People - Demographics and Productivity in Fishing Industry

Session 3 – Industry Operations

Doug May
Professor of Economics

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MEMORIAL UNIVERSITY

CARE
Collaboration for Applied Research In Economics

Some Assumptions

- The “ industry” is composed of three sectors, a harvesting sector, a processing sector, and an aquaculture sector.
- In the harvesting sector, inputs include the natural resource as well as capital and labour services.
- The processing sector takes the output from the harvesting sector as inputs and adds value to it. It too uses capital and labour.
- The aquaculture sector has aspects of the first two sectors and may interact in the processing sector with the capture fishery.

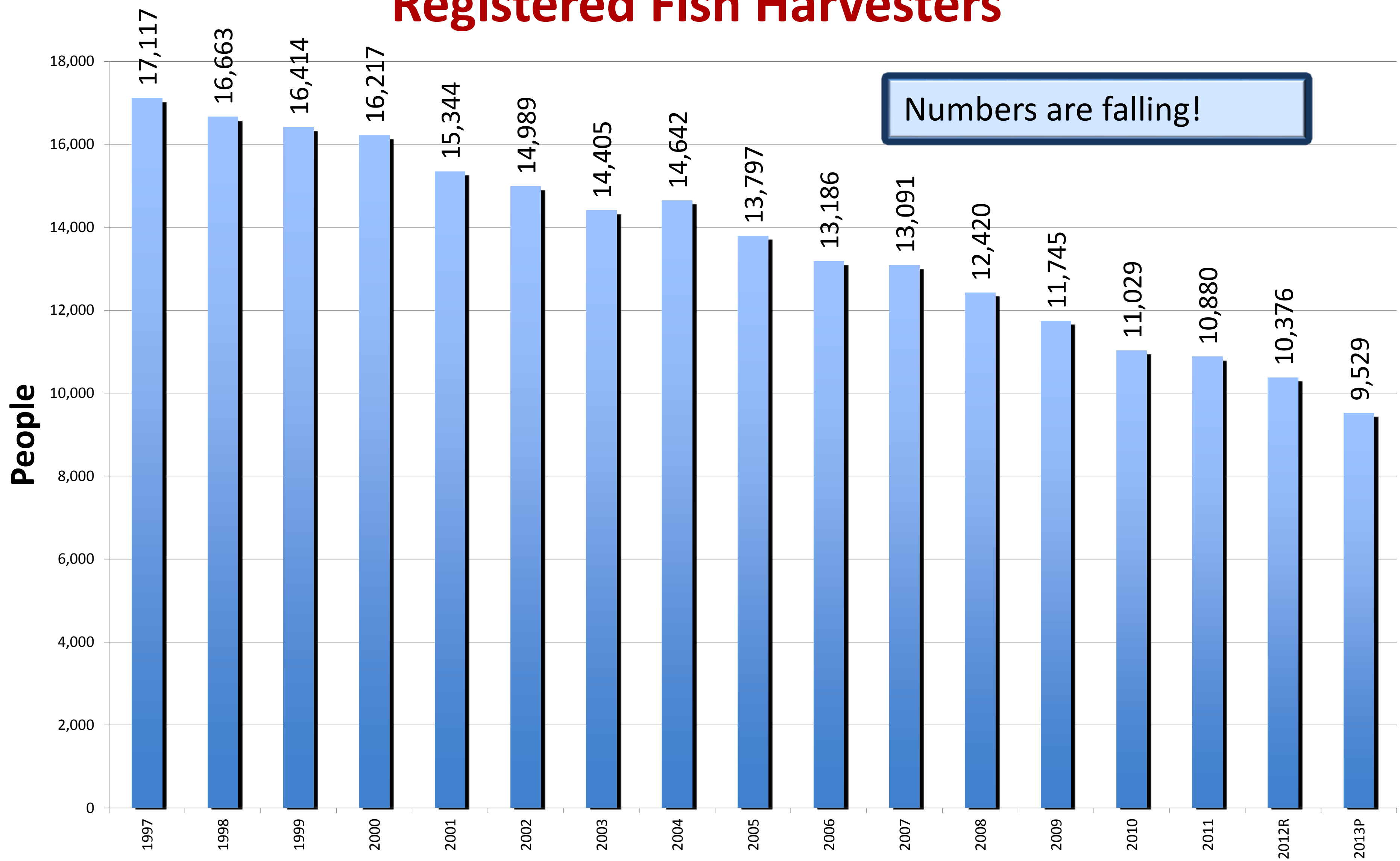
Harvesting Sector

Number of Fishing Enterprises by Fleet Sector

Fleet Sector	Number in 2008	Number in 2013
Inshore (<40')		
4R North of Point Riche	236	194
4R3Pn South of Point Riche	449	379
3Ps Fortune Bay and West (FBW)	370	293
3Ps Placentia Bay (PB)	378	297
3L	807	725
3K	649	536
2J	83	69
Total Inshore	**2,972**	**2,493**
Nearshore (>40')		
4R Shrimp	64	50
3Ps Supplementary Crab	90	75
2J3K Supplementary Crab with Shrimp	99	80
2J3K Supplementary Crab without Shrimp	151	101
2J3K Full-time Crab	30	29
3L Small Supplementary Crab without Shrimp	205	174
3L Large Supplementary and Full-time Crab	112	81
Other	112	84
Total Nearshore	**863**	**674**
Total	**3,835**	**3,167**

