

EASTERN CAPE DEVELOPMENT CORPORATION  
**FINFISH MARICULTURE**





## FINFISH MARICULTURE IN THE EASTERN CAPE

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### **CLIMATIC, LABOUR & INDUSTRY INFORMATION RELEVANT TO MARINE FINFISH MARICULTURE**

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The objective of this document is to give a factual overview of labour, climate and logistics issues pertaining to the finfish farming potential of the Eastern Cape Province. The information can be used by a potential investor to undertake a brief evaluation of the suitability of the location for their purposes.

The purpose of this document is to encourage the potential investor to do a site visit with the view to doing a full feasibility of a finfish production facility in the province or alternatively to invest in an existing operation or opportunity.



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## 01 INDUSTRY STATUS

Finfish mariculture (aquaculture of marine food-fish species) in South Africa is a new industry that has developed in response to declining catches and increased fish prices. This sub-sector is set to take off following research initiatives and pilot commercial operations to develop technologies for the farming of a number of indigenous species. Despite the considerable contribution that mariculture can make towards regional economic growth, job creation and foreign income earnings, the growth of the sector has been slow compared to other countries. Reasons for this include the historically low price of seafood in South Africa; abundant marine fisheries; a high-energy coastline that limits sea-based mariculture; competition for land with other users thereby restricting land-based operations; a lack of appropriate technology and an unsupportive institutional environment. Current finfish culture projects include land-based dusky kob culture and pilot scale cage culture of dusky kob and yellowtail.

## 02 MARKET

The international aquaculture sector is booming worldwide to meet the shortfall in demand for fishery products and has grown at an annual compounded rate of 9.2% per annum since 1973, and is projected to grow at 3.8% per annum until 2020. Increased demand is expected to cause the price of high value fish to increase by 15% in real terms by 2020.

South Africa is currently a net exporter of fishery products but most South African products are considered maximally utilised with many high-valued product fisheries such as abalone, prawns and linefish being over-exploited. The projected increase in demand for high end fish products provides opportunity for substantial increase in finfish mariculture production.

Domestic demand can also be met by imports therefore the projected increase in demand only provides an opportunity for the finfish mariculture sector if it is competitive.

## 03 COMPETITIVE ADVANTAGES

The Eastern Cape has a number of competitive advantages for finfish mariculture –

- The price of suitable land is, on average, lower than the Western Cape
- The warmer sea temperatures allow the fish to reach market size in a shorter time than fish grown in the Western Cape
- Africa's leading mariculture research institution is situated in the Province at Rhodes University, Grahamstown
- The potential to develop two mariculture nodes in the Province is being investigated
- The Eastern Cape offers a lifestyle unsurpassed by any elsewhere in the country

## 04 SPECIES & TECHNOLOGY

Technology for the culture of the following marine finfish species has been developed and is being further refined: dusky and silver kob (*Argyrosomus japonicus* and *A.inodorus*), white stumpnose (*Rhabdosargus globiceps*), geelbek (*Atractoscion aequidens*), yellowtail (*Seriola lalandii*), and white margined sole (*Dagetichthyes marginata*).

Current practice is to produce the fingerlings in a hatchery and then transport them to grow-out sites. As of the beginning of 2009 there are four facilities (3 commercial and 1 research) involved in the production of fingerlings. In terms of grow-out farms, there is one sea-cage (kob and yellowtail) and five land-based operations (dusky kob), of which, all except one are situated in the Eastern Cape. Offshore cage culture is also being investigated for the Eastern Cape.

## 05 LABOUR POLICY

Agriculture (Mariculture) sector - The mariculture sector works within the South African Government labour regulations for farm workers (Basic conditions of Employment Act, No 75 of 1997. Section 8). These regulations cover minimum wage, overtime allowances, maximum work hours and leave regulations and generally bring agricultural labour relations in line with industrial labour. However, the actual values for these items are considerably lower than their industrial counterpart:

- Minimum wage is currently (Jan 09) set at R5.59 per hour
- Hours of regular work - 45 hrs per week
- Overtime rates are 1.5 times the basic rate
- Work on Sundays and public holidays is paid at double the regular rate
- Annual leave - 3 weeks per 12 months worked or 1 full day for every 17 days worked

- Sick leave - six weeks for every 36 month cycle worked
- Family responsibility leave - 3 days for every 12 months worked

Due to high levels of unemployment, particularly in the rural areas of the Eastern Cape Province, there is an increased motivation for all employees to maintain their jobs and to go the extra mile when necessary. Productivity is generally improving with a gradual increase of living standards being the major incentive. The Government's extensive skills development schemes extend into the agricultural sector, where numerous methods of training and educating the generally uneducated rural population, provide financial incentives for employers to uplift their staff.

