

**NAŠE
RIBNJAČARSTVO –
KAKO I KUDA DALJE ?**

N. FIJAN



Image © 2008 DigitalGlobe

© 2008 Europa Technologies

© 2008 Tele Atlas

Streaming 100%

Google

Point: 45°21'06.92"N 16°56'18.42"E Alt: 104 m

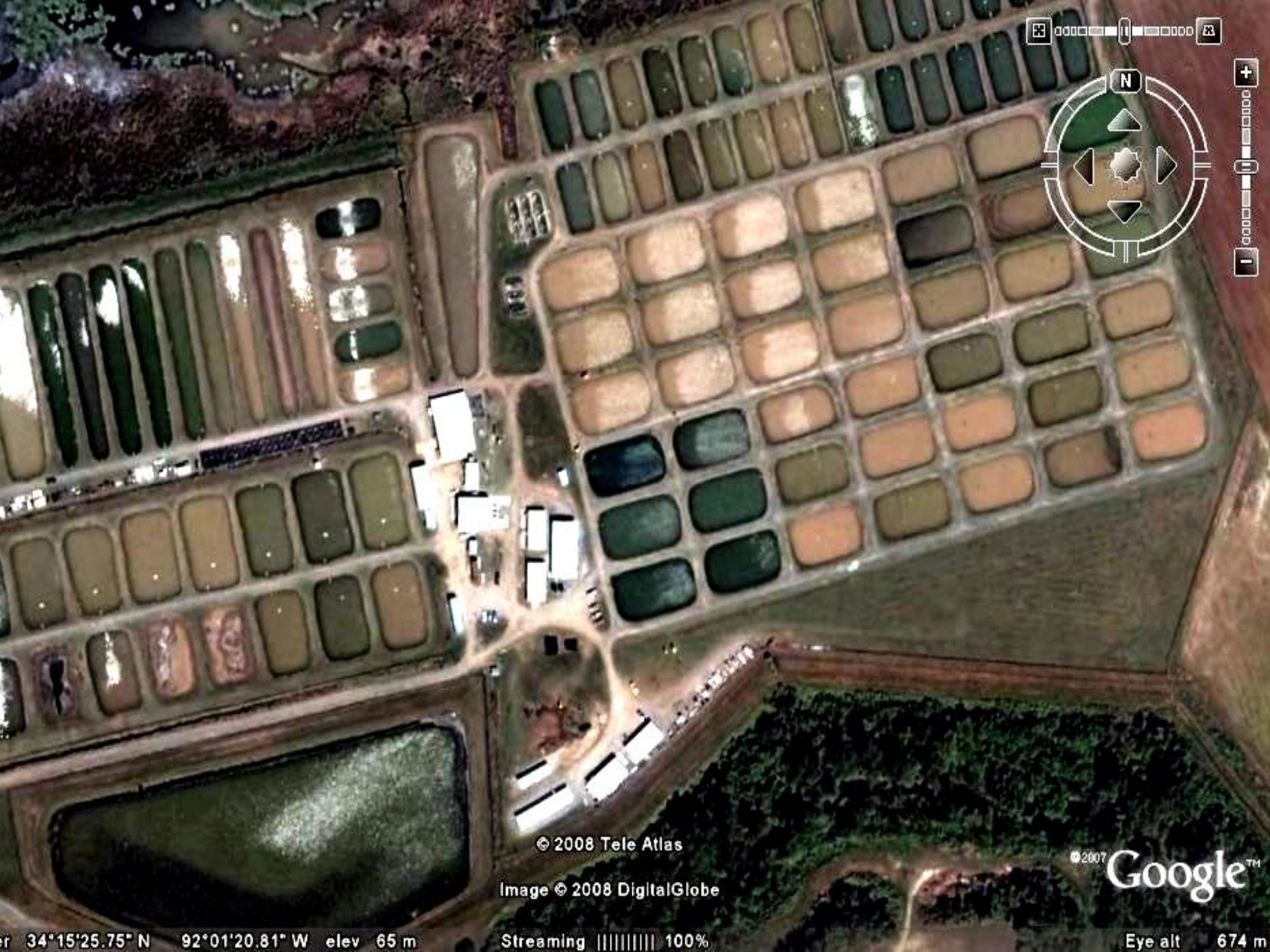
France 1.24 km



NUŽNOST ?

