SPICOSA

ShellFish Farming

Ifremer

- Figuring the shellfish farming sector

The industry is considered as a whole (at a first stage), but several exploitations systems may be also considered (various specialisations)

⟹ Typology of exploitation systems

- Rationale of the approach

. Oyster production (at each stage: spat collection, growing) depends on natural environment factors (drivers), esp. river flows (salinity, nutrients)

⟹ Link with the coastal water productivity module

. Producers target an « objective function » = maintaining the current mean annual production over time (recent observations support this assumption)

. Producers decisions: if the current production differs from the objectives, the producers may import (export) the equivalent of the negative (positive) differential in order to minimize (maximize) commercial losses (gains)

- Expected output of the shellfish farming module

The model will estimate the gaps between real production and objectives:

. frequency and intensity of required adaptations

. additional costs (benefits) associated with the productivity losses (gains) due to freshwater relative scarcity (abundance)

⟹ Damage costs assessment

Oyster production cycle model

Length

Time

Marenne Oléron :
Production cycle of 3 or 4 years
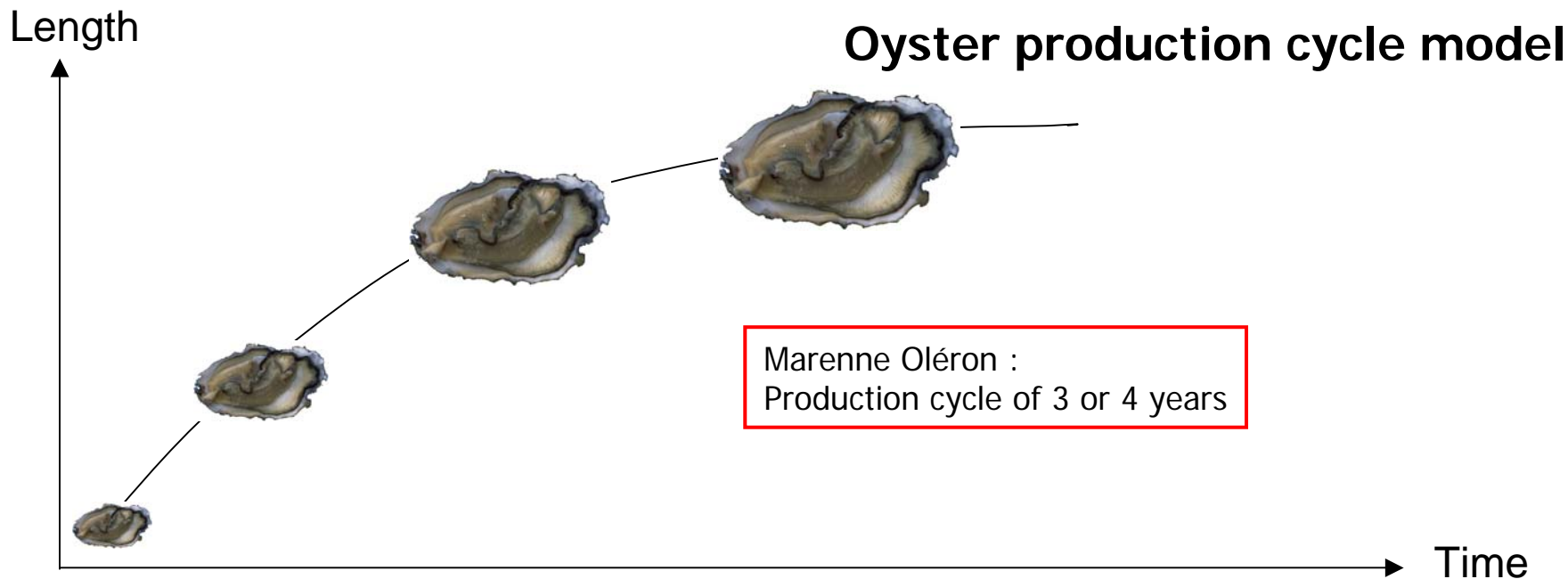
Grow-out start :
• size
• population