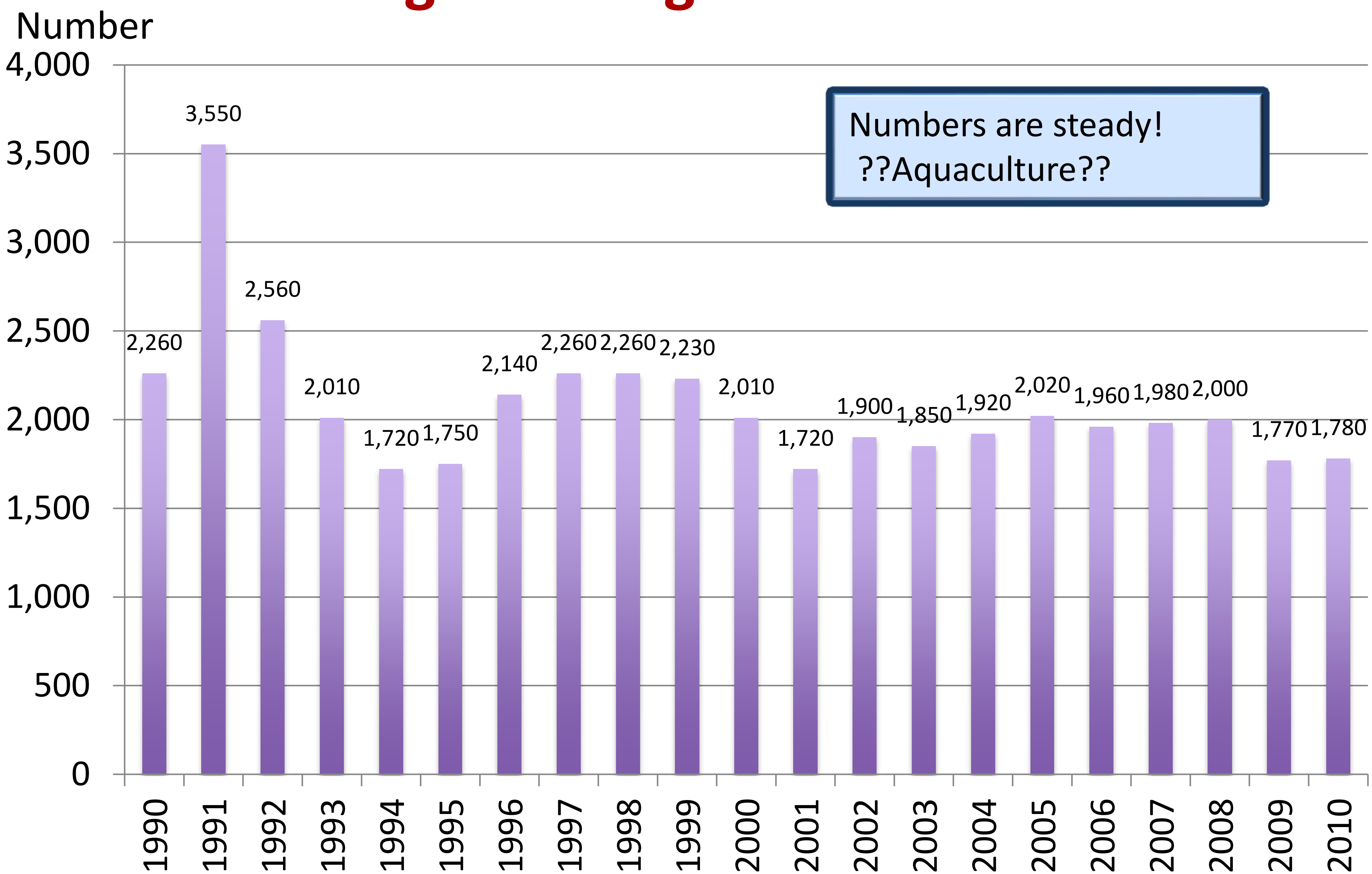
Source: DFO

Registered Fish Harvesters



Source: Professional Fish Harvesters Certification Board

Wage-Earning Fish Harvesters

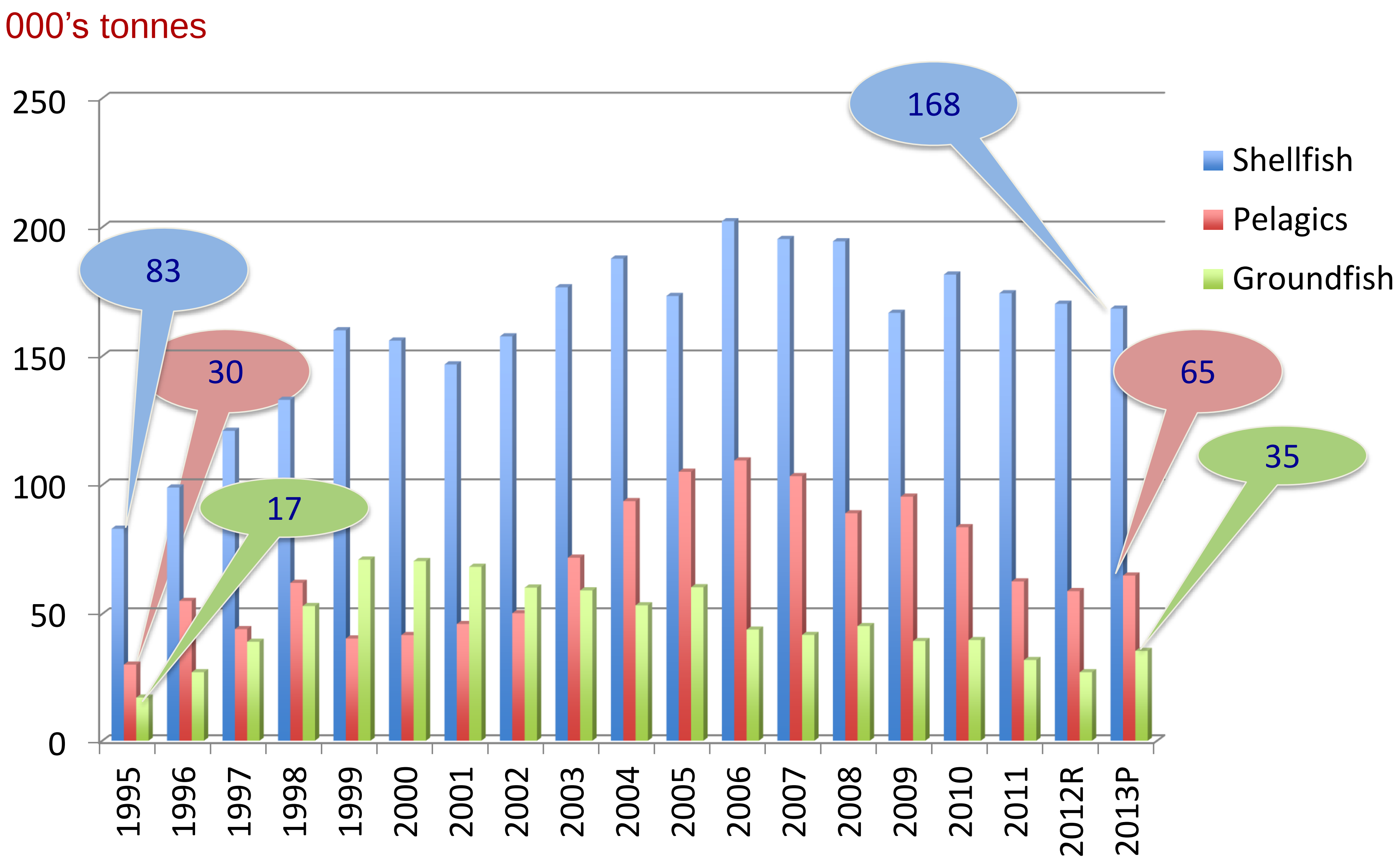


Special Taxfiler Tabulations from STC for NLSA, GoNL

Aquaculture:
Harvesting & Processing

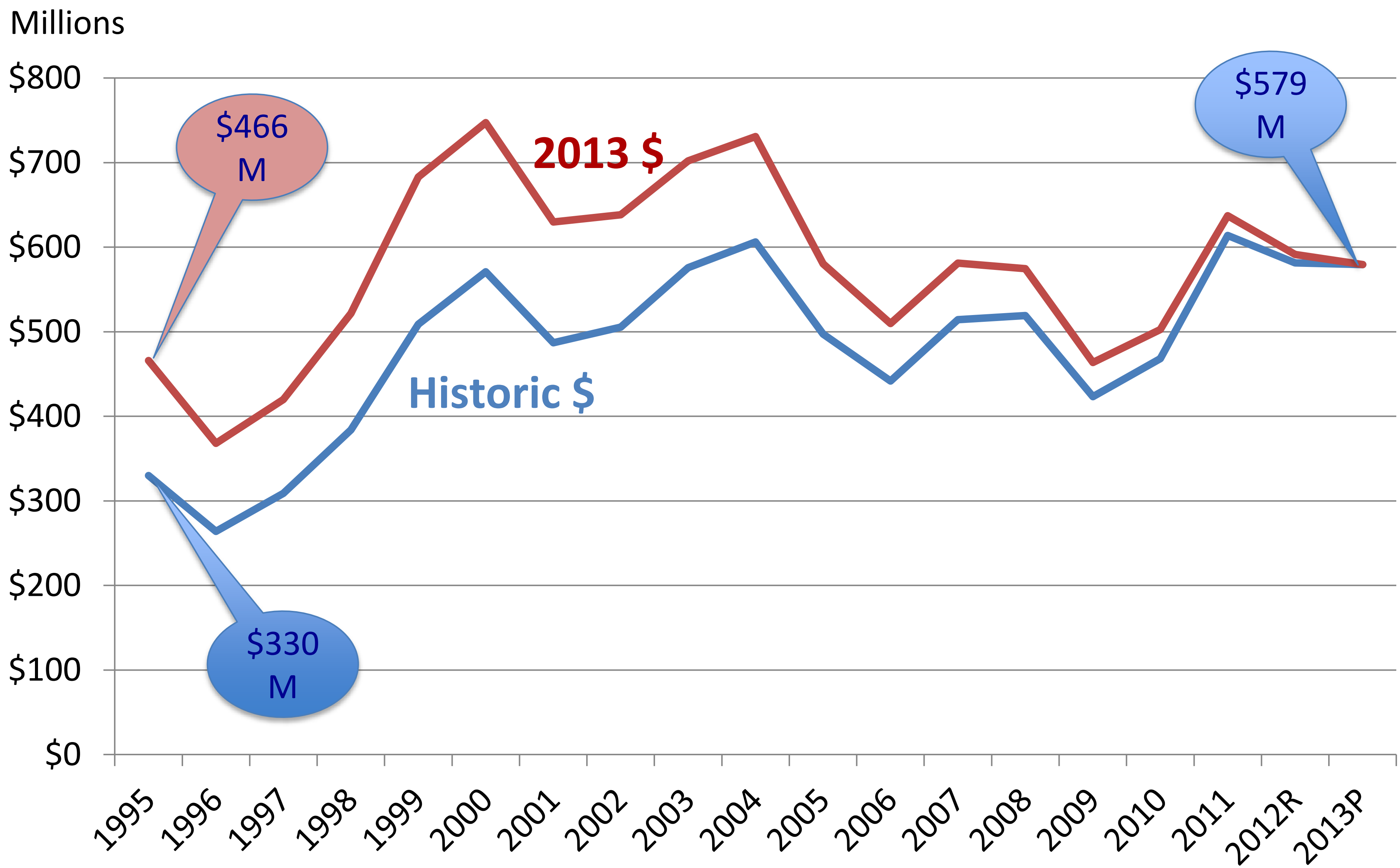
- Workers in the aquaculture are probably included in wage-earning fish harvesters!
- Growing in importance.