DUŽNOST – PREOKRENUTI





© 2008 Tele Atlas

Image © 2008 DigitalGlobe

© 2007 Google™

34°15'25.75" N 92°01'20.81" W elev 65 m

Streaming ||||| 100%

Eye alt 674 m

HRANA – STRATEŠKO DOBRO



PREPORUKE:



**SVJETSKA ZDRAVSTVENA ORGANIZACIJA
(WHO): NAJMANJE JEDNOM TJEDNO**

ENGLESKA: DVA PUT TJEDNO

SAD: DVA PUT TJEDNO

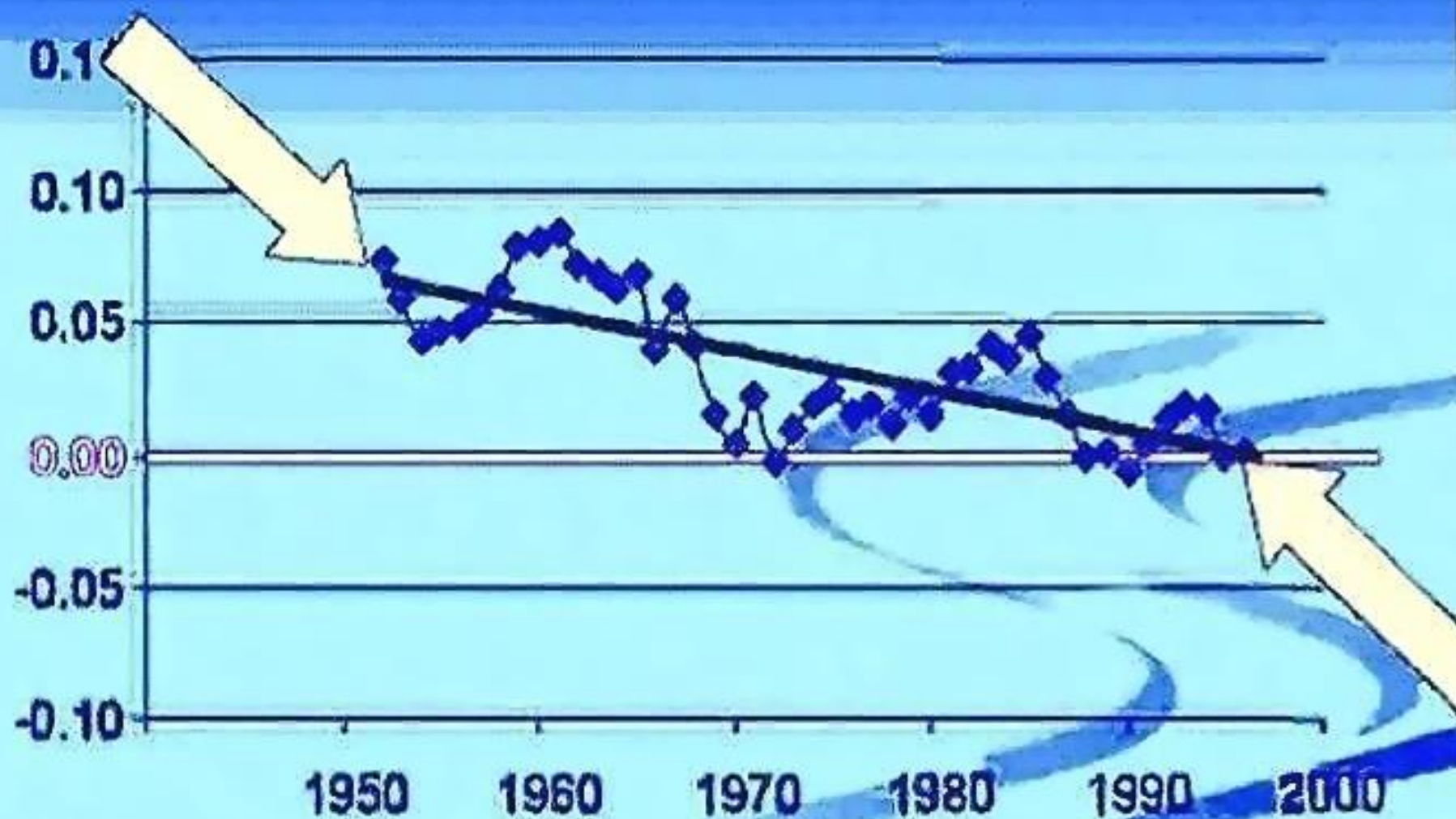
GODIŠNJA POTROŠNJA RIBE (KG)

