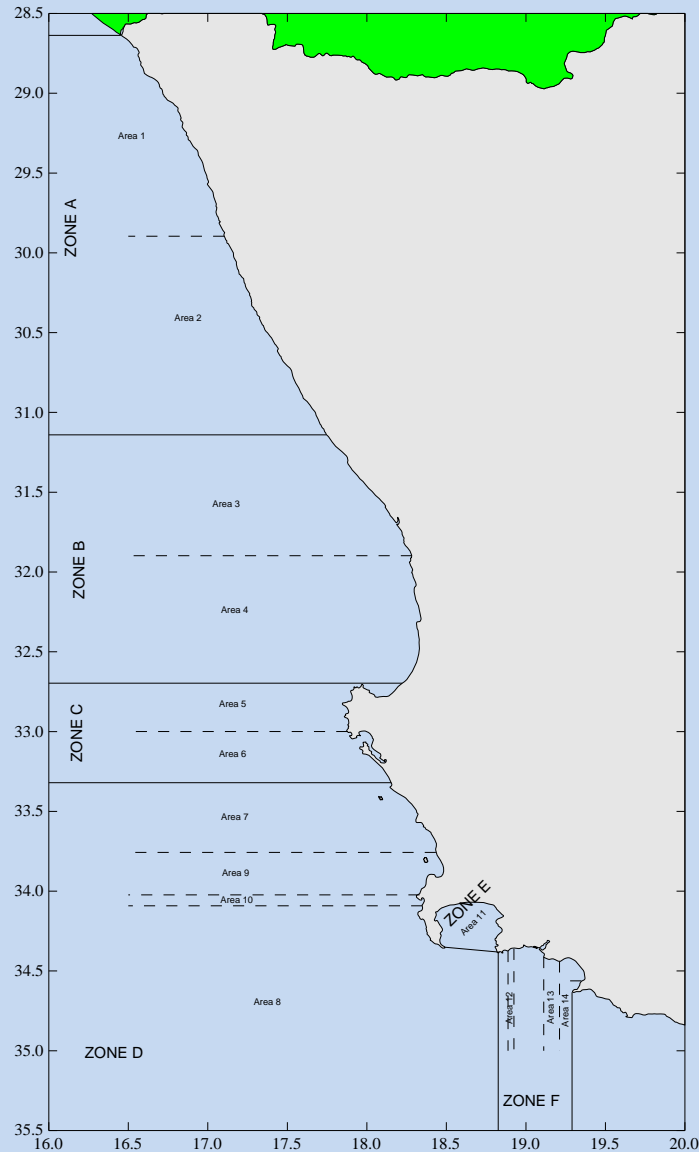


West Coast Rock lobster fishery: estimation of the extent and trends of poaching (BG1)



- *Jasus lalandii*
- <200m depth
- Slow growing long lived
- Very depleted (2-3% K)
- Commercial fishing ~1880s
- Sectors:
 - Offshore commercial
 - Nearshore commercial
 - Interim relief/small scale
 - Recreational sector

Current Management

- Minimum size limit (currently 75mm CL for commercial and 80mm CL for recreational)
- Gear restrictions (traps offshore, hoopnets inshore)
- TACs
- Closed seasons and restriction on retention of berried females
- Subdivision into management zones and MPAs: fishery split into five super-areas for assessment purposes (A1+2, A3+4, A5+6, A7 and A8+).
- So GLOBAL TAC needs to be split between the five super-areas and the different sectors.

Since 1997 – TACs set annually through application of OMP

- 4 OMPs since
- BUT: in 2016 – the updated assessment + re-evaluation of poaching



poaching found to have doubled over last three years



resource outside the range the OMP had been simulation tested



“Exceptional Circumstances”

- Therefore: “best estimate projections” used to recommend TAC

DATA available

Data are collected and analysed at the super-area level (5 super-areas)
– a previous Panel recommended to treat these as separate stocks.

1. Commercial catch data 1910+
2. Recreational catch data 1992+ (telephone surveys)
3. Poaching estimates: assume poaching started in 1950 (zero poaching before then)
4. Trap: hoopnet ratios for sources of catches
5. CPUE
 - Trap CPUE 1981+ (A3+4, A7, A8+)
 - Hoopnet CPUE 1986 (A1+2, A3+4, A5+6, A8+)
 - FIMS CPUE 1992 (A3+4, A5+6, A7 and A8+)

6. Catch size structure
 - males and females separately
 - 5mm size classes
 - Traps and hoops since 1976
 - FIMS since 1992