Fish Landings by Species Group



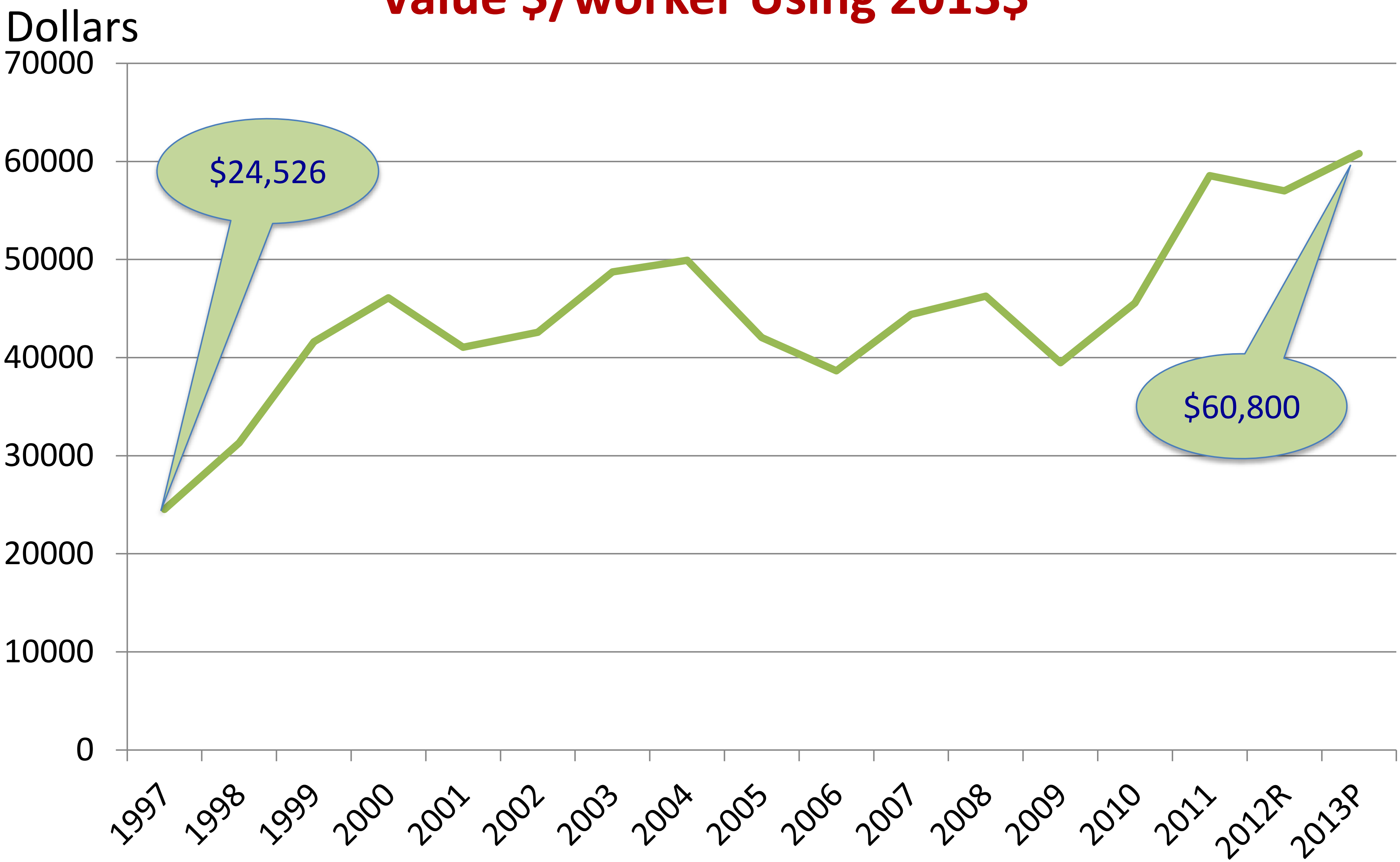
Source: DFA & DFO

Total Value of Landed Catch



Source: DFA & DFO

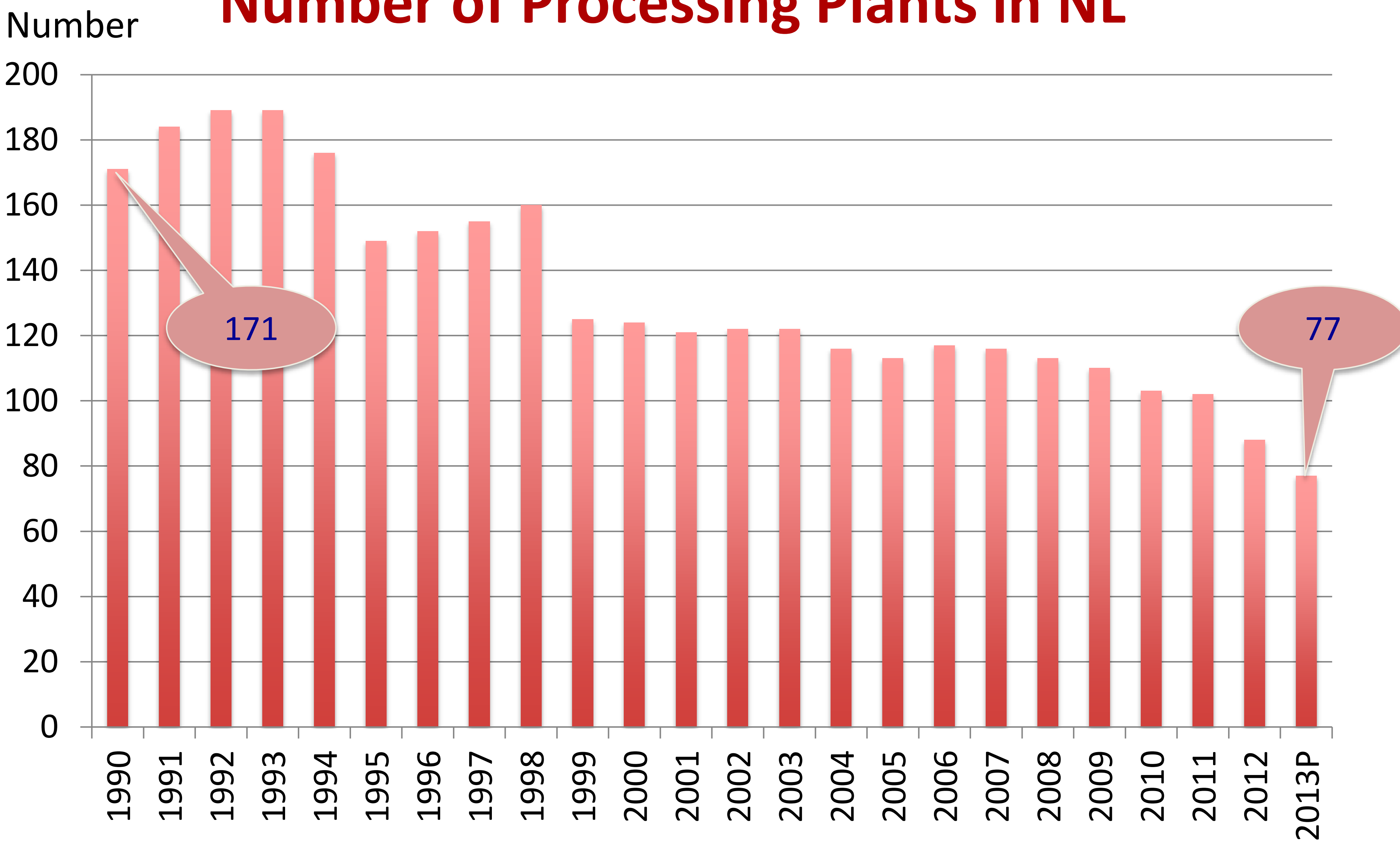
Value $/worker Using 2013$



Source: Author's tabulations using DFA & DFO data

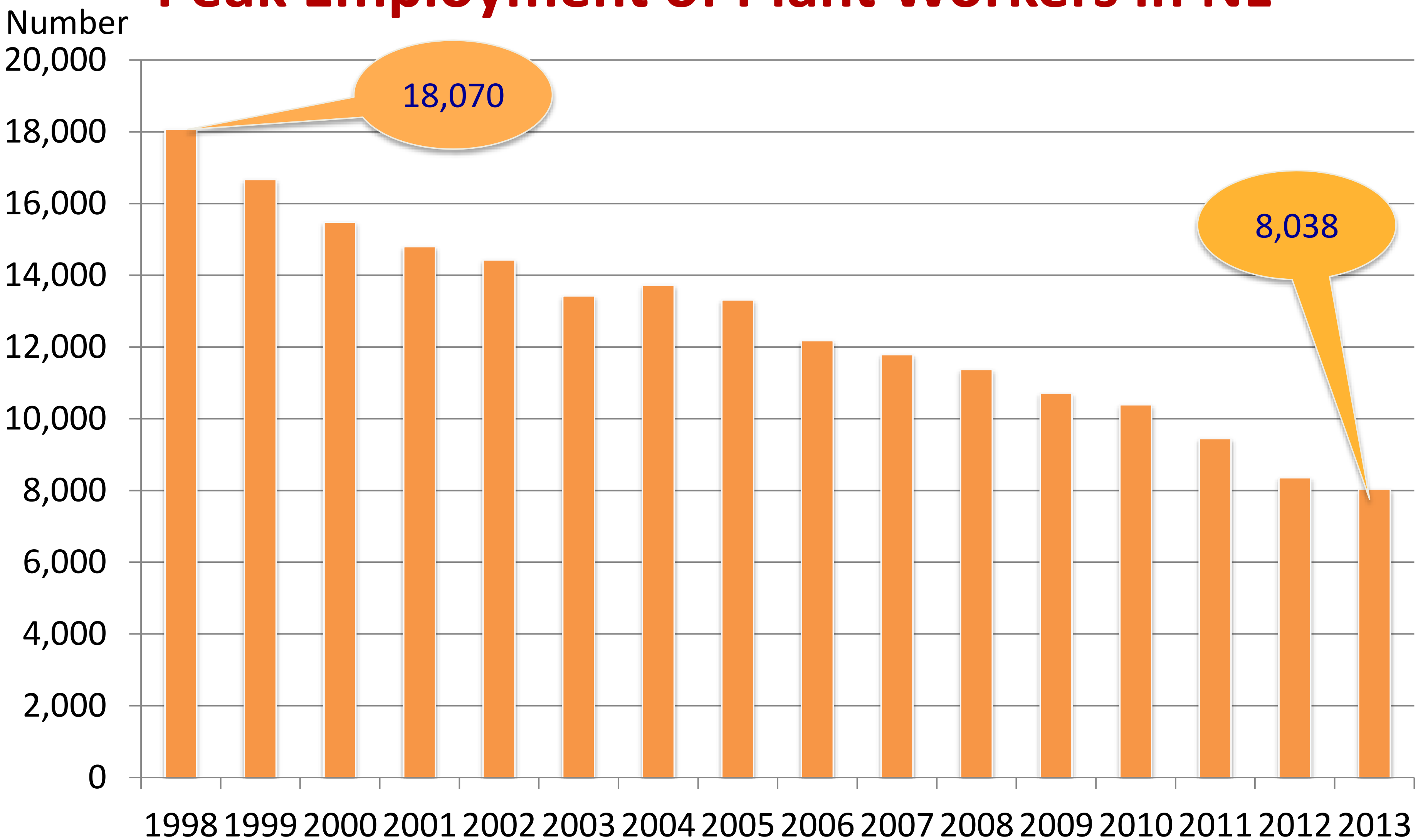
Processing Sector

Number of Processing Plants in NL



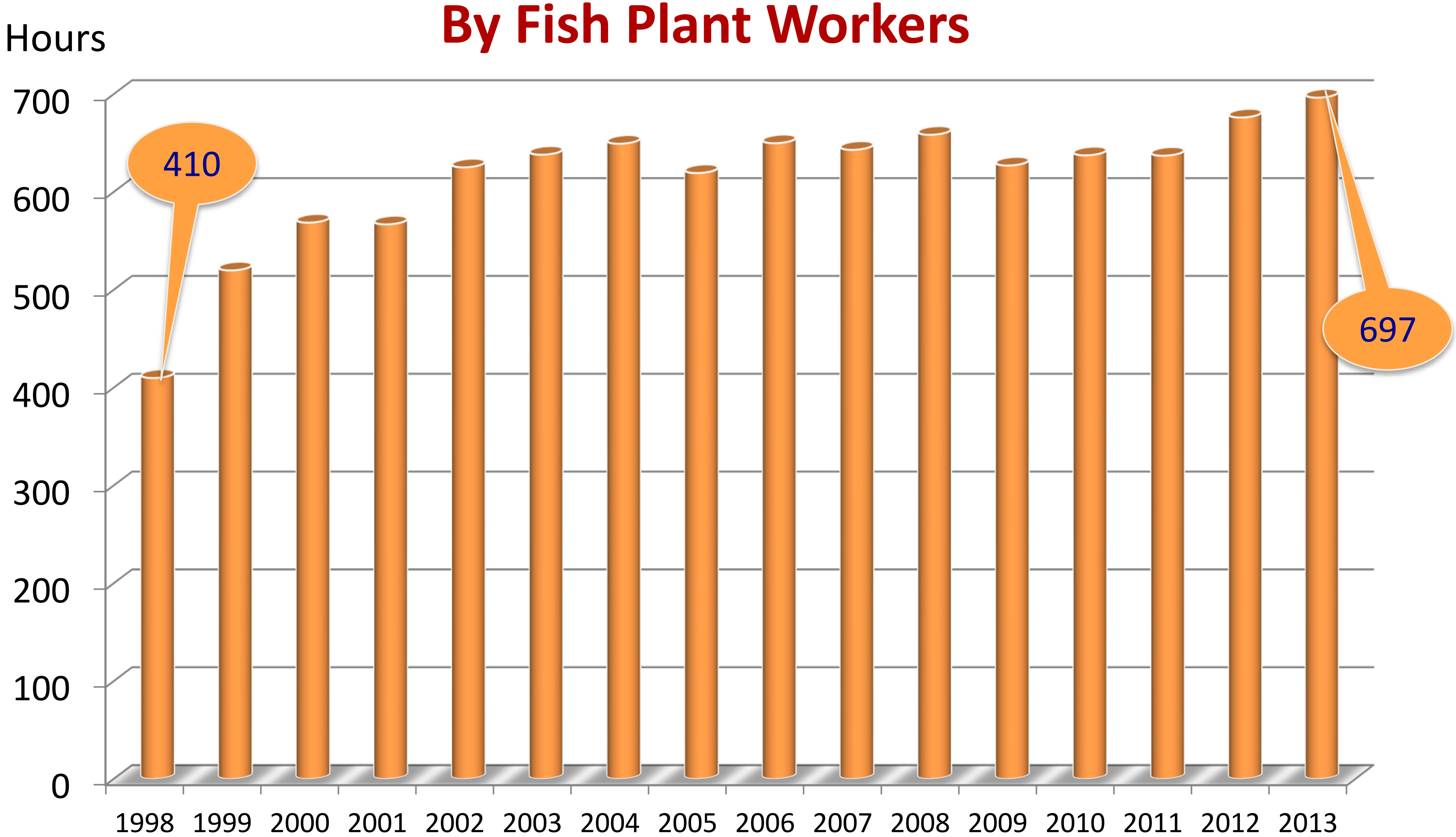
Source: DFA, GoNL

Peak Employment of Plant Workers in NL



Source: DFA, GoNL

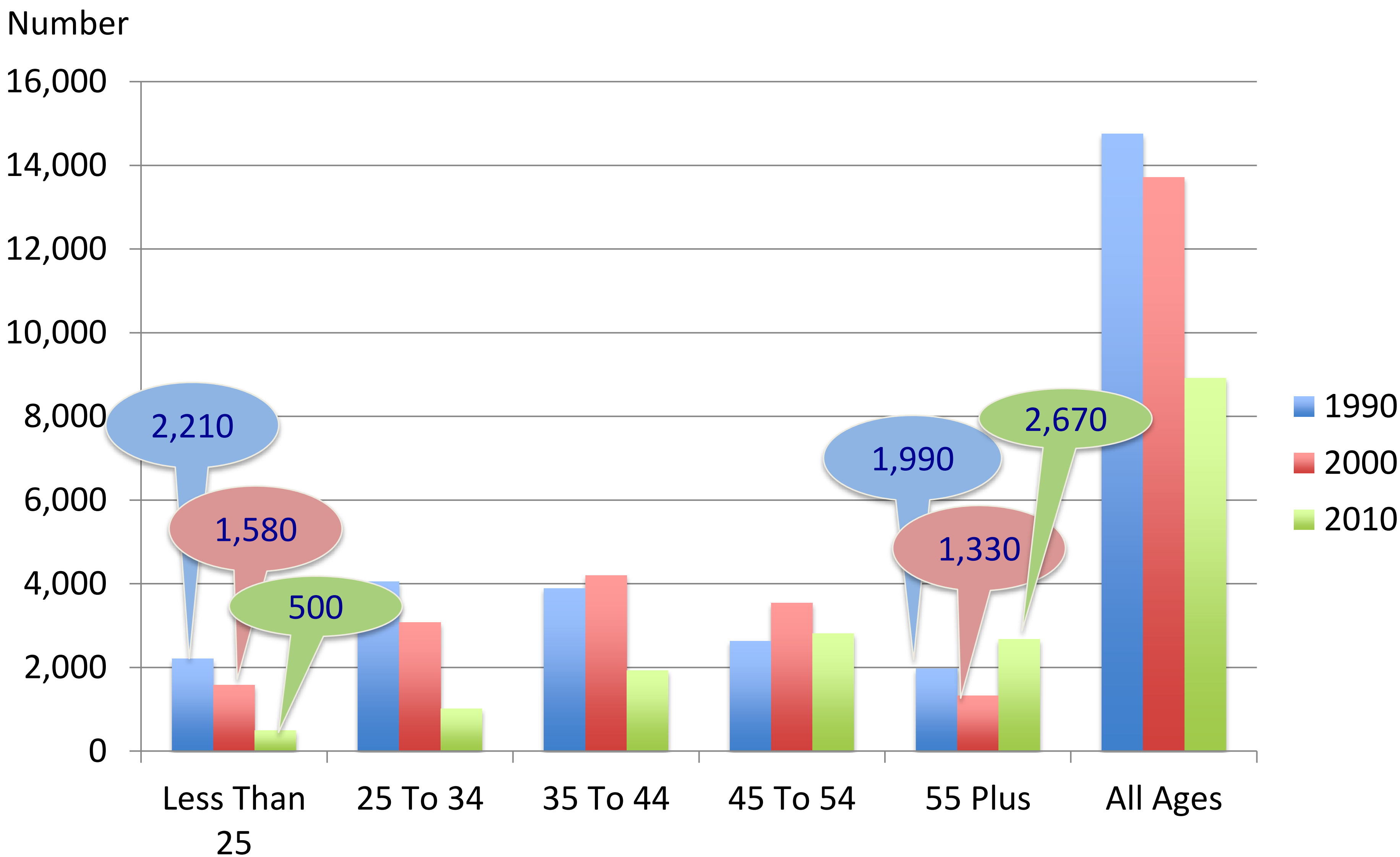
Average Annual Hours Worked By Fish Plant Workers