PO STANOVNIKU (2002)

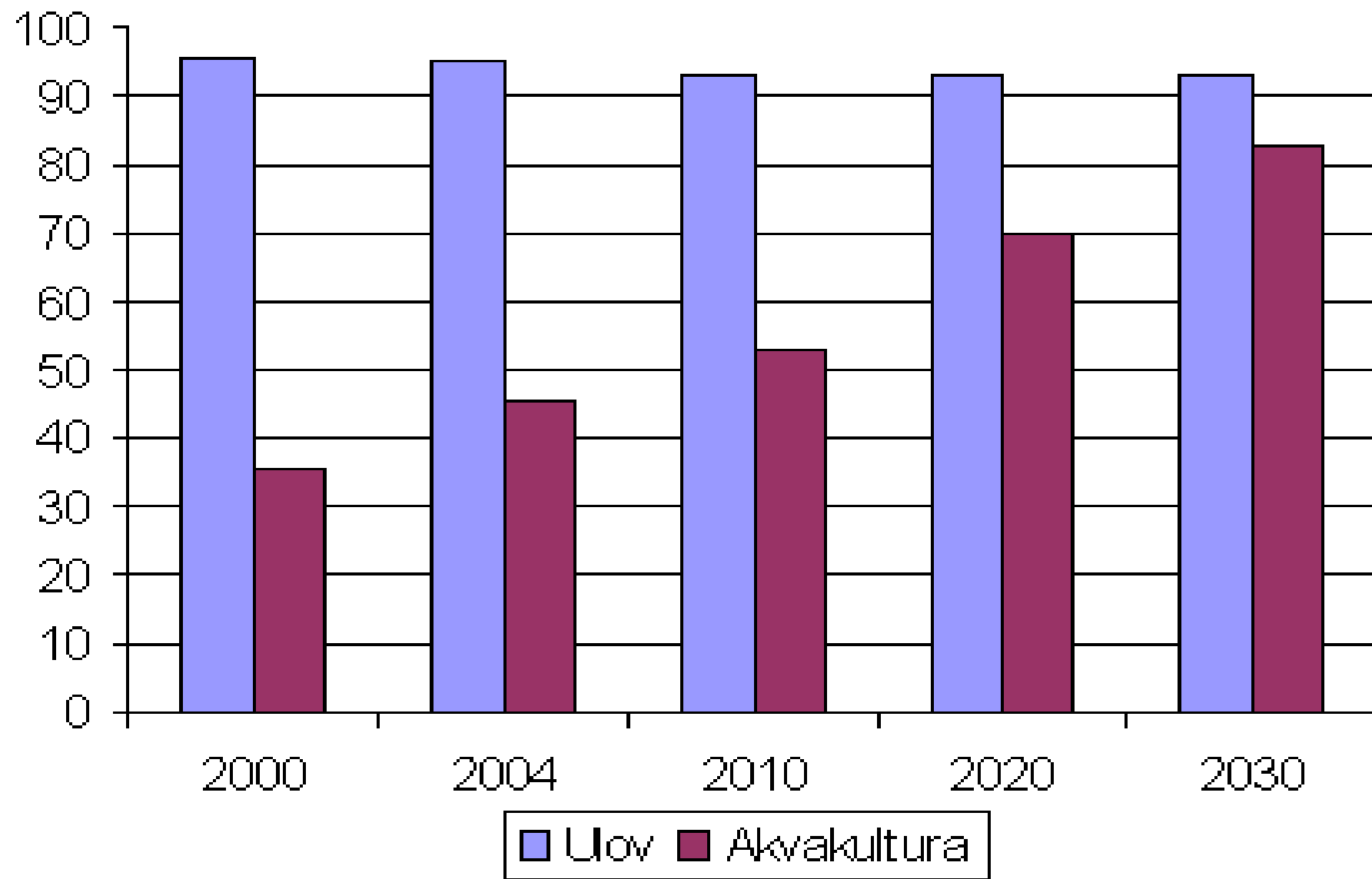
MORSKA SLATKOVODNA

SVIJET	8,1	6,7
HRVATSKA	11,9 (7)	1,0
EU 15	21,0	3,0
EU 28	18,6	3,4

Postotci povećanja ulova ribe



FAO PROGNOZA: USPON AKVAKULTURE





State of world aquaculture 2006



Food and Agriculture Organization of the United Nations

AQUA 2. HEALTH MOVEMENT

AQUA DEV 1. GO FISH



Aquaculture
Practice Flow Diagrams #1



FAO 2007 – AKVAKULTURA:

**VÁŽNÁ I HITNÁ AKCIJA POLITIČARA,
ADMINISTRATORA I ZNANSTVENIKA:**

- 1) STVORITI POVOLJNE UVJETE ZA
RENTABILNOST, INVESTICIJE I RAZVOJ**
- 2) OMOGUĆITI KONKURENTNOST
PROIZVODA NA DOMAĆEM I IZVOZNOM
TRŽIŠTU**

POBOLJŠATI
PROPISE I UPRAVLJANJE

PROPISI

ZAŠTITA
OKOLIŠA,
BIOLOŠKA
RAZNOLIKOST

POREZI
|
CARINE

UVOZ
|
IZVOZ

VODE
|
RIBARSTVO

JAVNO