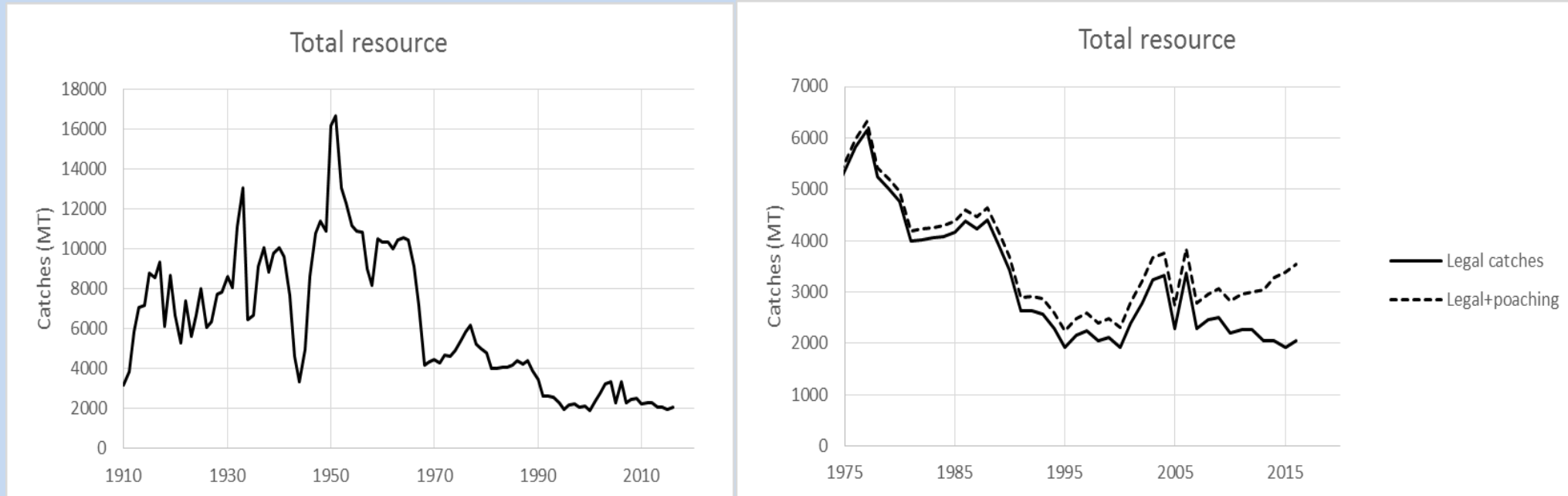
[Note: Minimum legal carapace length]

7. Percent females in catch (F%)
8. Somatic growth estimates
 - A moult probability analysis is applied to tagging data to estimate somatic growth
 - From 1968 from all super-areas

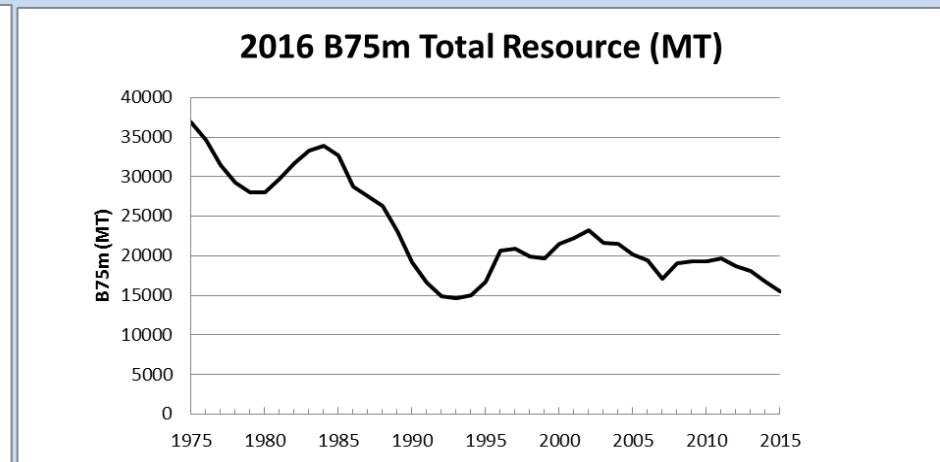
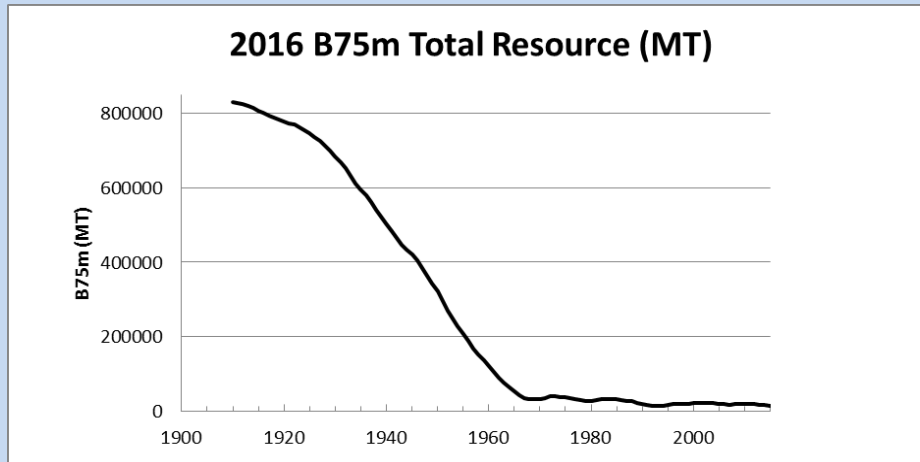
Stock assessments (BG2)

