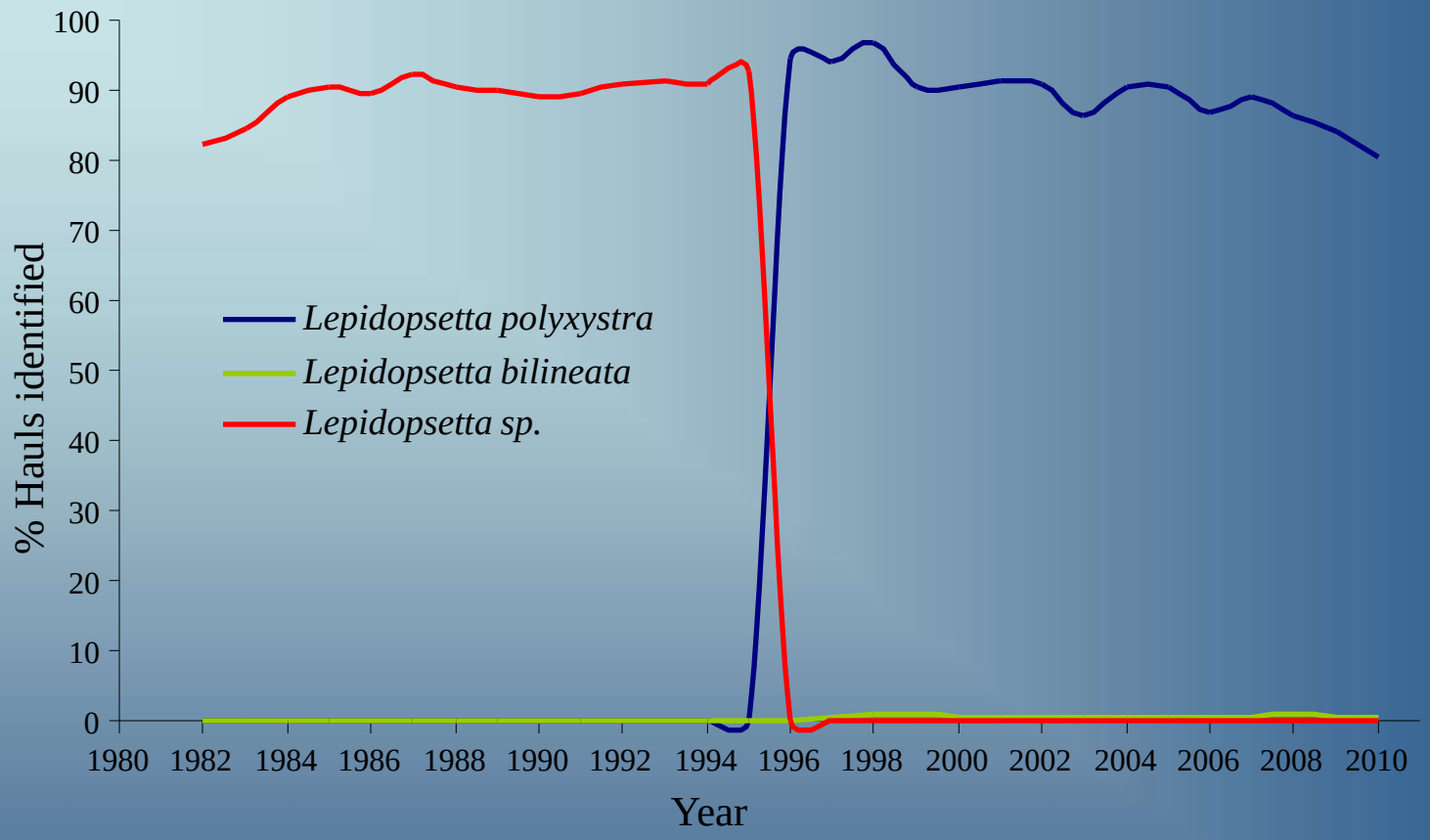
The Matrix

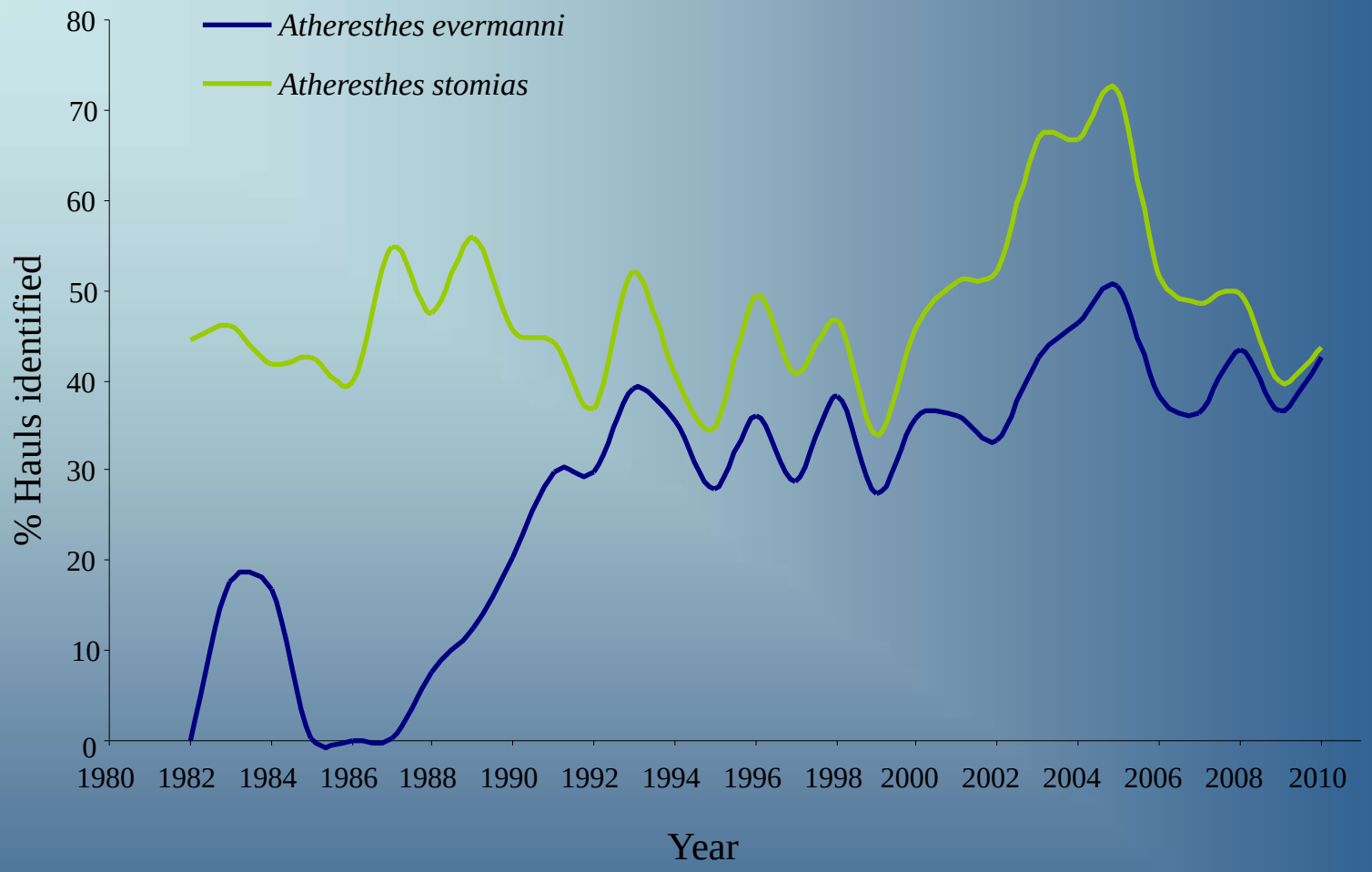
Taxonomic Confidence for fish & invertebrates 1982-2008