ZDRAVSTVO,
KAKVOĆA
PROIZVODA

**ZAŠTITA
ZDRAVLJA I
DOBROBITI
RIBA**

FAO 2007: VAŽNA I HITNA AKCIJA PROIZVOĐAČA I ZNANSTVENIKA

- 1) INTENZIVIRATI PROIZVODNJU**
- 2) UZGOJ NOVIH VRSTA I UVOĐENJE NOVIH,
RAZNOVRSNIH TEHNOLOGIJA**
- 3) USAVRŠAVANJA I INOVACIJE**
- 4) POBOLJŠANJE KAKVOĆE PROIZVODA**
- 5) INTEGRACIJA S EKOTURIZMOM**
- 6) POPULARIZACIJA I MARKETING**
- 7) STRUČNE INFORMACIJE**
- 8) POSLOVNO VODSTVO I GOSPODARENJE**

EUROPEAN CODE OF SUSTAINABLE AND RESPONSIBLE FISHERIES PRACTICES



EUROPEAN COMMISSION

GARANTIRATI:

- KAKVOĆU PROIZVODA ZA POTROŠAČE**
- DOBROBIT UZGAJANIH RIBA**
- IZBJEGAVANJE NEGATIVNIH UČINAKA
NA OKOLIŠ I NA PRIRODNA BOGATSTVA
(ODRŽIVOST !)**

ODRŽIVOST AKVAKULTURE:

**PROCES PROMJENA, USKLAĐEN S
BUDUĆIM I SADAŠNJIM POTREBAMA**

ODNOSI SE NA:

- LJUDE**
- PLANET ZEMLJU**
- RENTABILNOST (PROFIT)**



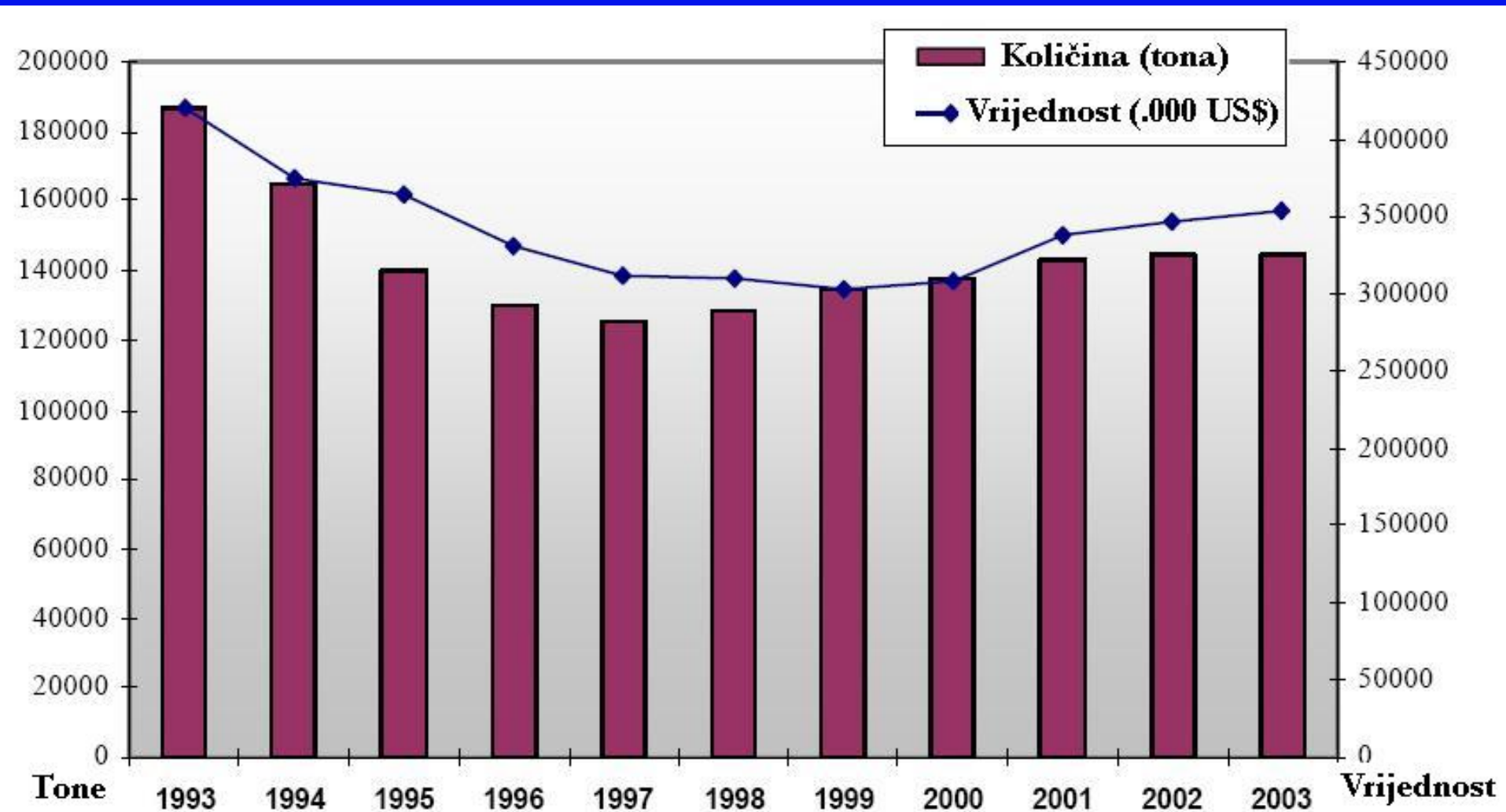
CODE
OF CONDUCT



A photograph of a pond filled with many fish, likely carp, swimming in murky, yellowish-green water. The fish are of various colors, including dark grey, black, and some with lighter patches. They are densely packed, with many heads visible above the water surface. Overlaid on the center of the image is the text 'INTENZIVIRANJE PROIZVODNJE' in a bold, yellow, serif font. The text is split into two lines: 'INTENZIVIRANJE' on the top line and 'PROIZVODNJE' on the bottom line.

INTENZIVIRANJE PROIZVODNJE

PROIZVODNJA ŠARANA U EUROPI



PRIRAST ŠARANA !??