- Length based model (at 1mm intervals)
- Different assessment for each of five super-areas as per previous Panel recommendation
- Concentrate on male biomass above legal size limit (B75m) (females hardly get larger than this size)

Historical Catch for resource as whole



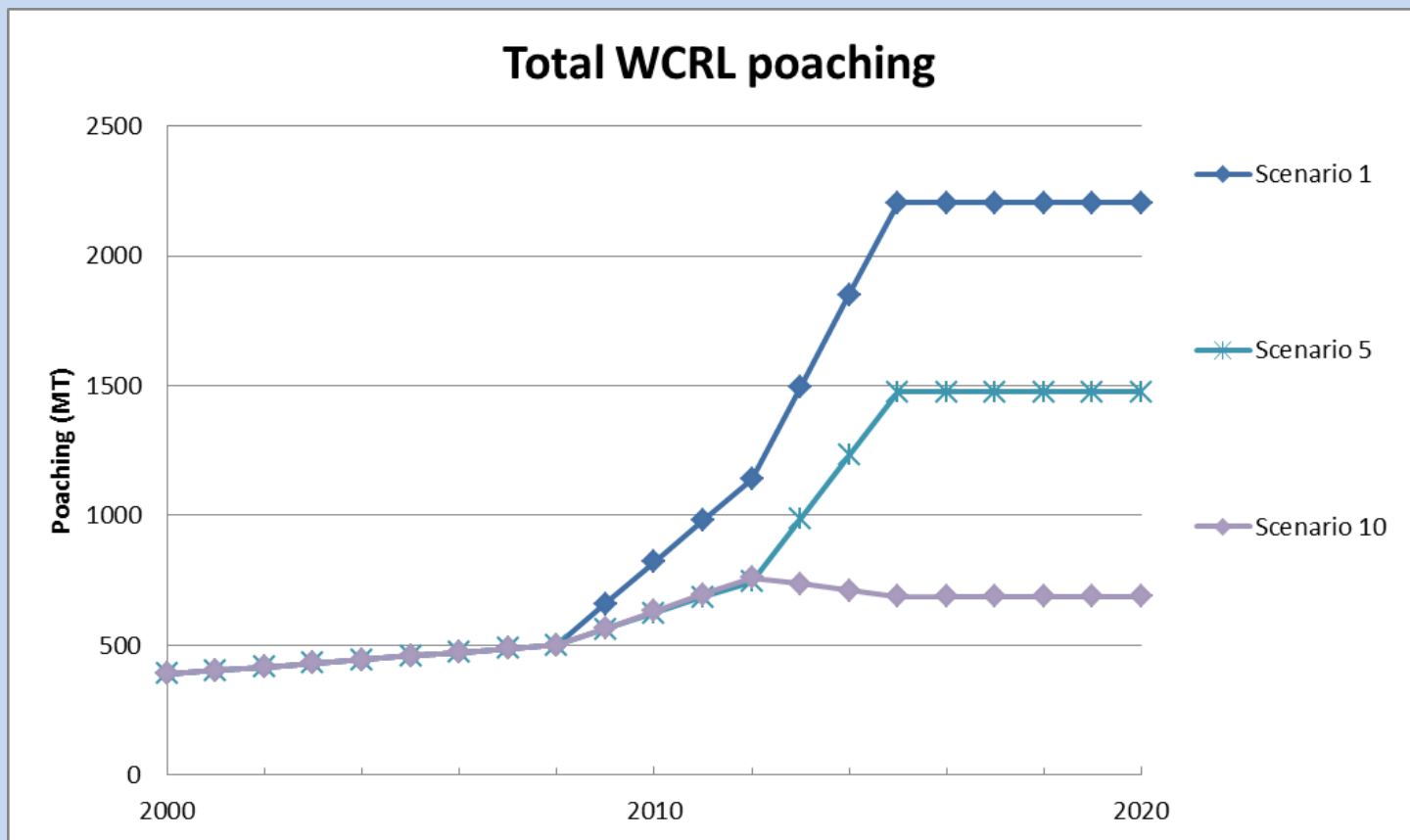
Updated 2016 assessments



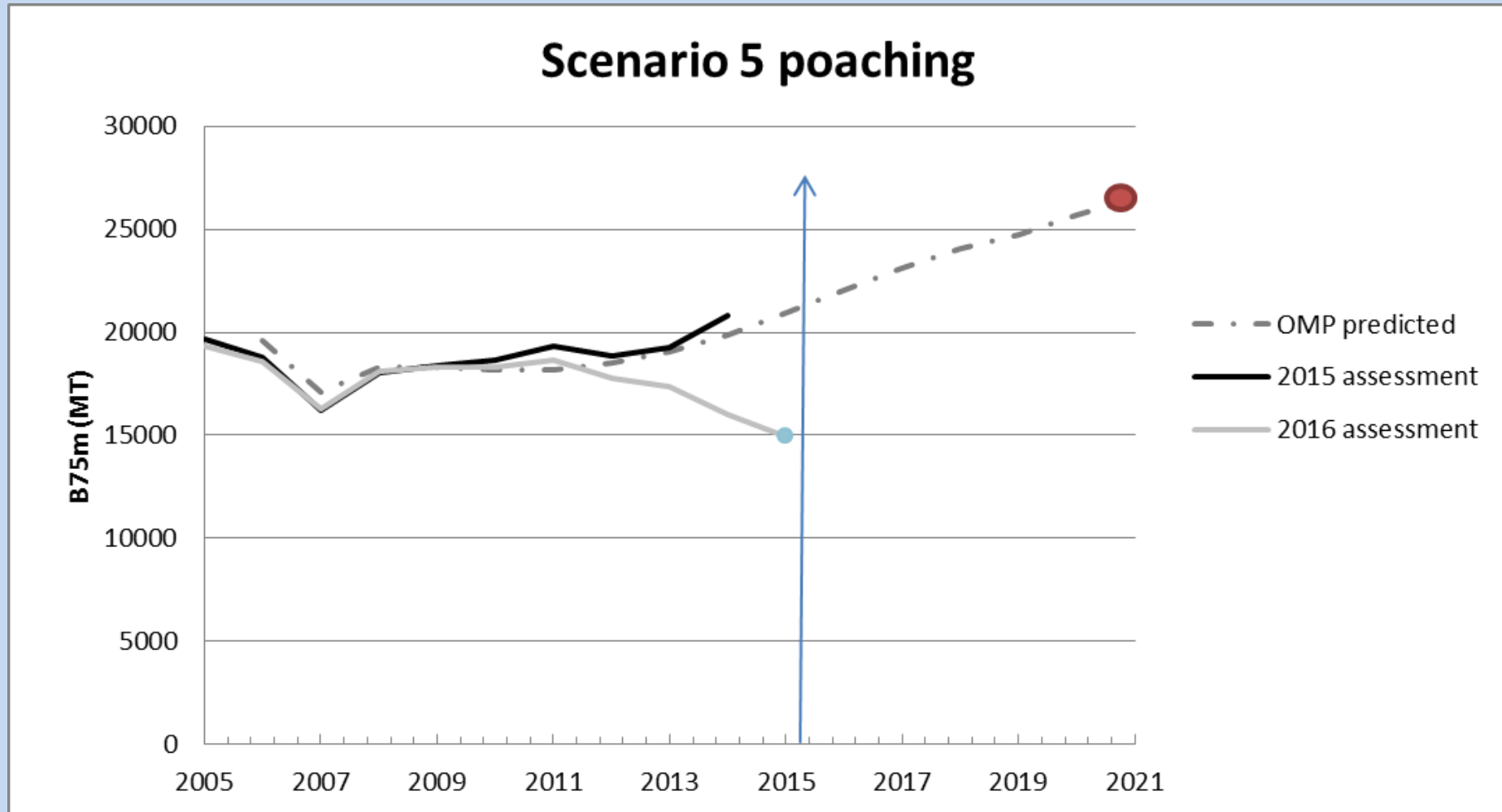
- Resource is about 20% less abundant than previous thought
- Decline in abundance by about 20% over the last five years
- Super-area 8 has declined by 50% over this five year period
- Even in absence of any future catches – resource is would not be able to reach the 35% biomass increase target

Projections of the resource for a range of future constant catch and poaching scenarios (BG3)

