

Reduction of fuel consumption in French fisheries:

NATIONAL PROJECTS: 22 projects

IFREMER PROJECTS in progress:

HYDROPECHE: Flow + Optimisation

EFFICHALUT: Professional bottom trawl

NATIONAL PROJECTS

Assessment of the potentiality of
fuel economy of the recent French
R&D projects

22 French R&D **projects**, their field of application, their completeness, expected effect at 10 years

	Already done	In progress	Accepted
Engine	Additive 0%	Sail 5% Vegetable oil 5% H2a 0%	Econometer 10% Kite 5% H2b 0%
Boat	Technical/Economic 0%	Architecture 10% Hull shape 5%	Trim 5% Monocatamaran 10% Bulb 5% Propeller 15%
Gear	Breton gears 15% Madagascar 15% Technical/Economic 0%	Flow/optimisation 15% Fish pots/trap nets 5%	Optimisation 15% High tenacity twine 10%
Divers	Guide 5% Survey 0%		

Evaluation du volume annuel de fuel consommé par les pêcheries en France

source: SIH Ifremer, synthèse des flottilles de pêche 2007

Ratio for the route	0.2
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Volume de fuel

Atlantique	Trainants < 12m	Trainants > 12m	Dormants < 12m	Dormants > 12m
CA annuel (€)	113088	560996	116543	572599
nb de navire	732	472	663	120
Taux de Valeur Ajoutée Brute (% du CA)	63	44	70	56
litre de fuel pour 1€ de VAB	0.4	1.1	0.2	0.3
Volume de fuel (1000.m³)	21	128	11	12

Répartition entre engins trainants

TR	184 mW
DR	9 mW
SE	71 mW

Categories of annual volume of fuel

Unit : 1000.m³

SIH: Atlantic, Channel, North Sea

TR: Trawling

DR: Dredging

SE: Purse seining

PA: Passive gearing

RO: Route (20%)

>: boat length > 12m

<: boat length < 12m

TR<	25
TR>	120
DR<	3
DR>	13
SE<	4
SE>	28
PA<	18
PA>	15
RO<	13
RO>	44

	TR<	TR>	DR<	DR>	SE<	SE>	PA<	PA>	RO<	RO>	Total	
	25	120	3	13	4	28	18	15	13	44	284	
Ad	0%	25	120	3	13	4	28	18	15	13	44	284
Te	15%	25	120	3	13	4	28	18	15	13	44	284
Bg	0%	22	102	3	13	4	28	18	15	13	44	262
Ma	5%	22	102	3	13	4	28	18	15	13	44	262
Gu	0%	21	97	3	13	4	26	17	15	12	42	249
Su	5%	21	97	3	13	4	26	17	15	12	42	249
Sa	5%	21	97	3	13	4	26	17	15	12	40	246
Vo	0%	19	92	3	12	4	25	16	14	11	38	234
Ha	10%	19	92	3	12	4	25	16	14	11	38	234
Ar	5%	18	83	3	12	4	25	16	14	10	34	218
Hu	15%	18	83	3	12	4	25	16	14	9	32	216
Fo	5%	15	70	3	12	4	25	16	14	9	32	201
Ft	10%	14	67	3	12	4	25	16	14	9	32	196
Ec	0%	14	60	3	11	4	22	16	12	9	29	181
Ki	0%	14	60	3	11	4	22	16	12	9	29	181
Hb	5%	14	60	3	11	4	22	16	12	9	29	181
Tr	10%	13	57	3	10	4	21	15	12	9	28	172
Mo	5%	13	57	3	10	4	21	14	11	8	25	166
Bu	15%	13	57	3	10	4	21	14	11	8	24	164
Pr	5%	11	49	2	9	3	18	12	9	6	20	140
Op	0%	11	46	2	9	3	18	12	9	6	20	137
Hi	%	11	46	2	9	3	18	12	9	6	20	137
Decrease	57%	62%	27%	34%	27%	34%	34%	41%	49%	54%	52%	

Actual consumption

1000.m³

TR<	25	11	57%
TR>	120	46	62%
DR<	3	2	27%
DR>	13	9	34%
SE<	4	3	27%
SE>	28	18	34%
PA<	18	12	34%
PA>	15	9	41%
RO<	13	6	49%
RO>	44	20	54%