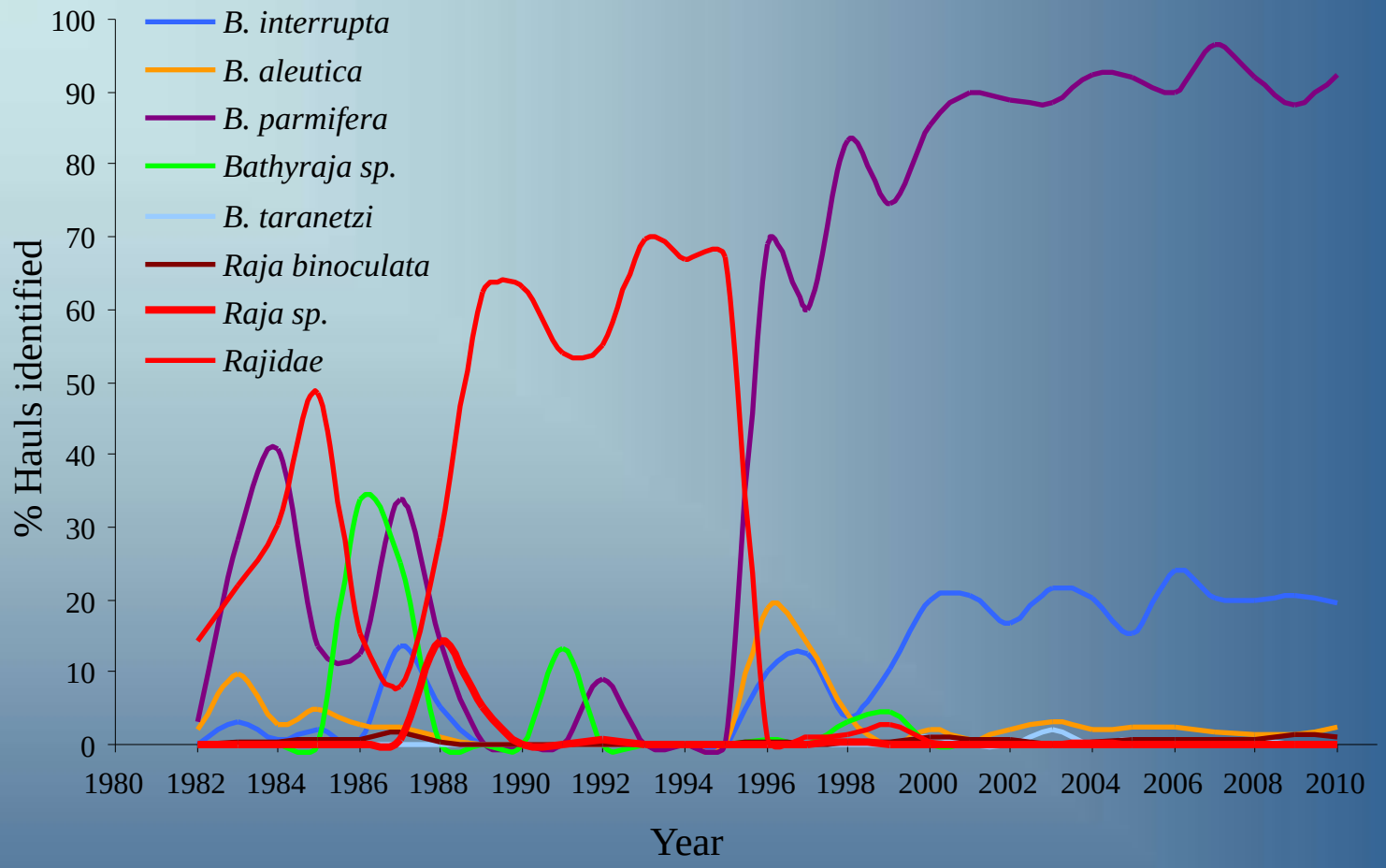
Species	Code	1982	1983	1984	1985	1986	1987	…	2005	2006	2007
Bathyraja parmifera	471	3	3	3	3	3	3	…	1	1	1
Bathyraja maculata	480	3	3	3	3	3	3	…	2	2	2
Bathyraja smirnovi	490	3	3	3	3	3	3	…	3	3	3
Bathyraja violacea	495	3	3	3	3	3	3	…	3	3	3
Pleuronectiformes	10001	1	1	1	1	1	1	…	1	1	1