Source: Tabulation by author from DFA data

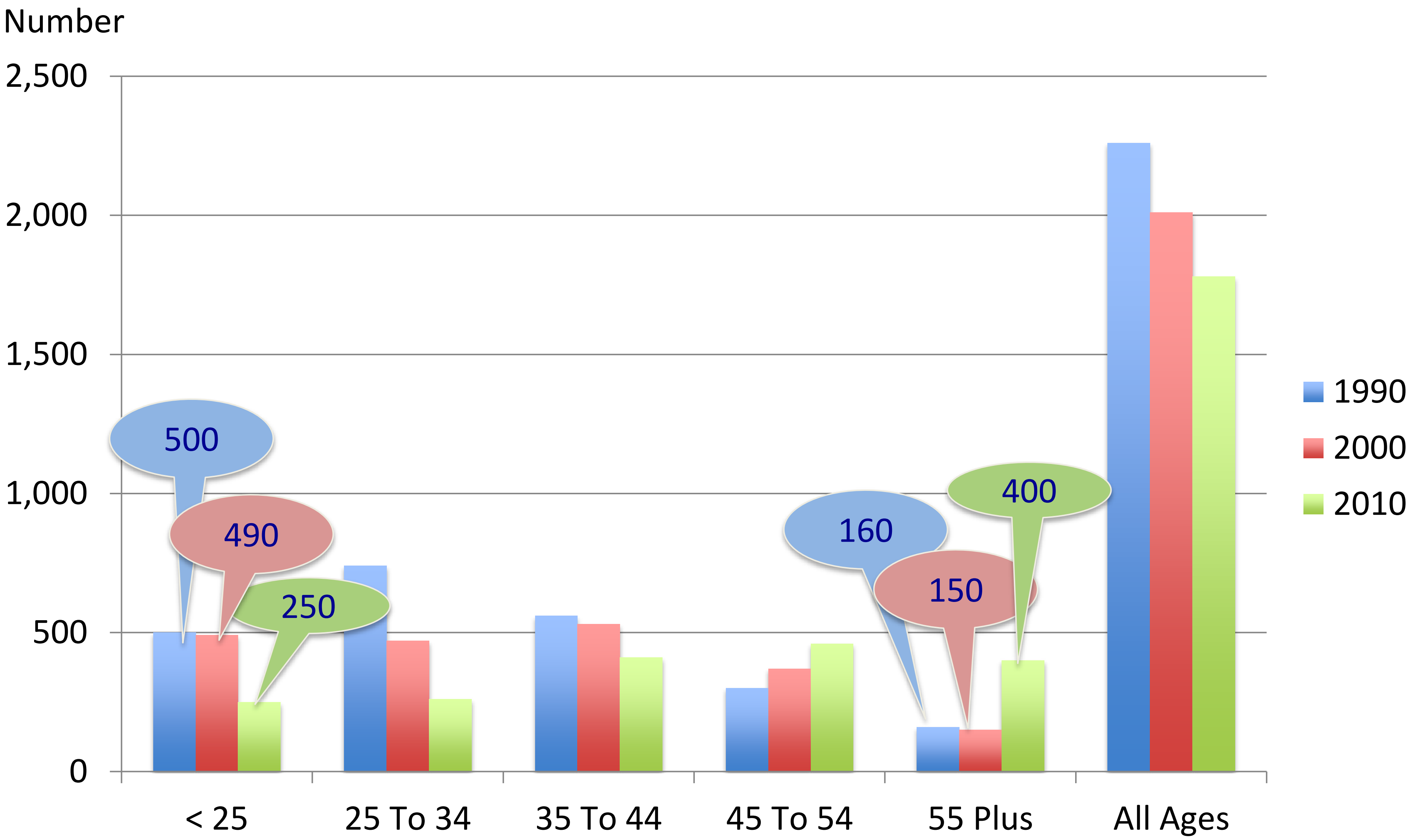
Supply Side Considerations

Ages of Self-Employed Fish Harvesters



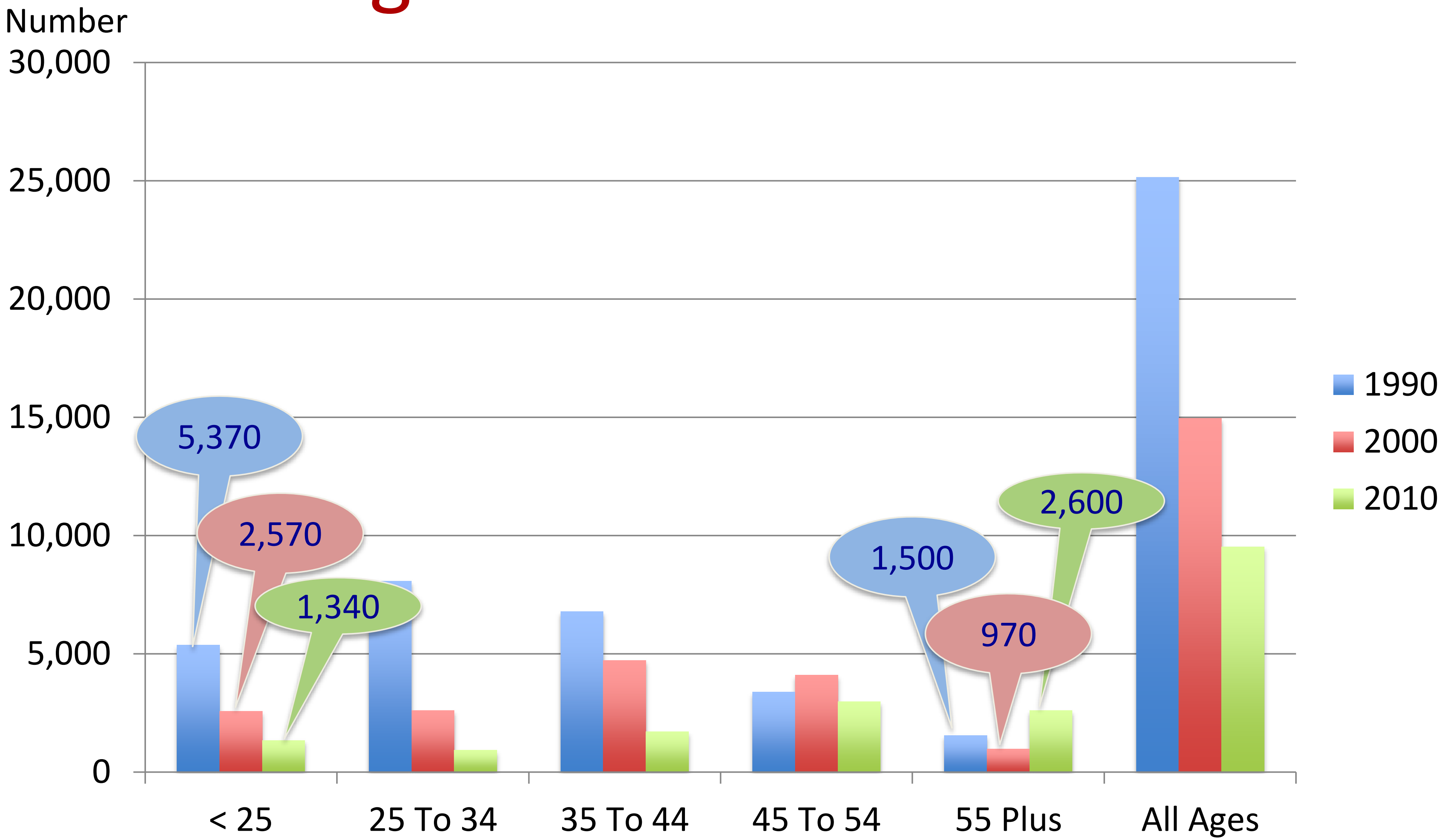
Special Taxfiler Tabulations from STC for NLSA, GoNL

Ages of Wage-Earning Fish Harvesters



Special Taxfiler Tabulations from STC for NLSA, GoNL

Ages of Plant Workers

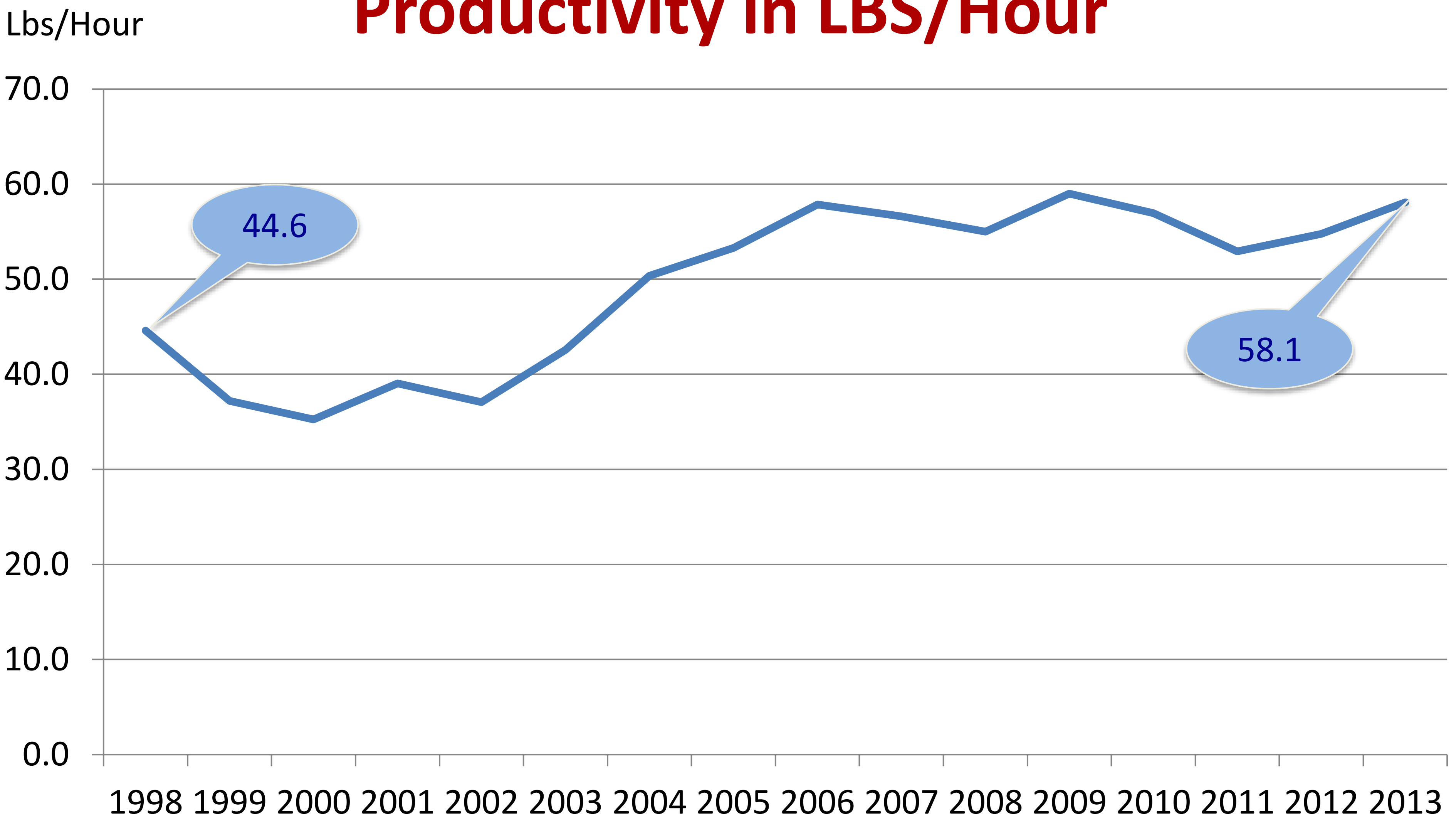


Special Taxfiler Tabulations from STC for NLSA, GoNL

Observations and Forecasts

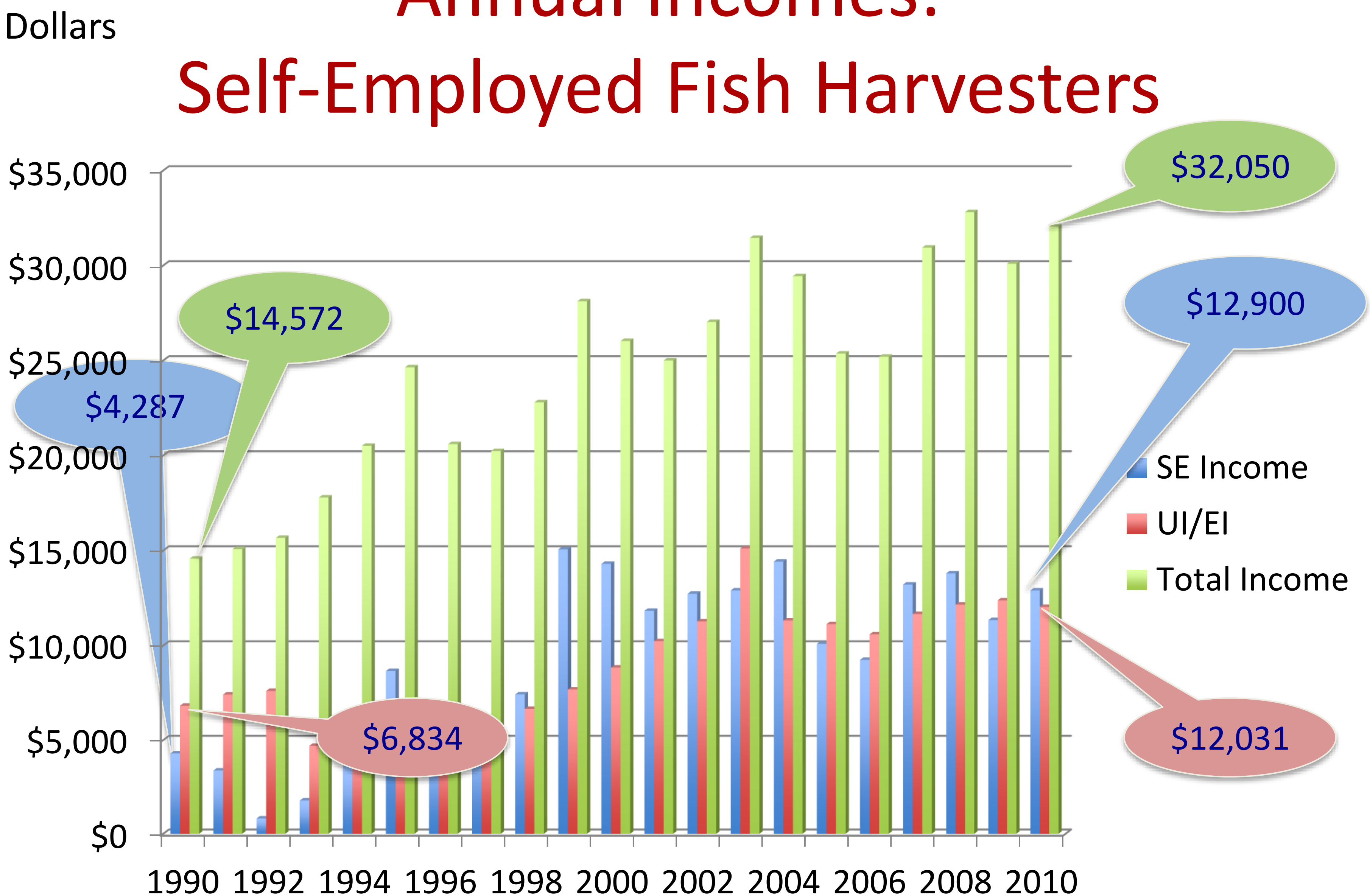
- Number of harvesters have declined and this will likely continue until equilibrium is reached around 4-5 thousand.
- The number of plant workers has also declined. Expect this number to decline to about the same levels as above for harvesters.
- In all sectors the workers are aging and it seems as though younger workers are leaving.