Expected consumption

1000.m³

Potential decrease

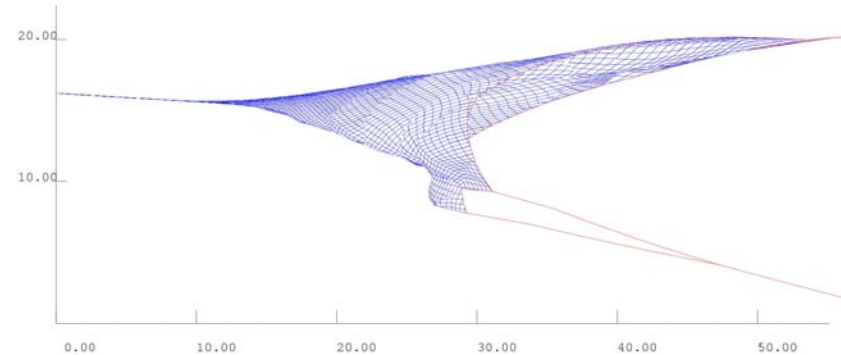
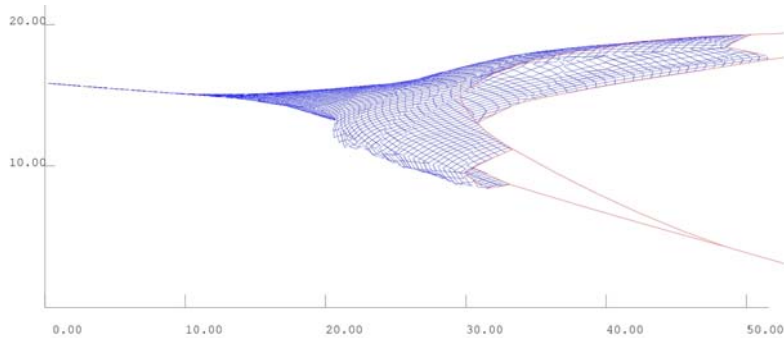
Discussion

- Large uncertainty
- Transfer of results to the profession & cost (cost vs gain)
- Larger decrease on trawling but still the largest
- Is it enough? Is it necessary?
- 150 000 m³ vs 10M€

- MSY (scallop: 45t/km² , nephrops: 1t/km² , wheat: 1000t/km²)
- Bankrupt, switch gear
- High price of fuel
- MSY (stock: 1000€/km²) vs Engineer (fuel trawl: 500€/km²)

Energy efficiency of bottom trawl

Same swept bottom surface a year



	Reference	Optimised	
Drag	64 450	63 910	N
Swept width	21.7	29.37	m
Duration	200	148	Days/y
Fuel cost	142 513	104 330	€
Fuel / Km ²	0.77	0.52	m ³
Cost / Km²	540	365	€

CODE	NOM SCIENTIFIQUE		NOM COMMUN	Kg/Km2	€/Kg	€/Km2
TRISCAP	Trisopteru	minutus	Capelan	102	1.09	111.18
TRACTRA	Trachurus	trachurus	Chinchard commun	73	1.04	75.92
MICMPOU	Micromesistiu	poutassou	Merlan bleu	54	0.1	5.4
MERLMER	Merluccius	merluccius	Merlu	43	4.08	175.44
LOPHBUD	Lopius	budegassa	Baudroie rousse	32	4.46	142.72
GALUMEL	Galeus	melastomus	Chien espagnol	30		
EUTRGUR	Eutrigla	gurnardus	Grondin gris	29		
SCYOCAN	Scyliorhinus	canicula	Petite roussette	26	0.53	13.78
ELEDCIR	Eledone	cirrrosa	Poulpe blanc	26	2.79	72.54
LOPHPIS	Lophius	piscatorius	Baudroie blanche	14	4.46	62.44
OCTOVUL	Octopus	vulgaris	Poulpe de roc	11	2.79	30.69
PAGEACA	Pagellus	acarne	Pageot commun	11	5.67	62.37
HELIDAC	Helicolenus	dactylopterus	Sébaste chèvre	11	2.51	27.61
MULLBAR	Mullus	barbatus	Rouget-barbet de vase	10	6.25	62.5
NEPRNOR	Nephrops	norvegicus	Langoustine	10	8.64	86.4
ELEDMOS	Eledone	moschata	Poulpe musqué	8	2.79	22.32
TRACMED	Trachurus	mediterraneus	Chinchard à queue jaune	8	1.04	8.32
PHYIBLE	Phycis	blennoides	Phycis de fond	7		
RAJACLA	Raja	clavata	Raie bouclée	6	2.4	14.4
ASPICUC	Aspitrigla	cuculus	Grondin rouge	6	0.88	5.28
LEPMBOS	Lepidorhombu	boscii	Cardine à 4 taches*	5	4.04	20.2
ILLECOI	Illex	coindetii	Encornet rouge	5	2.2	11
			VALEUR TOTALE (€/Km2)			1011