## 06 CLIMATE

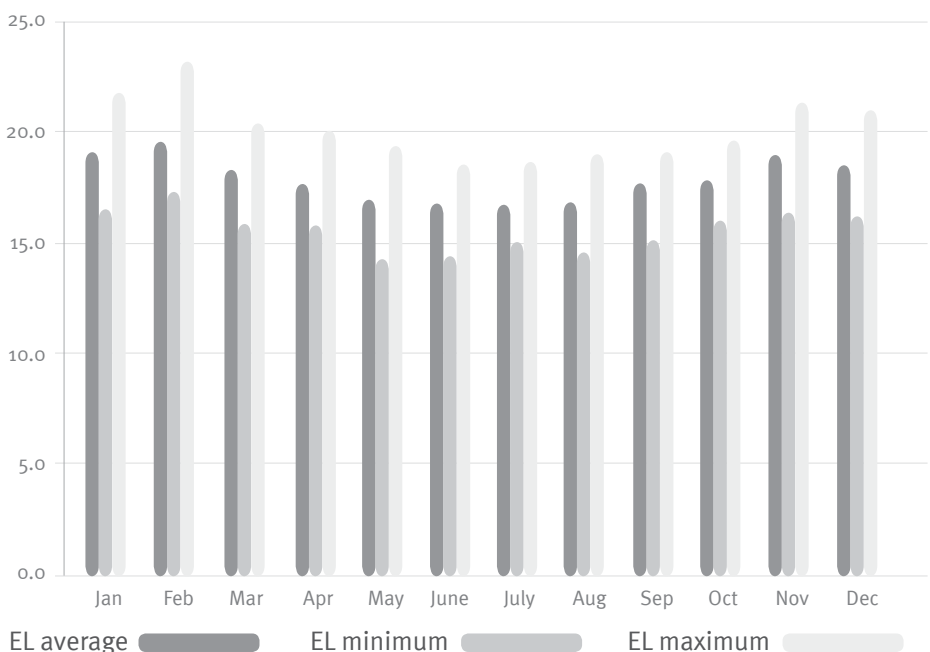
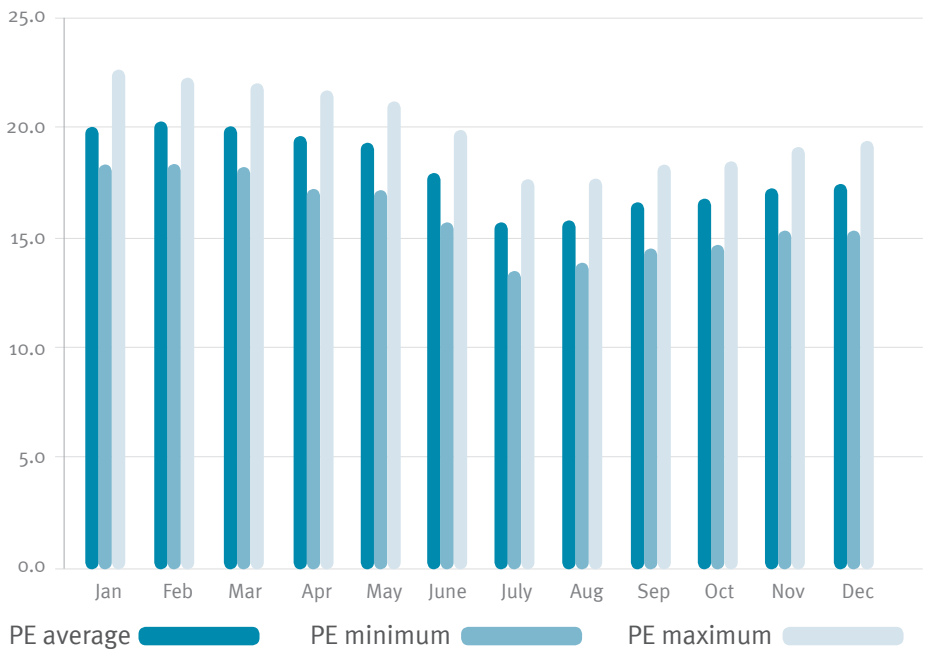
The Eastern Cape straddles the transition between three major climatic regions. Although subjected to major movements of air masses extending over hundreds of kilometres, there are many variations in temperature, rainfall, humidity and wind occurring over very short distances in the Eastern Cape. The spatial variations within the coastal belt provide a large number of “microclimatic zones”. (Source: Agricultural Research Council weather station)