Fish Processing Plant Labour Productivity in LBS/Hour



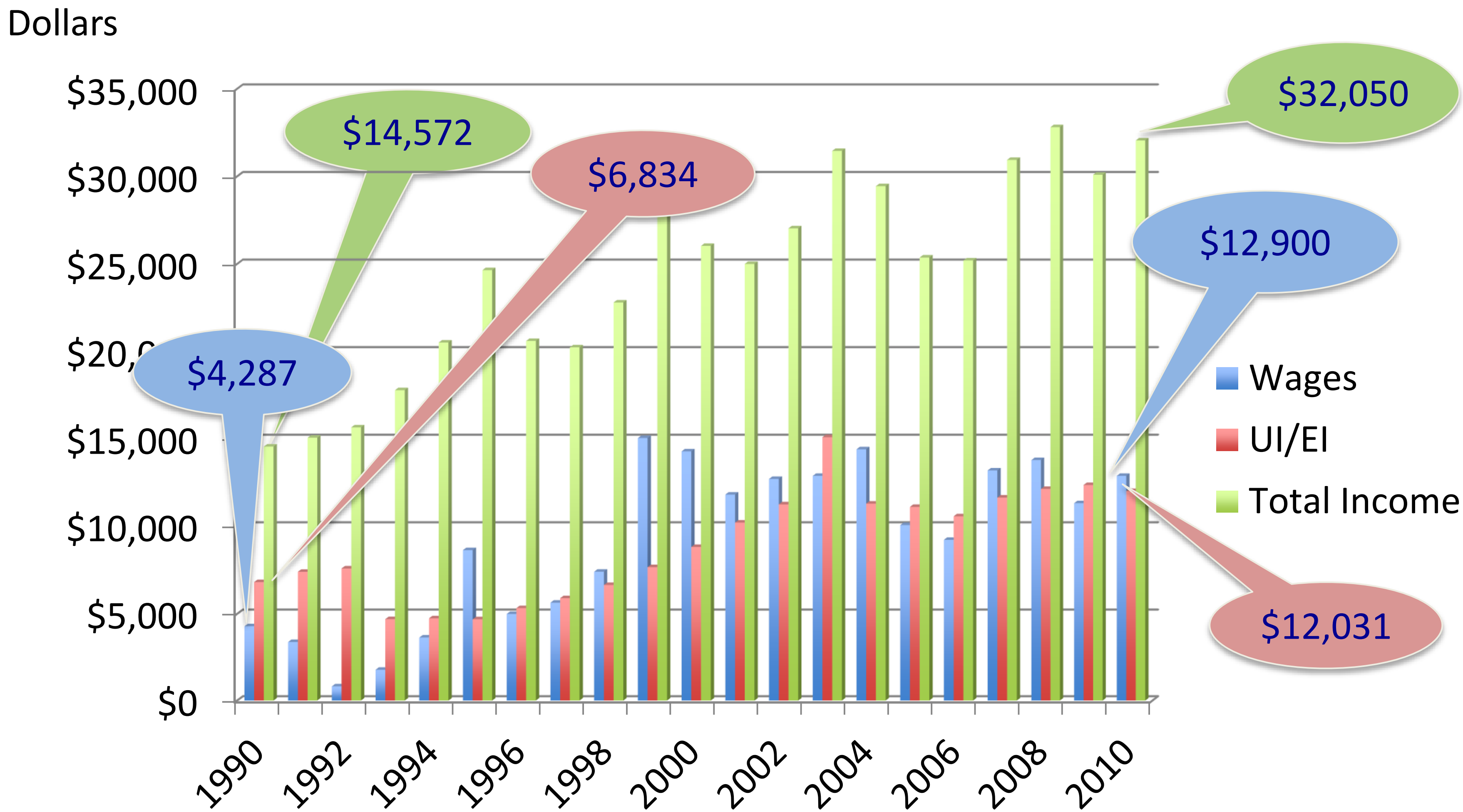
Labour Market Outcomes

Annual Incomes: Self-Employed Fish Harvesters



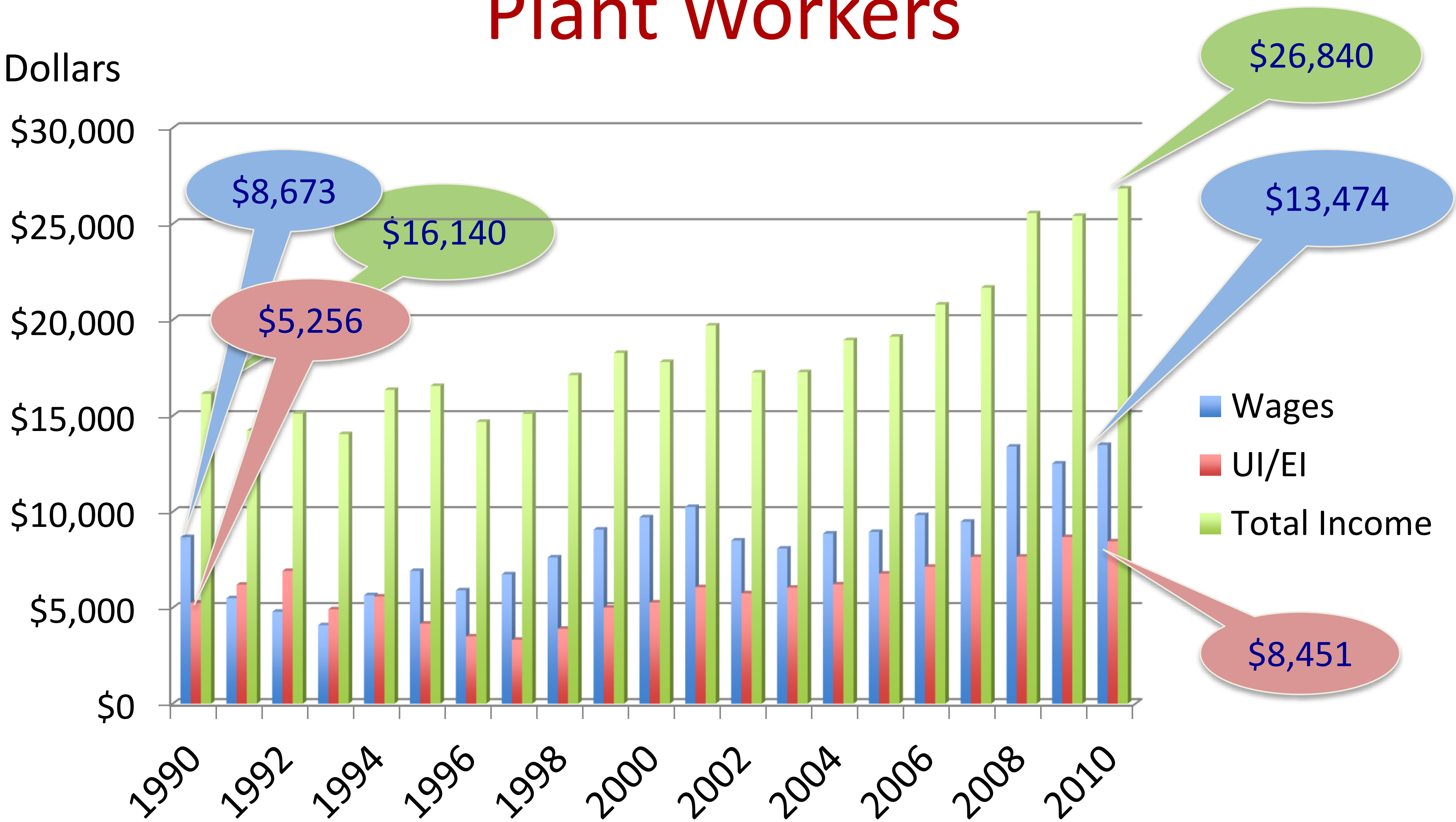
Special Taxfiler Tabulations from STC for NLSA, GoNL

Annual Incomes: Wage-Earning Fish Harvesters



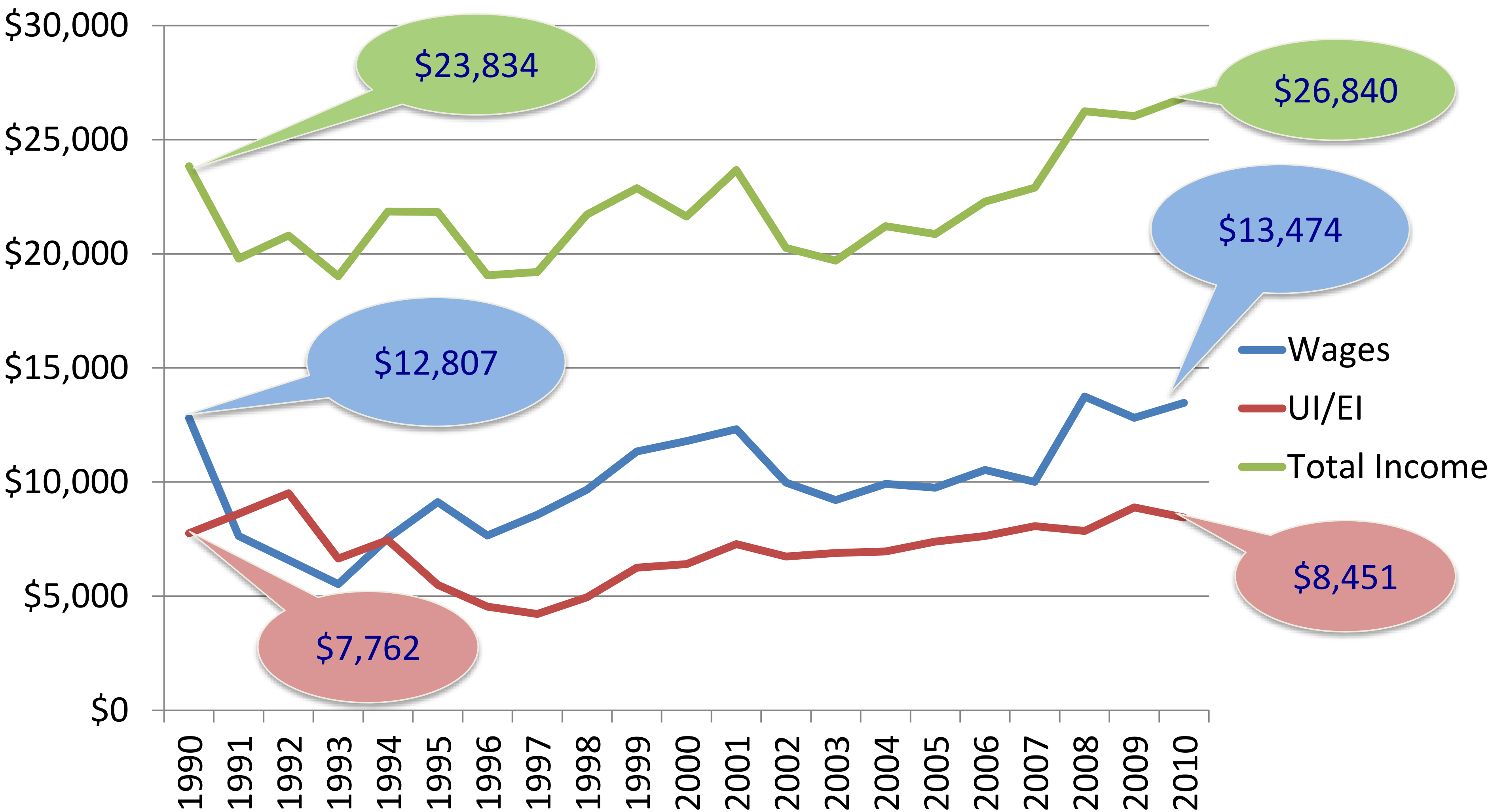
Special Taxfiler Tabulations from STC for NLSA, GoNL