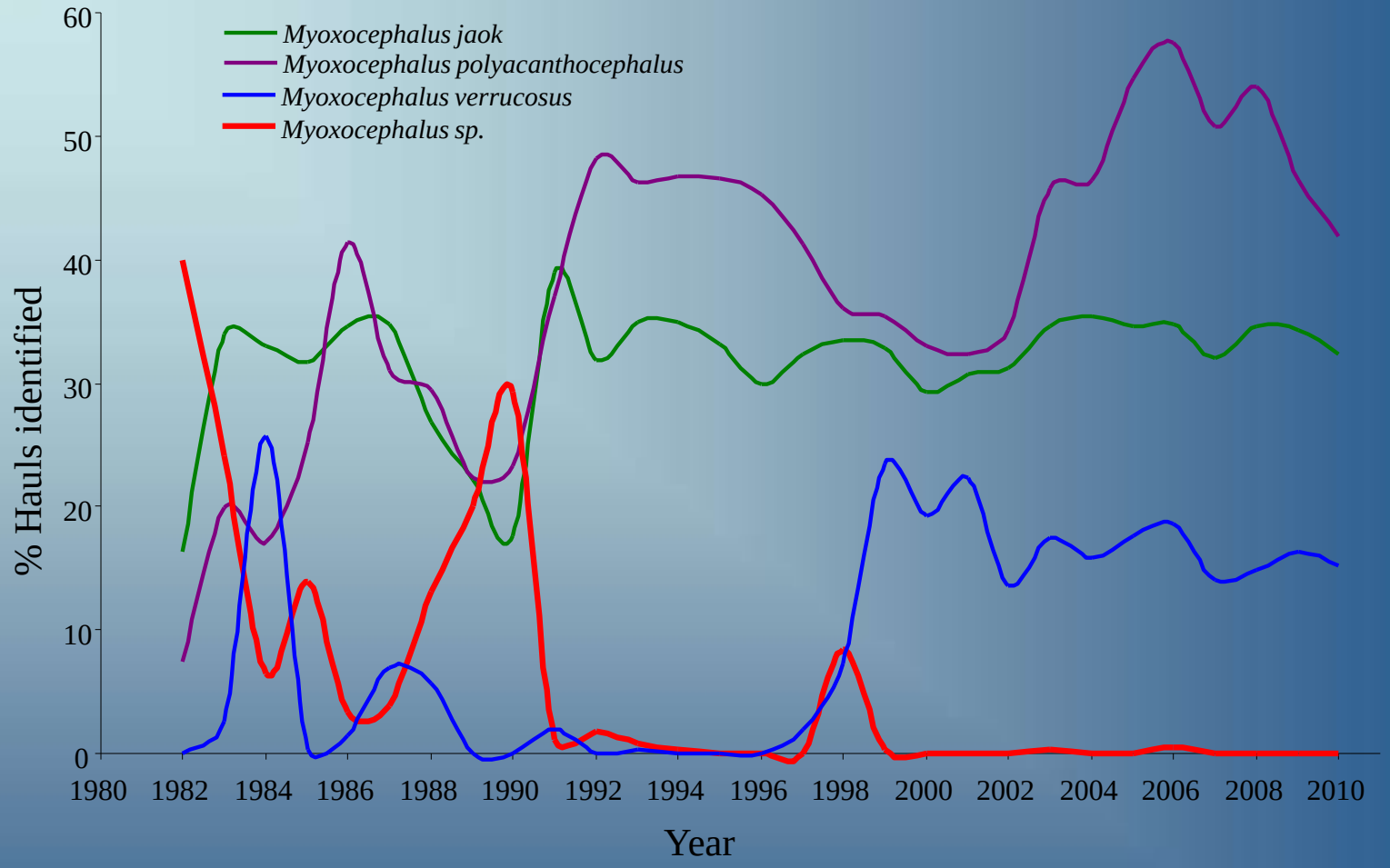
The Voucher Database

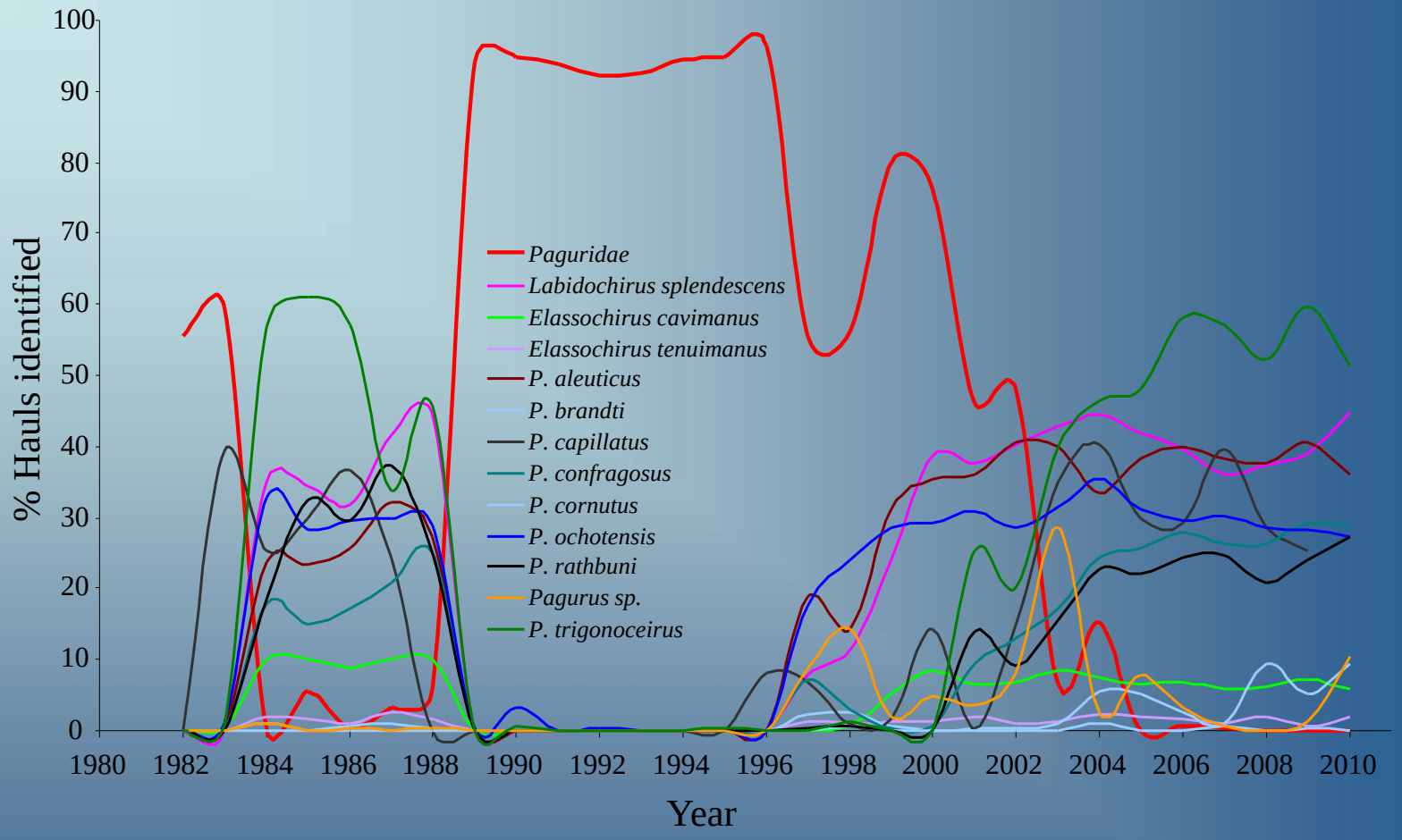



100
90
80
70
60
50
40
30
20
10
0
% Hauls identified
Lepidopsetta polyxystra
Lepidopsetta bilineata
Lepidopsetta sp.
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
Year


Atheresthes evermanni
Atheresthes stomias
% Hauls identified
80
70
60
50
40
30
20
10
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
Year


B. interrupta
B. aleutica
B. parmifera
Bathyraja sp.
B. taranetzi
Raja binoculata