### Average climatic data collected from three stations in the province

Location	Average Min air temperature (°C)	Average Max air temperature (°C)	Average % Humidity
Wave Crest	13.1	21.2	65.6
East London	14.4	22.9	NA
Port Elizabeth	13.5	22.3	73.9

### Average monthly seawater temperatures

From Orient Beach, East London and Pollock Beach, Port Elizabeth. Bars indicate the average minimum and maximum temperatures recorded during that month over the data collection period. (from Vine, 2009)



## 07 LOGISTICS

There is currently no fish processing plant in East London (EL) and therefore all product produced in this region would need to be processed elsewhere. However, as finfish production grows in the region, investment into this infrastructure is likely to occur. Port Elizabeth (PE) has fish processing facilities as does Cape St Francis.

### Local

Freezer trucks can be arranged and will often be supplied by the buyer. Distances to all major centres are within 1000km.

### Export

A health certificate is obtained by the producer prior to shipping. This certificate from the South African Bureau of Standards is internationally recognised.

A number of international freight forwarders are established with their own warehousing and admin facilities in both major cities.

They are linked into their national and international networks with facilities at Johannesburg and Cape Town and the European destinations. Internationally recognised operators such as Schenker and Roehlig-Grinrod are part of this pool of logistics experts.

SAA cargo is operating all on-site airport facilities and is known for its compliance with all relevant international standards, procedures and quality maintenance.

Cold storage facilities at both provincial airports meet the highest international standards and have been approved by the Perishable Product Export Control Board for handling perishable products for export. This certification is in line with all relevant international agreements.

Volumetric weight is 6000. Freight rates are available on request. Transit time from Eastern Cape airport to port of destination via Johannesburg is approximately 18-20 hours. Other relevant facts for exporters are:

- Cold storage facilities have roller beds to handle aircraft pallets.

- Airfreight space shortages are experienced during December from EL. Priority will be given to airfreight with allocations on international flights. PE rarely experiences shortages of space to Johannesburg or Cape Town except from October to March when most fruit products are exported from these two hubs.
- SAA accepts responsibility for the maintenance of prescribed temperature levels during transshipment at Johannesburg. Temperature loggers are available on request to monitor temperature throughout the voyage.
- Cargo space can further be booked with SAA Cargo reservations in PE for the destination required and SAA will confirm space out of PE. Space will be requested from either Johannesburg or Cape Town by SAA's reservation staff in PE.



## 08 START-UP COSTS

Start-up costs for a 50 ton land-based pond system (excluding hatchery) are in the order of R750 000 (Capex) and R750 000 (operating costs).

Start-up costs for a 300 ton recirculating land-based system (excluding hatchery) are in the order of R8 million (Capex) and R4 million (operating costs).

Start-up costs for a 300 ton cage culture operation (excluding hatchery) are in the order of R6 million (Capex) and R6 million (operating costs – includes boat).

Both land and sea based operations need to attain economy of scale. Internationally, most marine fish are reared in sea cages, and a relatively large volume (minimum 1000 tons) is required for a business to achieve competitive production costs (for export).

## 09 LEGISLATIVE REQUIREMENTS

Mariculture is a listed activity requiring a mariculture right and permit from the National Department of Environmental Affairs & Tourism: Marine & Coastal Management (M&CM).

To obtain this the applicant must prove that they have access to suitable land and have obtained all the relevant provincial permits. Provincial permits include: permit to undertake listed activities, water abstraction and land rezoning. An Environmental Impact Assessment will have to be undertaken as part of the application process for the relevant permits.

Certain projects may qualify for an exemption from the regulations based on annual tonnages produced. All marine species, no matter where they are cultured, require a mariculture right and permit from M&CM.

## 10 RISKS

Large swells following storm and current events occur along the length of the exposed and high-energy coastline of the Eastern Cape. These events could pose a threat to offshore cage operations and the general recommendation is that the site should experience less than one meter swell height for at least 90% of the time.

However, the technology for “high seas” cages has developed rapidly in recent years, and marine fish culture in South Africa’s semi-sheltered embayments which are protected from the prevailing swell direction is becoming increasingly feasible.

Minor threats could include predation from seals and sharks, and theft.



## Eastern Cape Development Corporation (ECDC)

The Eastern Cape Development Corporation is the official economic development agency for the government of the Eastern Cape province. It aims to facilitate and support private sector development in the province through a number of professional services. One of these services, investment promotion, promotes and facilitates foreign direct and domestic investment into the province.

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