Poaching scenarios

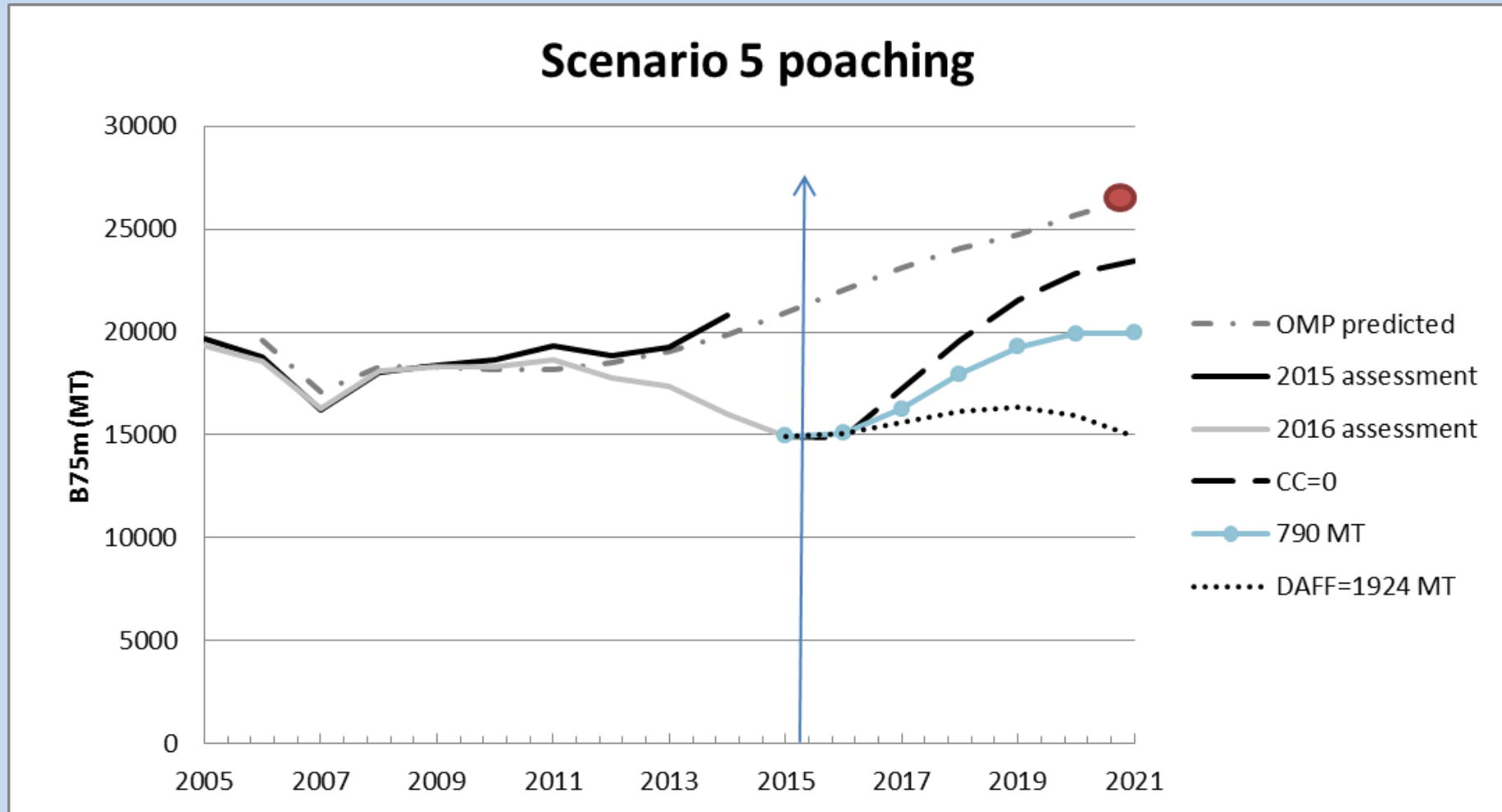


Scenario 5 poaching

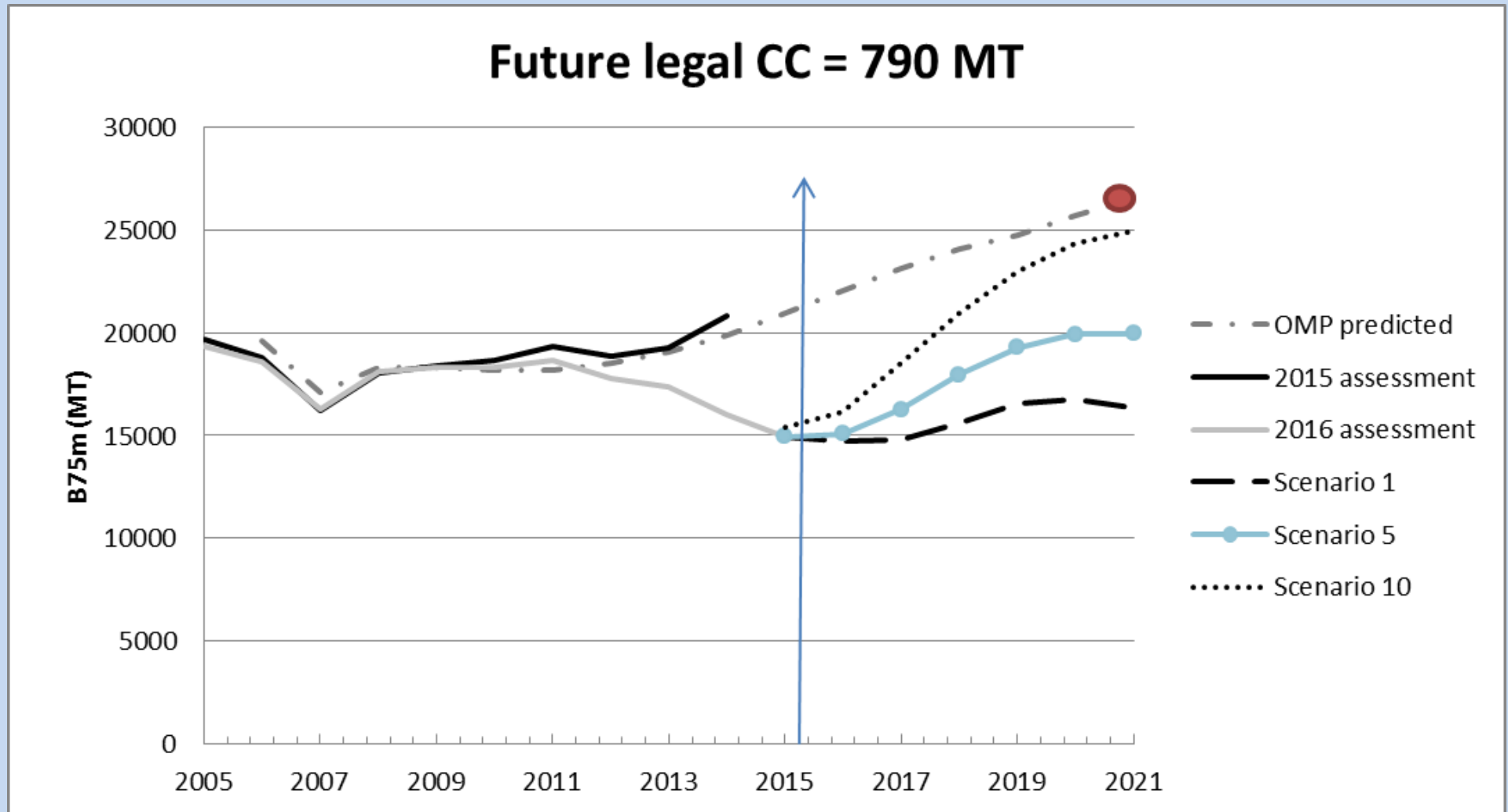


Agreed recovery target had been a **35%** increase in the 2006 abundance by 2021

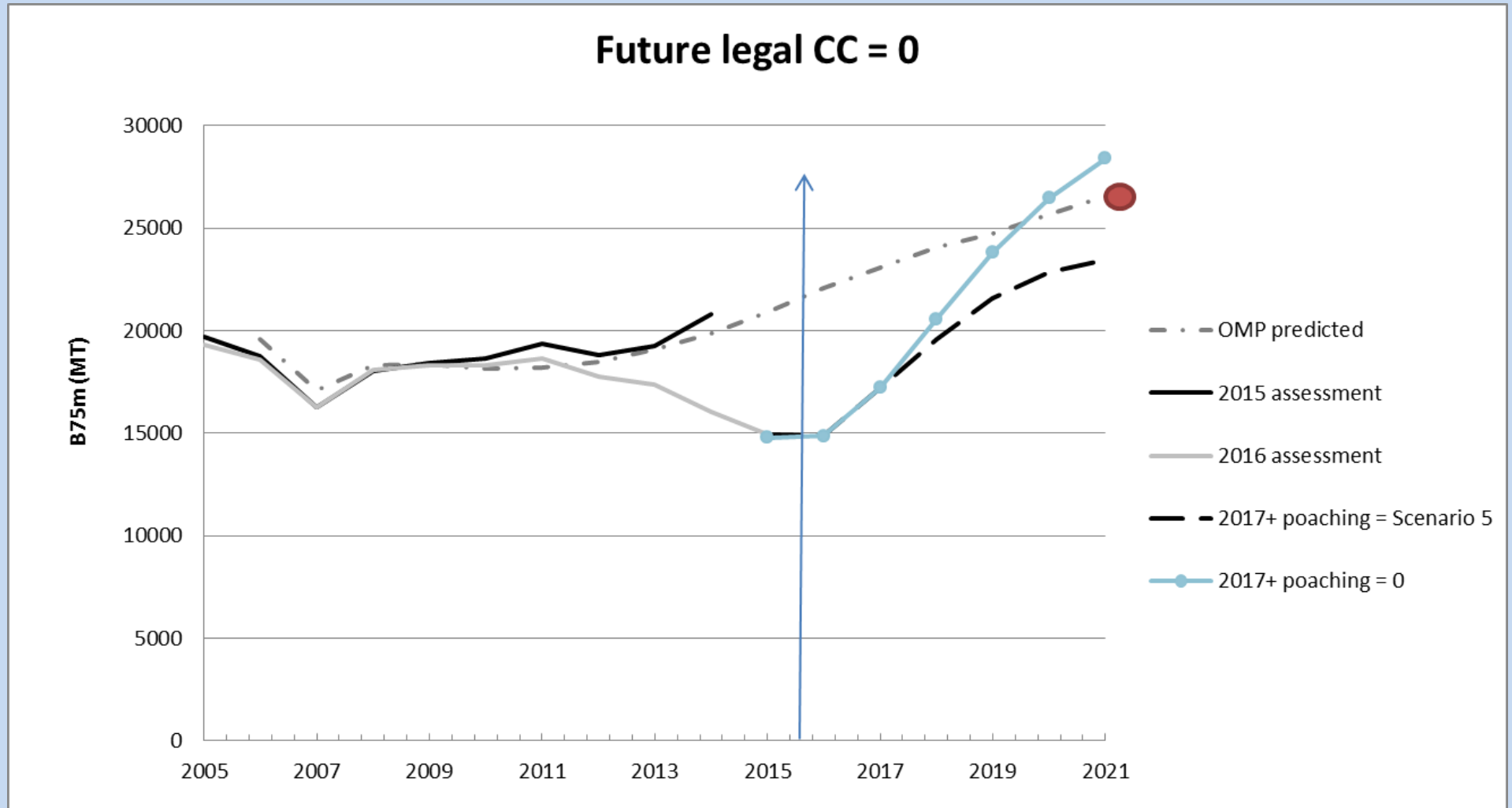
Scenario 5 poaching



Future legal CC=790 MT for three different future poaching scenarios



What if poaching is reduced to zero for 2017+?



Bottom line



Assumptions made about past and future poaching levels are very NB

Questions to panel (P1)

- 1) For the data available, how might the analysis methods being used be improved?
- 2) Have the results obtained from the current methods been accurately summarised?
- 3) The DAFF MCS confiscations and effort data, and the TRAFFIC analyses, suggest different trends in the extent of poaching over time; how best might these differences be taken into account?