Raja sp.
Rajidae
% Hauls identified
100
90
80
70
60
50
40
30
20
10
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
Year


Myoxocephalus jaok
Myoxocephalus polyacanthocephalus
Myoxocephalus verrucosus
Myoxocephalus sp.
% Hauls identified
0
10
20
30
40
50
60
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
Year


% Hauls identified
100
90
80
70
60
50
40
30
20
10
0
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
Year
Paguridae
Labidochirus splendescens
Elassochirus cavimanus
Elassochirus tenuimanus
P. aleuticus
P. brandti
P. capillatus
P. confragosus
P. cornutus
P. ochotensis
P. rathbuni
Pagurus sp.
P. trigonoceirus

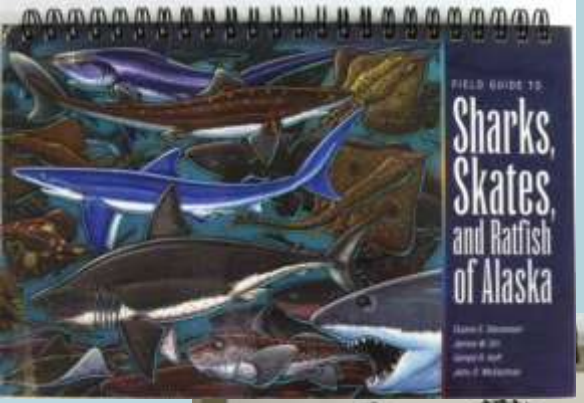
Evolution of Field Identification Tools

Fishes

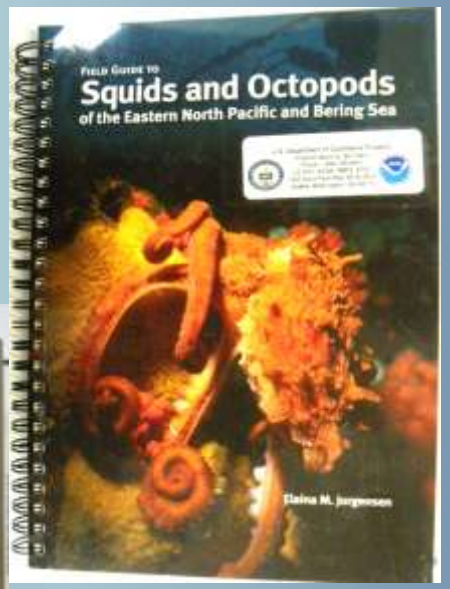
1982 – 1998	Various non-durable publications, including Kessler (1985)
1999 – 2005	Laminated versions of Kessler's guide Fishes of Alaska (2002)
2006 – present	Latest version of Kessler's fish guide (Mecklenburg 2002) Field guide to skates (Stevenson et al. 2007)