Annual Incomes by Major Source: Plant Workers



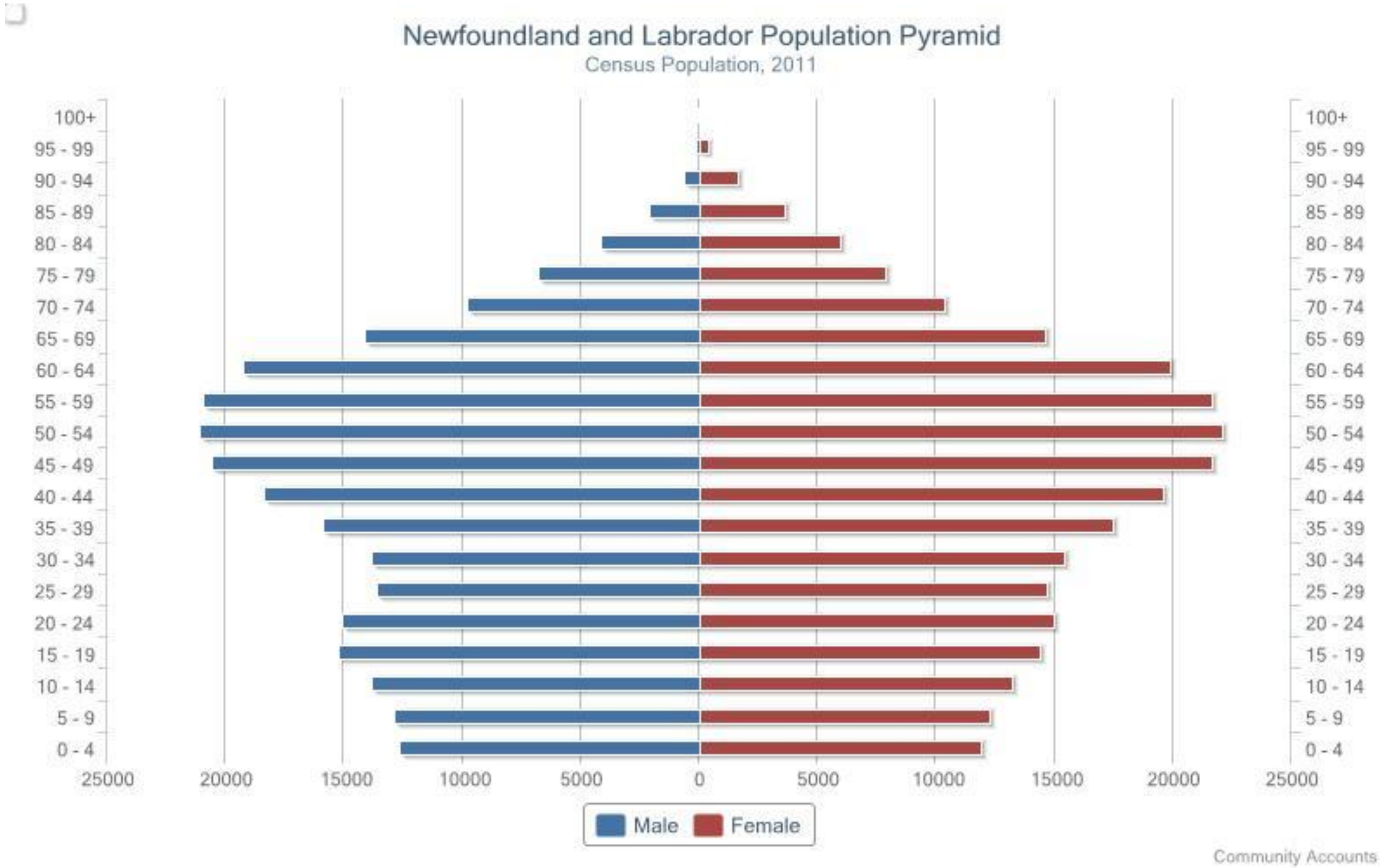
Special Taxfiler Tabulations from STC for NLSA, GoNL

Incomes: Plant Workers (Inflation adjusted: Constant 2010$)



Special Taxfiler Tabulations from STC for NLSA, GoNL

The Demographic Future



An initiative of the Government of Newfoundland and Labrador
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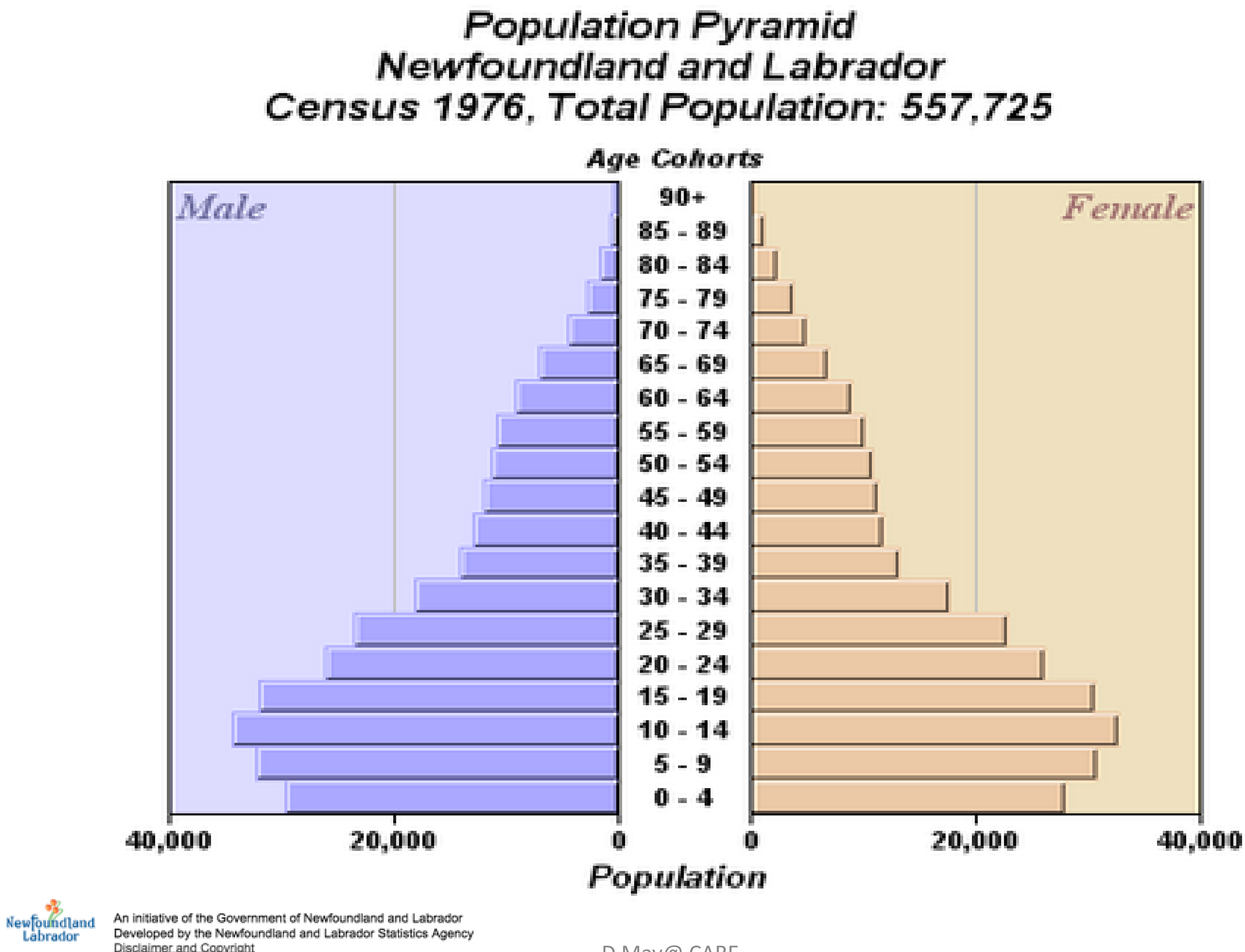

Population Pyramid
Newfoundland and Labrador
Census 1976, Total Population: 557,725
Age Cohorts
Male
Female
90+
85 - 89
80 - 84
75 - 79
70 - 74
65 - 69
60 - 64
55 - 59
50 - 54
45 - 49
40 - 44
35 - 39
30 - 34
25 - 29
20 - 24
15 - 19
10 - 14
5 - 9
0 - 4
40,000
20,000
0
0
20,000
40,000
Population
Newfoundland Labrador
An initiative of the Government of Newfoundland and Labrador
Developed by the Newfoundland and Labrador Statistics Agency
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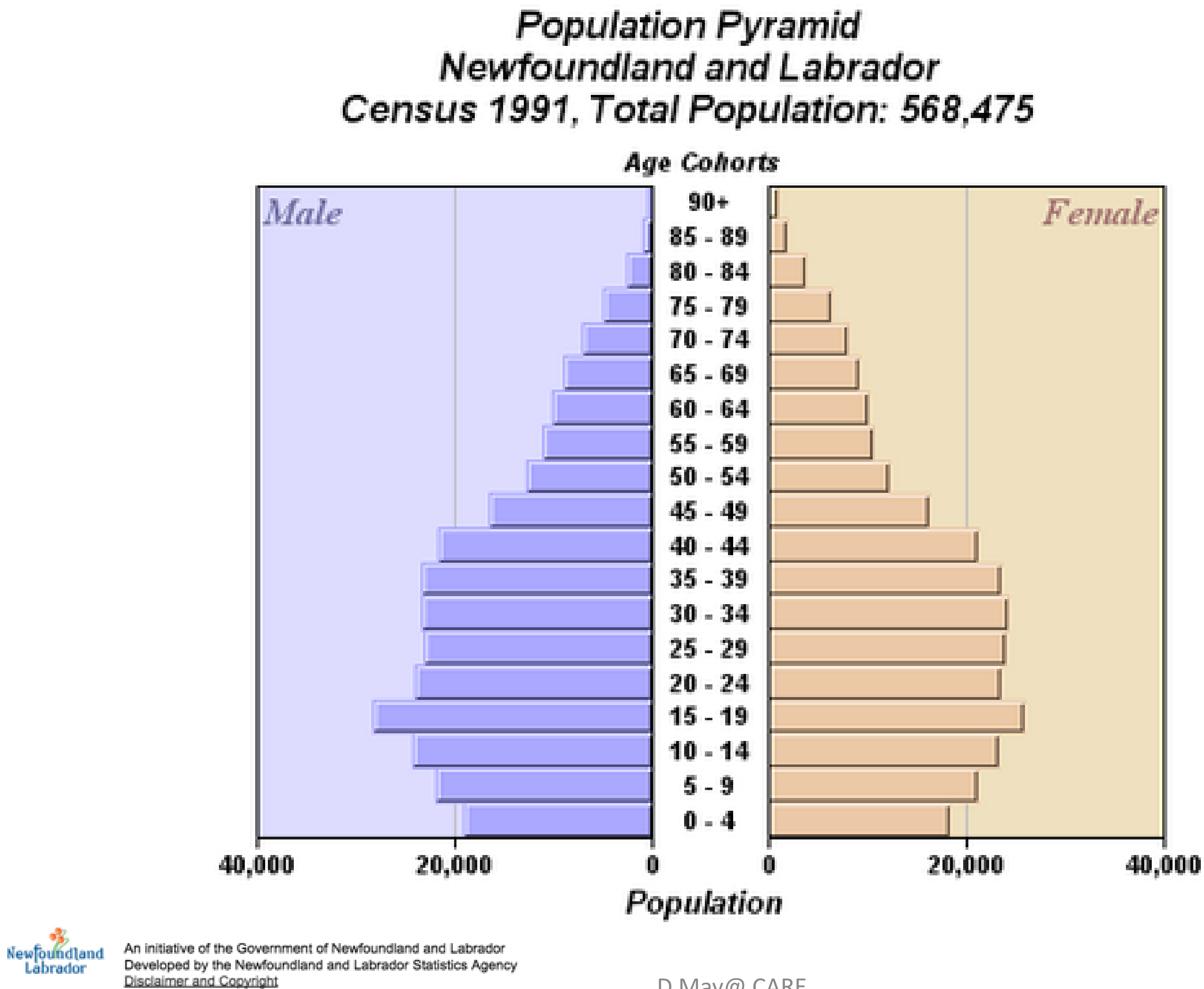