- 4) How best might one determine reliably whether and to what extent the magnitude of poaching might change in the future?
- 5) If additional compliance measures of a different nature are introduced, with possible impacts on the behaviour of poachers, how best might the existing poaching trend index derived from DAFF MCS data be calibrated?
- 6) Are there any suggestions for other possible approaches to quantify poaching magnitudes and trends, either with the data currently available, or with additional data which could be practically collected?

The poaching story (P2)

- Major source of uncertainty to management of WCRL
- Currently poaching ~ same order of magnitude as legal take
- Need to know past and future trends, as well as quantify magnitude

WHY?

1. More reliable stock assessments
2. Develop most appropriate OMs for OMP testing
3. Develop plausible assumptions for poaching trends in the future

Sources of data to be used to assess levels and trends in poaching (P2)

(1) Poaching confiscation data and compliance effort from DAFF's MCS

- **Problem:** these data fail to link the type of compliance effort associated with each case of confiscation
- **GLM analyses** applied to these data
- **Aim** is to estimate recent **trends** in poaching
- **The ratio of confiscations to compliance effort** is assumed to provide an index of the amount of poaching

(2) TRAFFIC analyses of trade and landings data

- **Period 2000-2015**
- **Compare lobster exports from SA and world imports from SA and lobster landings**
- **Used to estimate the **magnitude** of poaching in absolute terms.**

Poaching confiscations data: GLM methods applied to policing effort and confiscations data. (P3)

We have for 2008+ a) Total **confiscations** by month and super-areas

b) Policing **effort** by month and super-area where policing effort is in terms of for e.g.