Oyster Growth
DEB Model :
• Temperature
• Food (Phytoplankton)

Natural
mortality

Harvest of
marketable
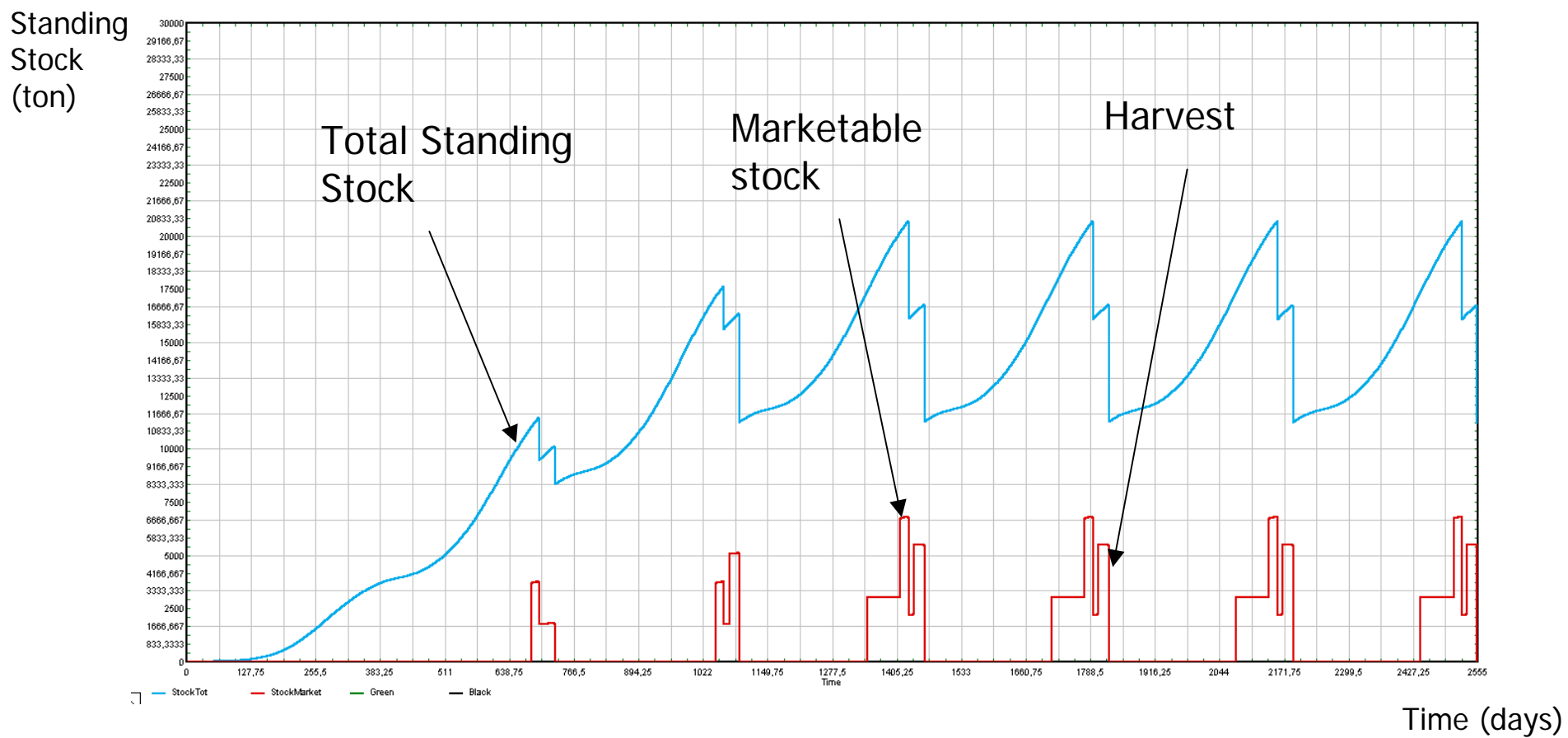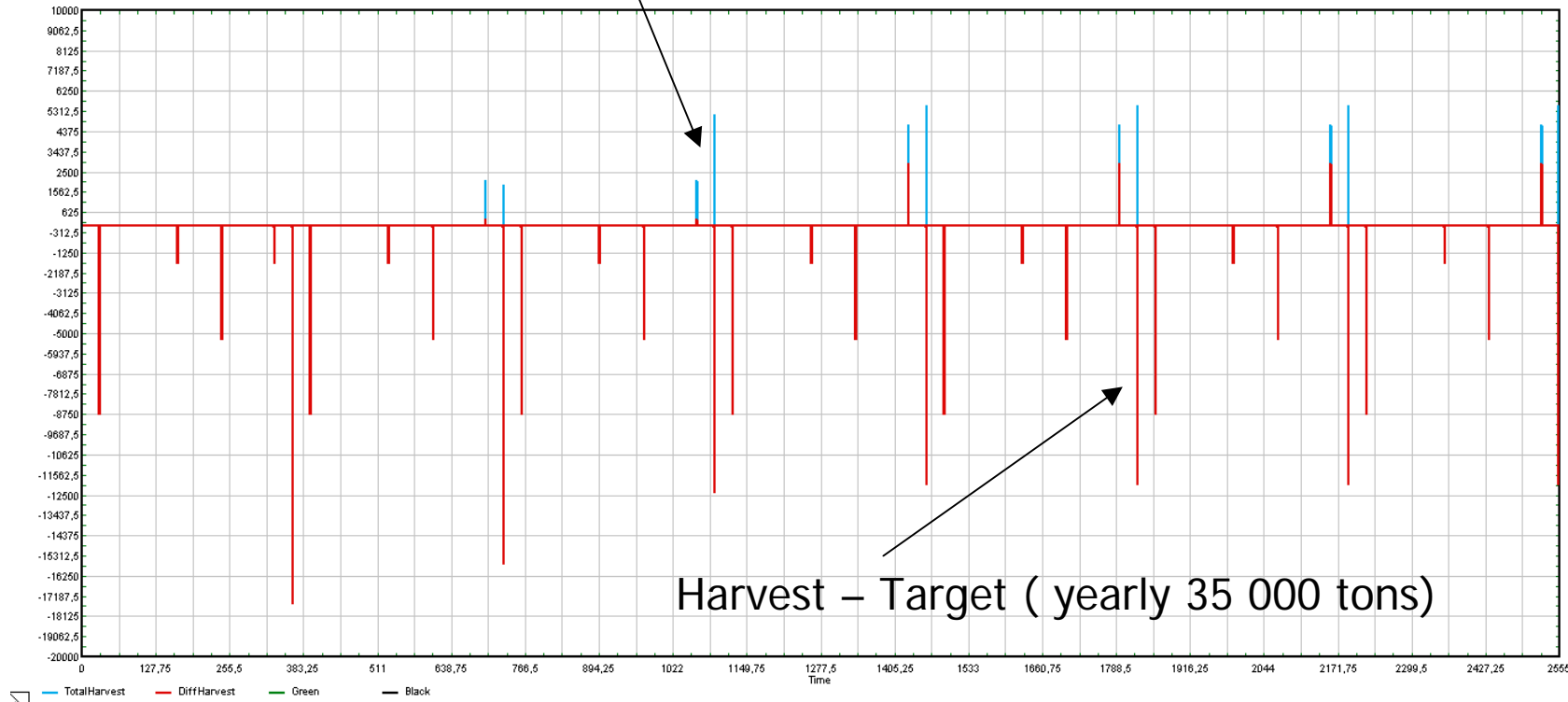sized oysters :
Production target