Population Pyramid
Newfoundland and Labrador
Census 1991, Total Population: 568,475
Age Cohorts
Male
Female
90+
85 - 89
80 - 84
75 - 79
70 - 74
65 - 69
60 - 64
55 - 59
50 - 54
45 - 49
40 - 44
35 - 39
30 - 34
25 - 29
20 - 24
15 - 19
10 - 14
5 - 9
0 - 4
40,000
20,000
0
0
20,000
40,000
Population
Newfoundland Labrador
An initiative of the Government of Newfoundland and Labrador
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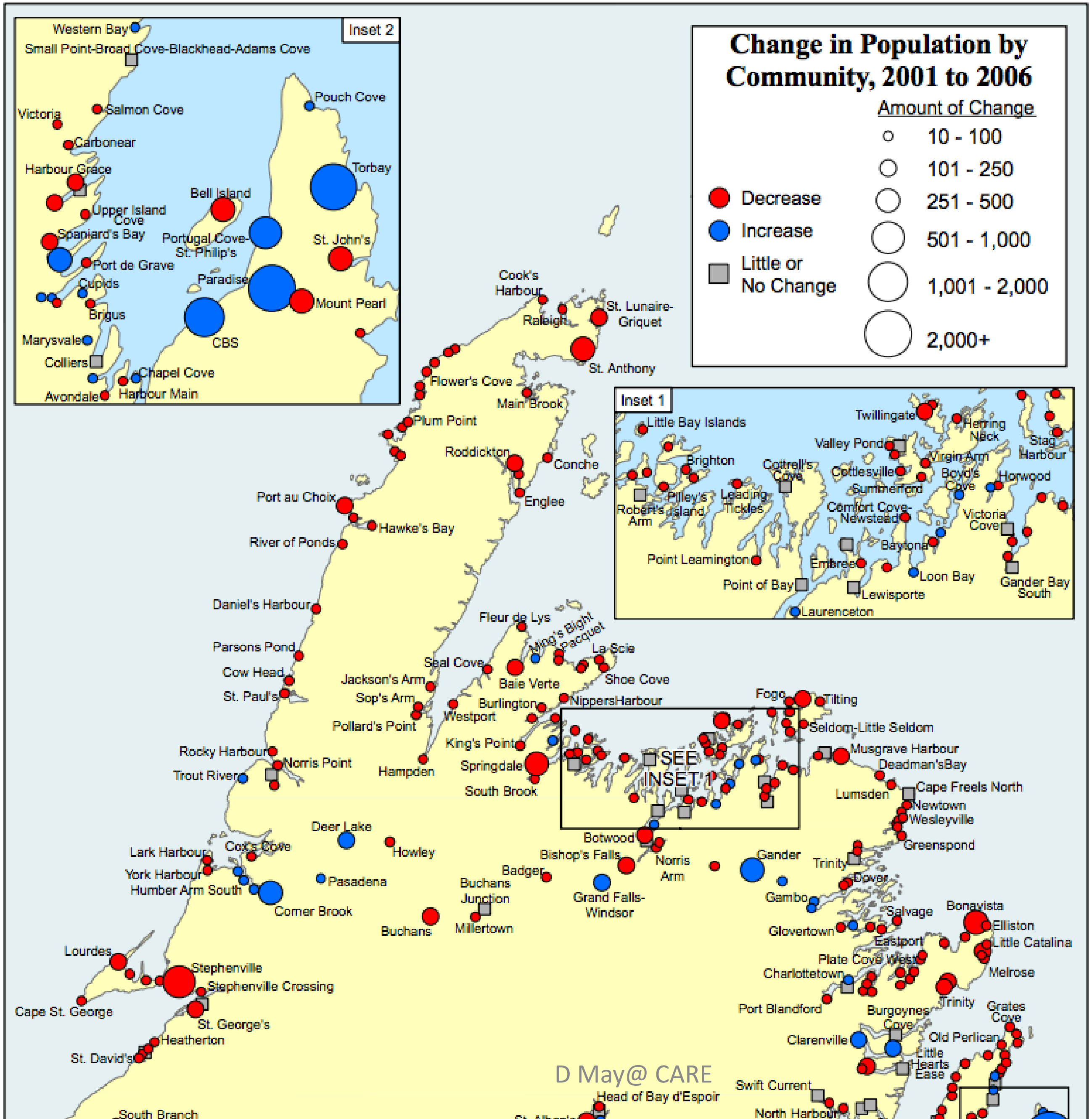
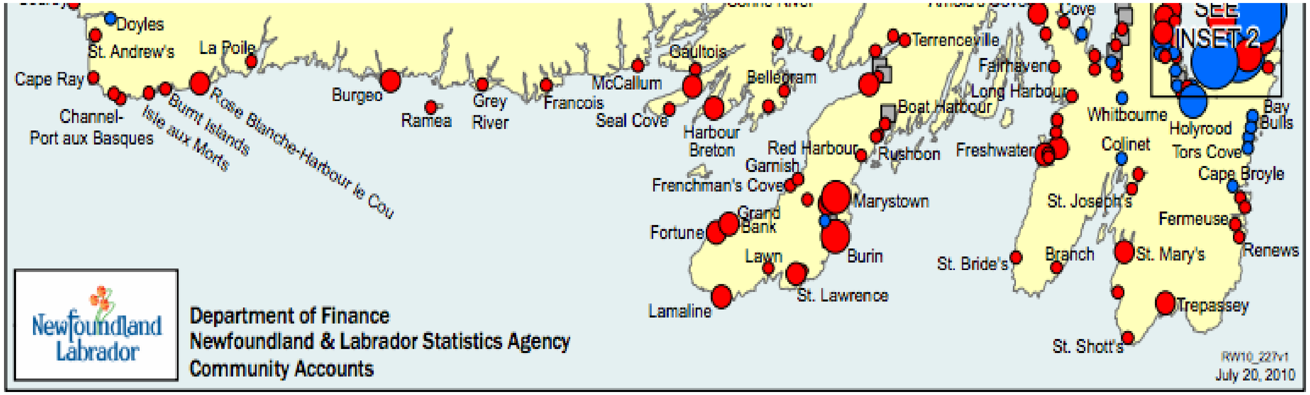
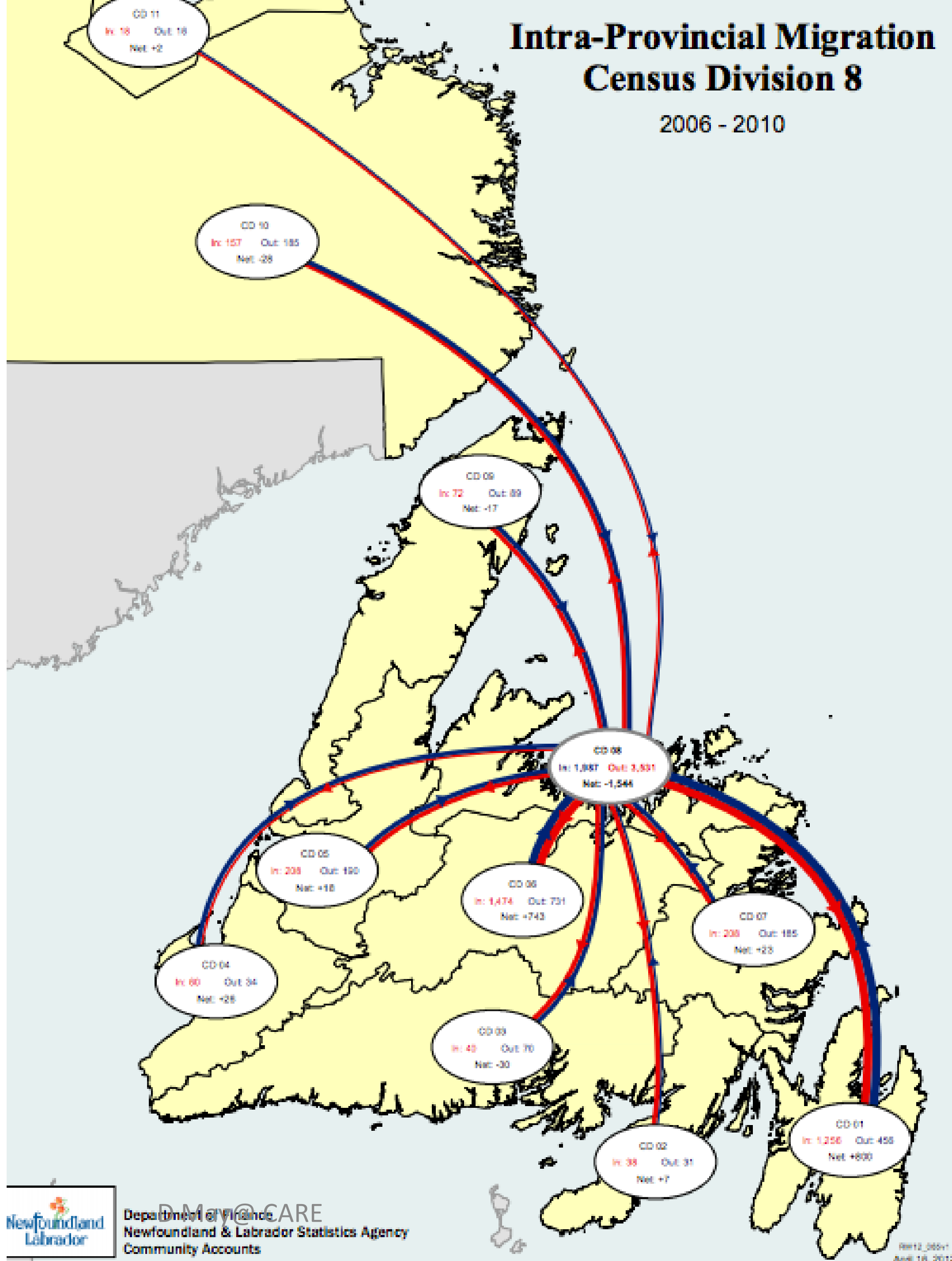
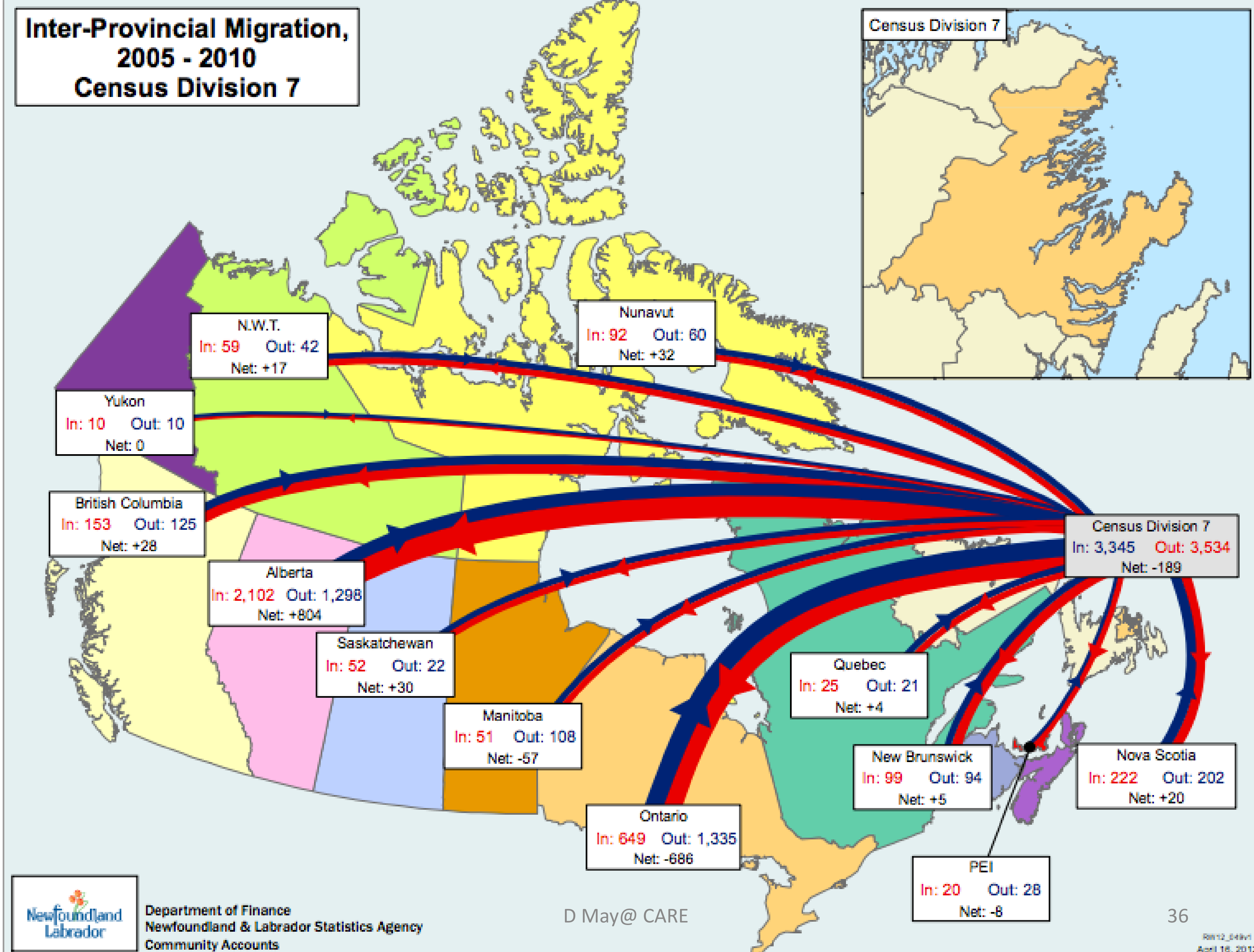