Invertebrates

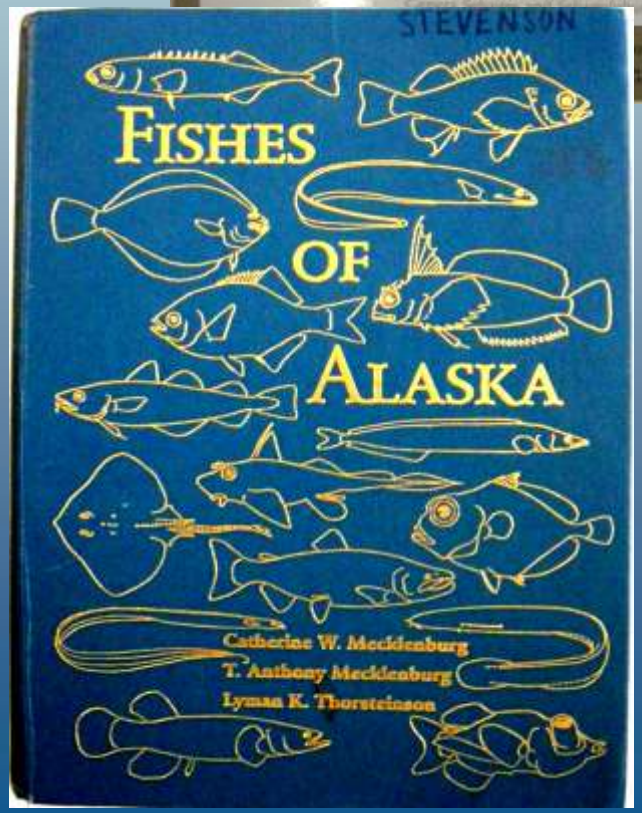
1982 – 1998	Various non-durable publications, including Kessler (1985)
1999 – 2005	Laminated versions of Kessler's guide, Clark guides
2006 – present	Clark's revised benthic marine invertebrate guide Acuna's hermit crab guide Jorgensen's cephalopod guide

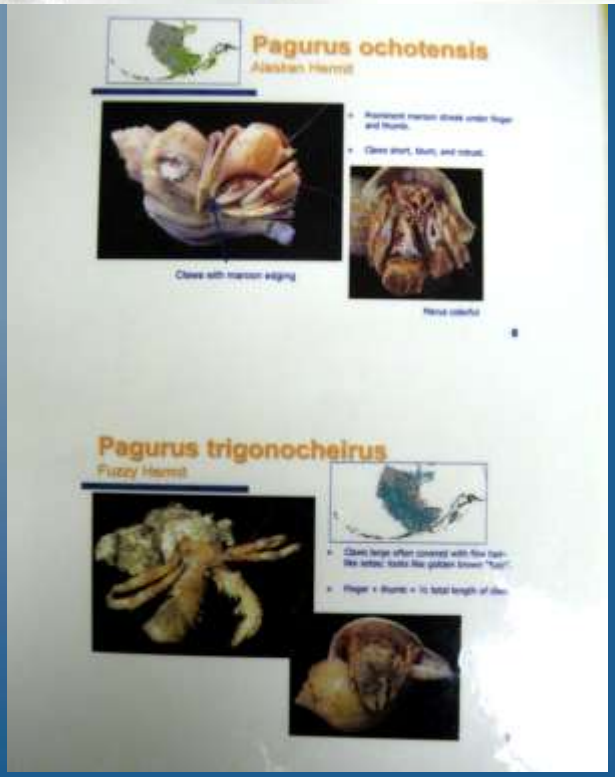

FIELD GUIDE TO
Sharks, Skates, and Ratfish of Alaska


Guide to
Northeast Pacific Rockfishes


FIELD GUIDE TO
Squids and Octopods
of the Eastern North Pacific and Bering Sea
Elaina M. Jorgensen


Guide to
the Skate
Egg Cases
From Alaskan Waters


STEVENSON
FISHES
OF
ALASKA
Catherine W. Mecklenburg
T. Anthony Mecklenburg
Lynnaa K. Thorsteinson


Pagurus ochotensis
Alaskan Hermit
Pagurus trigonocheirus
Fuzzy Hermit