Oyster growth

Sub cohort variability :
Xk DEB model factor
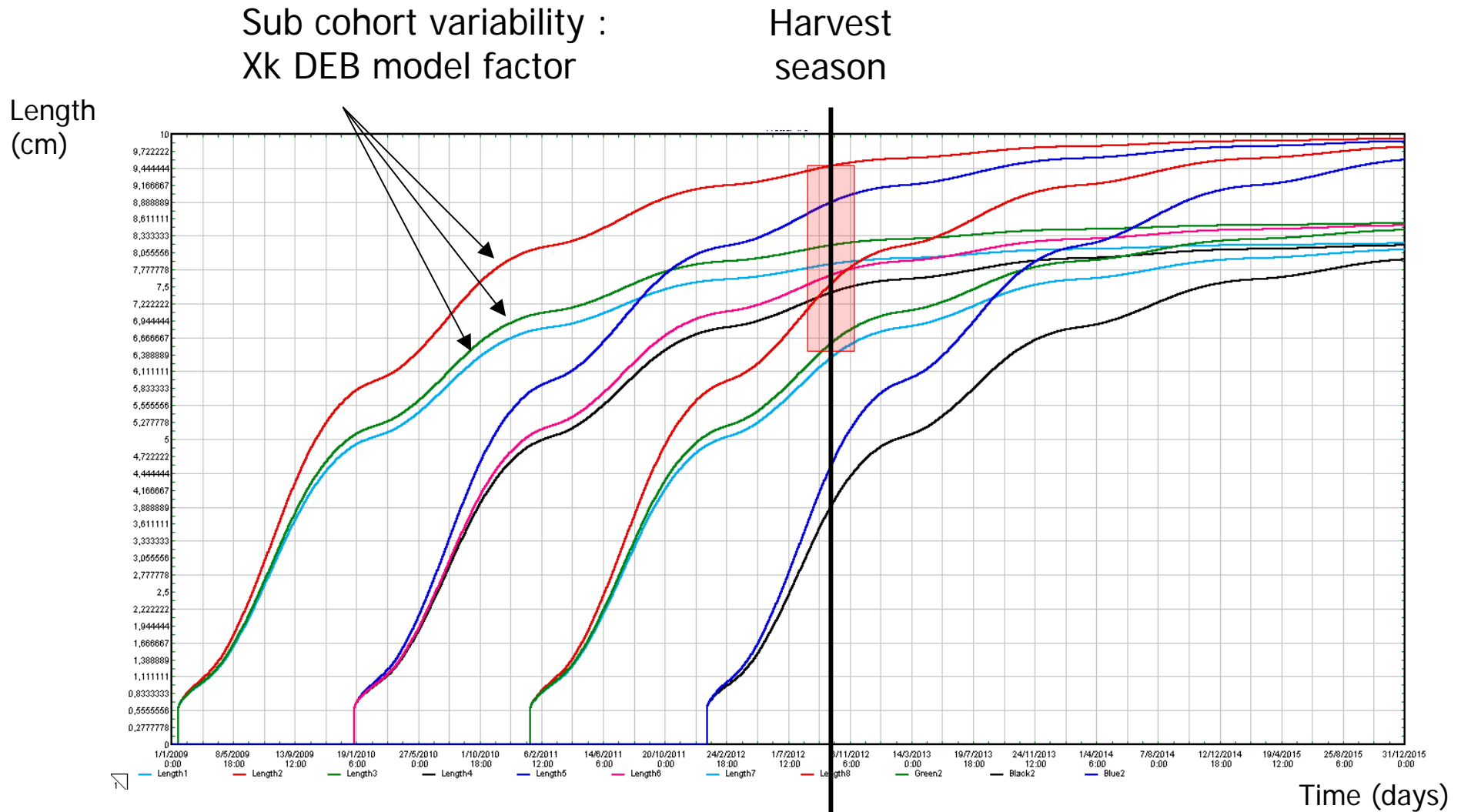
Harvest
season

Oyster standing stock

Output : Sales and targets (in tons)

Harvest to be sold

Harvest
(ton)