- # vehicles inspected
- # slipway inspections
- # coastal patrols
- # sea patrols
- # restaurant inspections

GLM analysis results produce poaching trends relative to 2008.

Results of GLM poaching analysis: Poaching in 2008 = “1”

Plausible ranges



Northern areas

2008-2012 Decrease to **0.30** [0.10; 0.60]

2012-2015 Increase to **0.50** [0.30; 0.70]

Southern region

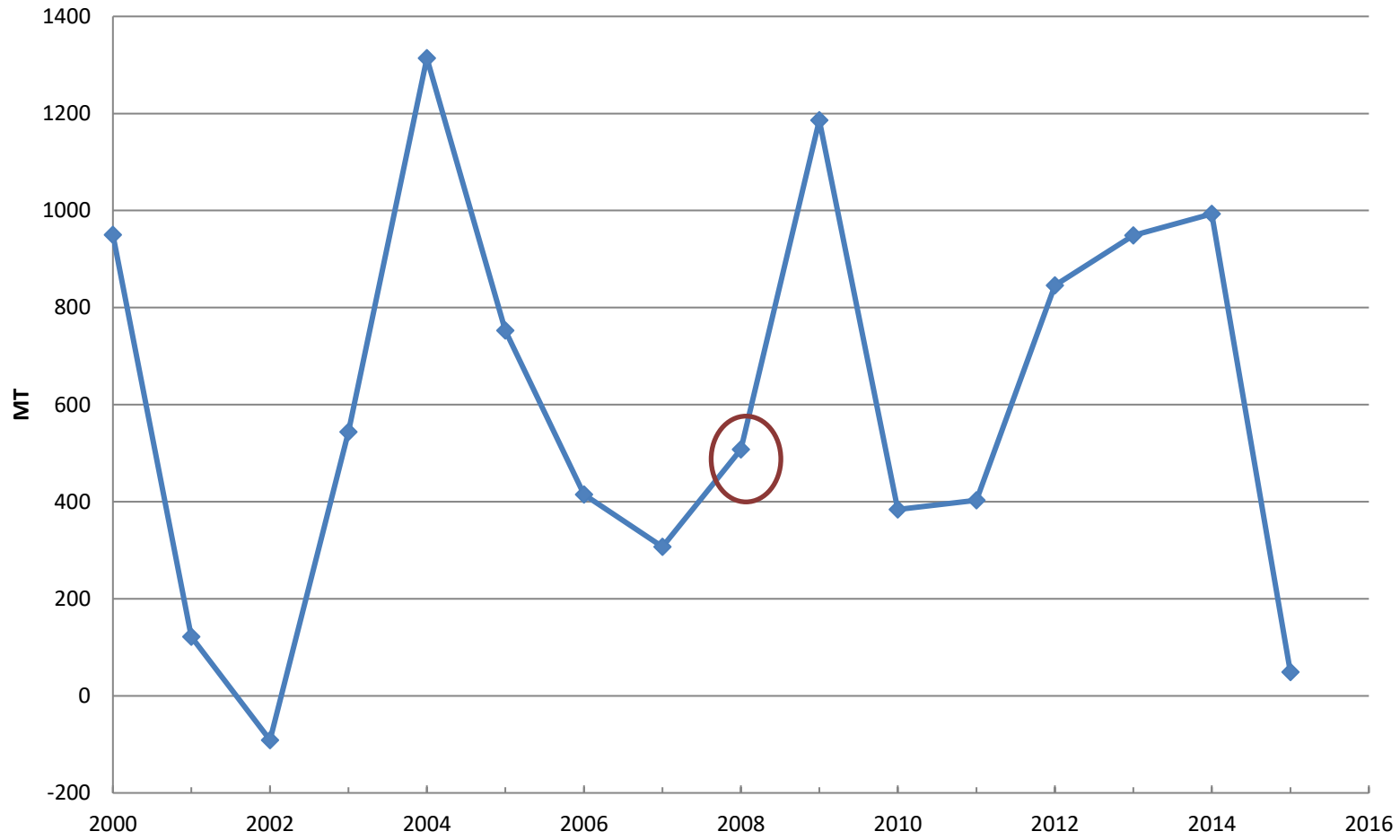
2008-2012 Increase to **2.0** [1.0; 3.0]

2012-2015 increase to **4.0** [2.0; 6.0]

TRAFFIC data (P5)

- **Statistics on South African lobster landings, exports and world imports (note: excludes sales within SA)**
- **2000-2015**
- **Rationale for ABSOLUTE amount of poaching ~ 2008 – suggests about **500** tons (SA exports less SA legal landings)**

SA exports less SA Landings (MT)



Total WCRL poaching