Change in Population by Community, 2001 to 2006
Amount of Change
10 - 100
101 - 250
251 - 500
501 - 1,000
1,001 - 2,000
2,000+
Decrease
Increase
Little or No Change
Inset 2
Western Bay
Small Point-Broad Cove-Blackhead-Adams Cove
Pouch Cove
Victoria
Salmon Cove
Carbonear
Harbour Grace
Torbay
Bell Island
Upper Island Cove
Spaniard's Bay
Portugal Cove-St. Philip's
St. John's
Port de Grave
Cupids
Paradise
Mount Pearl
Brigus
CBS
Marysvale
Colliers
Chapel Cove
Avondale
Harbour Main
Inset 1
Little Bay Islands
Twillingate
Herring Neck
Valley Pond
Stag Harbour
Brighton
Cottrell's Cove
Cottlesville
Virgin Arm
Boyd's Cove
Horwood
Summerford
Robert's Arm
Pilley's Island
Leading Tickles
Comfort Cove-Newstead
Victoria Cove
Baytona
Point Leamington
Embree
Loon Bay
Gander Bay South
Point of Bay
Lewisporte
Laurenceton
Cook's Harbour
Raleigh
St. Lunaire-Griquet
St. Anthony
Flower's Cove
Main Brook
Plum Point
Roddickton
Conche
Port au Choix
Englee
Hawke's Bay
River of Ponds
Daniel's Harbour
Fleur de Lys
Ming's Bight
Pacquet
La Scie
Parsons Pond
Seal Cove
Baie Verte
Shoe Cove
Cow Head
Jackson's Arm
Sop's Arm
St. Paul's
Burlington
NippersHarbour
Westport
Pollard's Point
Fogo
Tilting
Seldom-Little Seldom
King's Point
Rocky Harbour
Norris Point
Springdale
SEE INSET 1
Musgrave Harbour
Deadman's Bay
Trout River
Hampden
South Brook
Lumsden
Cape Freels North
Newtown
Wesleyville
Deer Lake
Botwood
Greenspond
Howley
Cox's Cove
Lark Harbour
Bishop's Falls
Norris Arm
Gander
Trinity
York Harbour
Badger
Dover
Humber Arm South
Pasadena
Buchans Junction
Grand Falls-Windsor
Gambo
Corner Brook
Salvage
Bonavista
Buchans
Millertown
Glovertown
Elliston
Eastport
Little Catalina
Lourdes
Plate Cove West
Stephenville
Charlottetown
Melrose
Stephenville Crossing
Trinity
Cape St. George
Port Blandford
Burgoynes Cove
Grates Cove
St. George's
Heatherton
Clarenville
Old Perlican
Little Hearts Ease
St. David's
Swift Current
Head of Bay d'Espoir
North Harbour
South Branch
Codroy
St. Alban's
Conne River
Arnold's Cove
Chance


Doyles
St. Andrew's
La Poile
Cape Ray
Channel-
Port aux Basques
Isle aux Morts
Burnt Islands
Rose Blanche-Harbour le Cou
Burgeo
Ramea
Grey
River
Francois
McCallum
Seal Cove
Gaultois
Harbour
Breton
Belleoram
Terrenceville
Fairhaven
Long Harbour
Boat Harbour
Red Harbour
Garnish
Rushoon
Frenchman's Cove
Marystown
Grand
Bank
Fortune
Lawn
Burin
St. Lawrence
Lamaline
Freshwater
Whitbourne
Colinet
Holyrood
Tors Cove
Bay
Bulls
Cape Broyle
St. Joseph's
Fermeuse
Renews
St. Bride's
Branch
St. Mary's
Trepassey
St. Shott's
SEE
INSET 2
Newfoundland
Labrador
Department of Finance
Newfoundland & Labrador Statistics Agency
Community Accounts
RW10_227v1
July 20, 2010


Intra-Provincial Migration
Census Division 8
2006 - 2010
CD 11
In: 18 Out: 16
Net: +2
CD 10
In: 157 Out: 185
Net: -28
CD 09
In: 72 Out: 89
Net: -17
CD 08
In: 1,987 Out: 3,531
Net: -1,544
CD 05
In: 208 Out: 190
Net: +18
CD 06
In: 1,474 Out: 731
Net: +743
CD 07
In: 208 Out: 185
Net: +23
CD 04
In: 60 Out: 34
Net: +26
CD 03
In: 40 Out: 70
Net: -30
CD 02
In: 38 Out: 31
Net: +7
CD 01
In: 1,256 Out: 456
Net: +800
Department of Finance
Newfoundland & Labrador Statistics Agency
Community Accounts
April 16, 2012


Inter-Provincial Migration, 2005 - 2010 Census Division 7
Census Division 7
N.W.T.
In: 59 Out: 42
Net: +17
Nunavut
In: 92 Out: 60
Net: +32
Yukon
In: 10 Out: 10
Net: 0
British Columbia
In: 153 Out: 125
Net: +28
Alberta
In: 2,102 Out: 1,298
Net: +804
Saskatchewan
In: 52 Out: 22
Net: +30
Manitoba
In: 51 Out: 108
Net: -57
Ontario
In: 649 Out: 1,335
Net: -686
Quebec
In: 25 Out: 21
Net: +4
New Brunswick
In: 99 Out: 94
Net: +5
Nova Scotia
In: 222 Out: 202
Net: +20
PEI
In: 20 Out: 28
Net: -8
Census Division 7
In: 3,345 Out: 3,534
Net: -189
Newfoundland Labrador
Department of Finance
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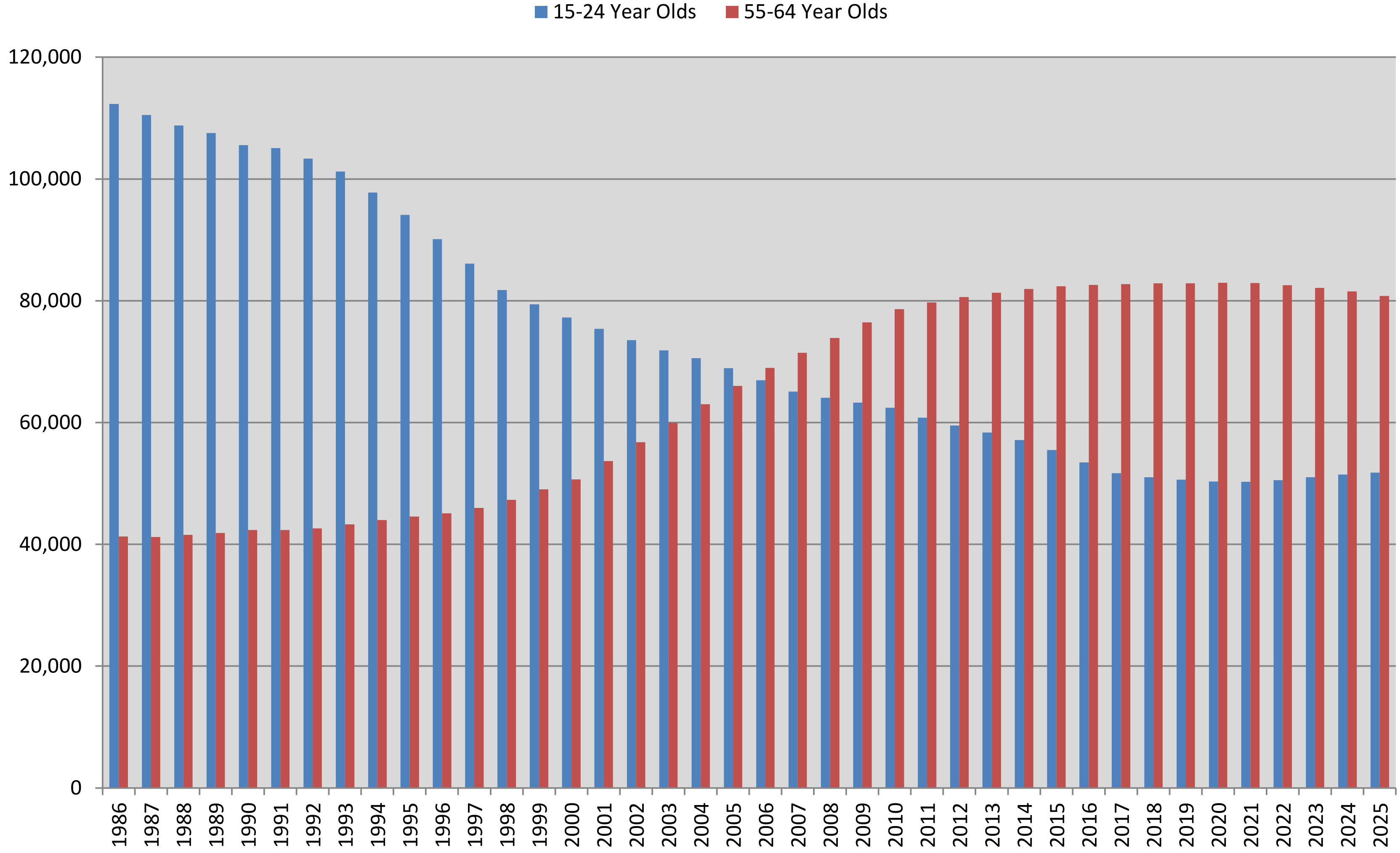
April 16, 2012

Recent Population Trends

2012	10	34,884,137	527,853
2013	1	34,940,975	527,754
2013	4	35,025,296	527,690
2013	**7**	**35,158,304**	**526,702**
2013	10	35,295,770	527,464
2014	1	35,344,962	526,896
2014	4	35,427,524	525,378

Potential Entrants



Source: Statistics Canada (population estimates 1986-2010); Economic Research and Analysis Division, Dept of Finance (projections 2011-2025).

Demographic Forecast

- Population is currently falling and is expected to continue to fall over the next 10-20 years.
- Provincial out-migration will accelerate as major projects wind down especially after 2017.
- While net in-migration will occur past 2020, the natural decrease in population, which is already occurring, will accelerate as boomers die.
- Urbanization will continue especially into the St. John's CMA.
- Older residents will move closer to hospitals and children.
- There is the opportunity to adjust to a more efficient **market economy** from the **social** one in which governments feel forced to provide jobs.

Implications of Evidence (1/2)

- Employment in the harvesting and processing sectors of the industry will continue to fall.
- Demographics and other more stable and lucrative employment opportunities will make it harder to employ local talent. Additionally, working families, with higher levels of education will be attracted to urban centres.
- Political support for EI and the industry will slowly diminish because of business and public concern over labour "shortages".
- The industry will have to find new "levels" (wages) and paths of labour compensation (fringe benefits) in order to attract and keep workers.

Implications (2/2)

- Under the current conditions we are moving away from a “social” fishing industry to a more competitive, market-based one.
- Increased market opportunities in Europe and elsewhere will expand demand with an increasing emphasis on fresh, quality products.
- These forces will spell more rapid **technologica**l change (more capital intensive as machines replace people) within the industry with increased productivity and consolidation.
- For the survivors of this changing environment, the economic future looks **bright**!
- **BUT** who survives, that is, who is in the group photo may look quite different from what it is today! There are major managerial challenges on the horizon.

What we should note BUT Don't!

- TFP and the unit costs by establishment in harvesting and processing by species for the province, other provinces and countries both as levels and growth rates!
- Where's capital services??
- How do we treat resource quantity and quality as an input in TFP?? Statistical agencies and productivity experts are struggling with this!
- We also need to know TFP and unit costs by establishment anonymously. Management is important! Not all managers are equal.

dmay@mun

- Thanks to NLSA and DFA for the data and guidance.
- Presentation is available at www.mun.ca/care
- Additional readings:

http://www.fishaq.gov.nl.ca/publications/SYIR_2013.pdfhttp://www.fishaq.gov.nl.ca/publications/dunne_report.pdf http://www.fishaq.gov.nl.ca/publications/archives/report_the_special_panel_on_corporate_concentration.pdf