Harvest – Target (yearly 35 000 tons)
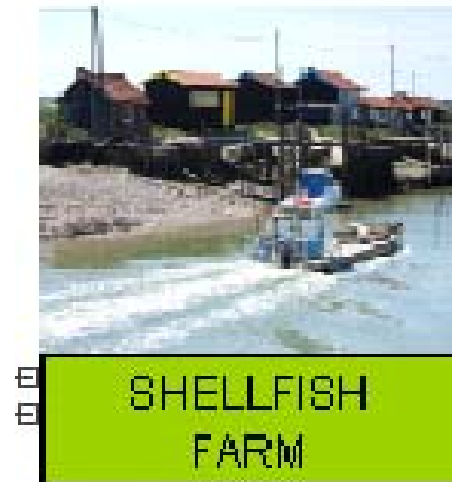
Time (days)

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Adaptative management
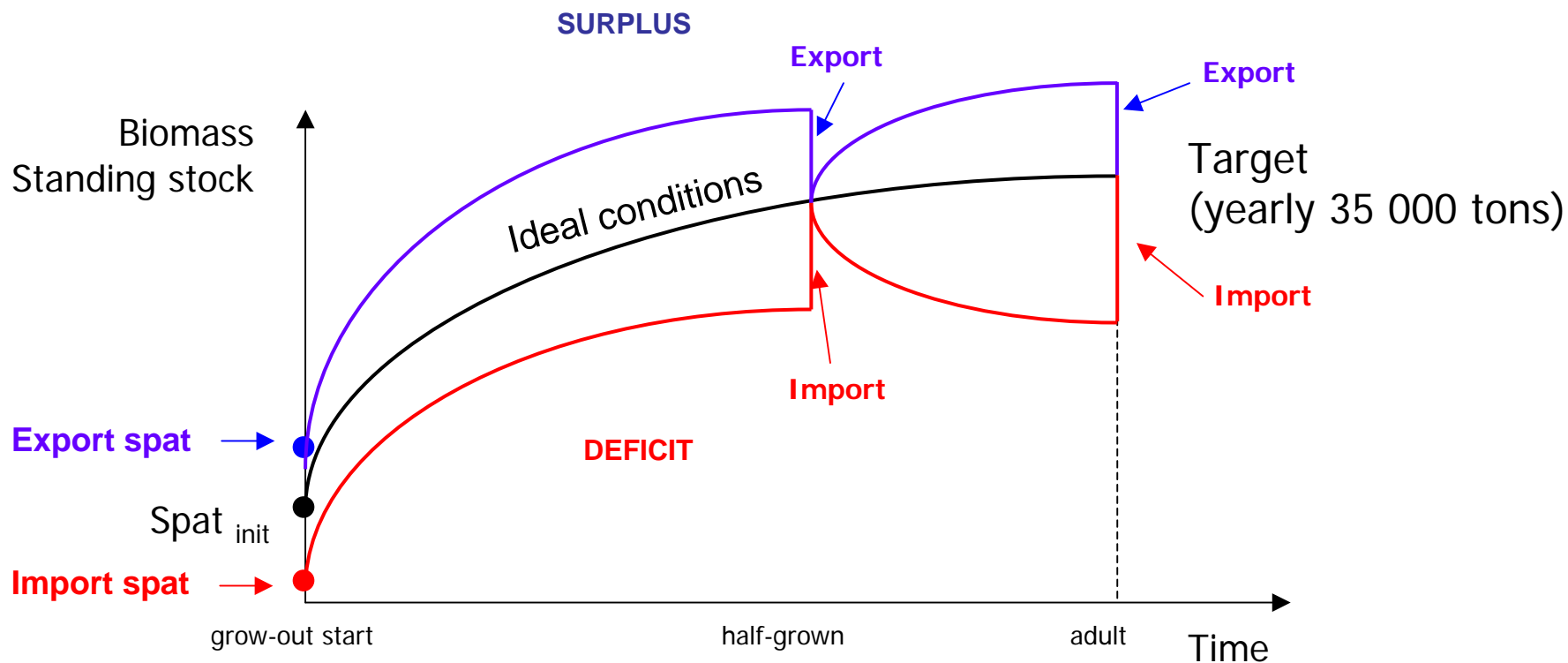
Shellfish Farm specialization

Lately, shellfish farmers have been specializing their activity.
The model will represent several types of oyster exploitation.

The shellfish farm block has been developped as a generic block.

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