(JAHUTKA I SUR. 2007)

GODINA	% KONZUM	OMJER KONZUM/MLAD
1999	54,6%	1 : 1,2
2001	69,6%	1 : 2,29
2002	46,5%	1 : 1,13
2006	64,4%	1 : 1,98

ODNOS

IZMEĐU VELIČINE ŠARANA I PRIRASTA

POJEDINAČNA MASA

DNEVNI PRIRAST

500 g

10,6 g

2,12 %

250 g

6,7 g

2,68 %

2x 250 g =

13,4 g

100 g

3,6 g

3,60 %

5X 100 g =

18,0 g

50g

2,4 g

4,88 %

10x 50 g =

24,0 g

UTJECAJ POJEDINAČNE MASE MLAĐA

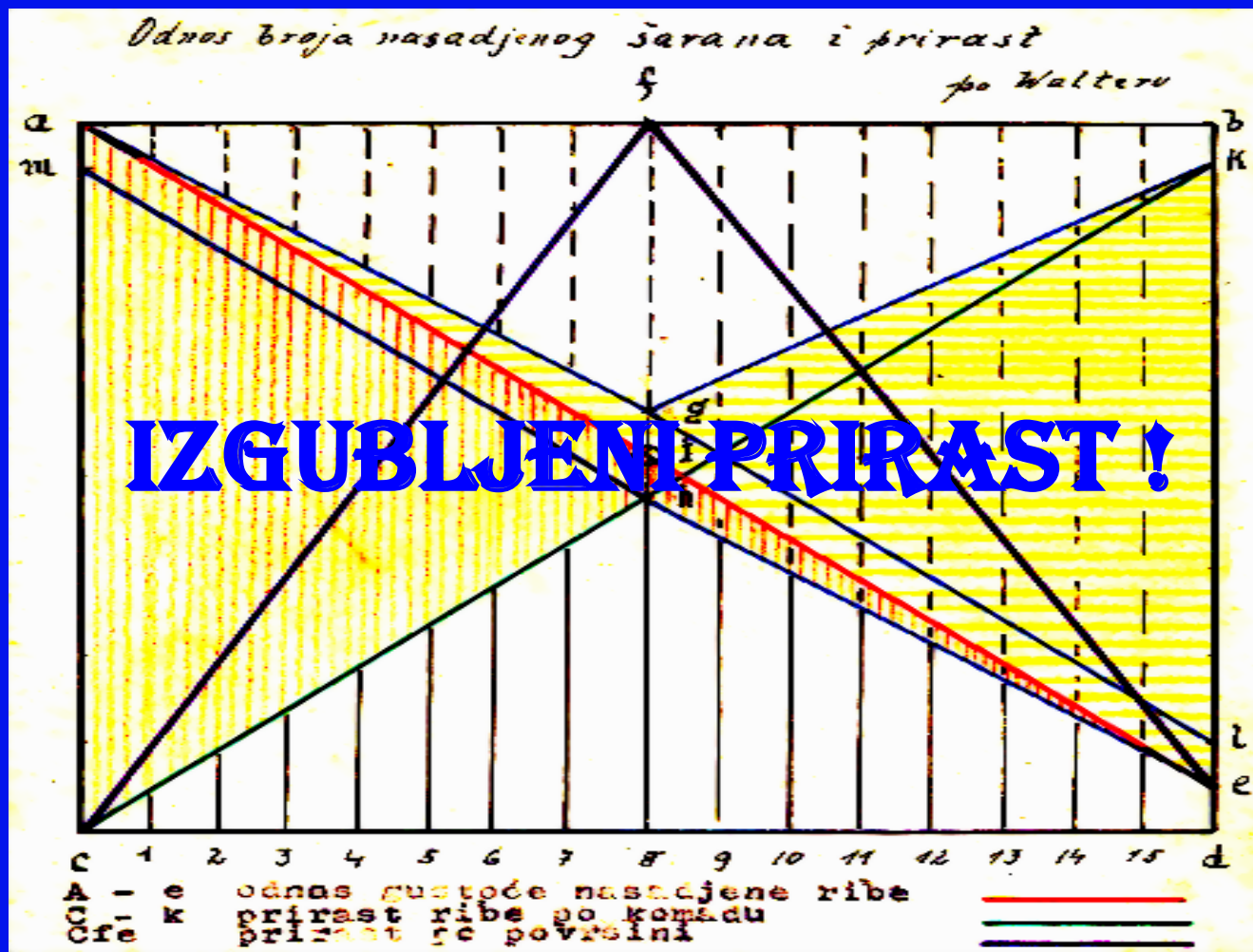
NA DNEVNI PRIRAST U RIBNJAKU OD 100 HA

PRI NASADU OD 200 KG/HA

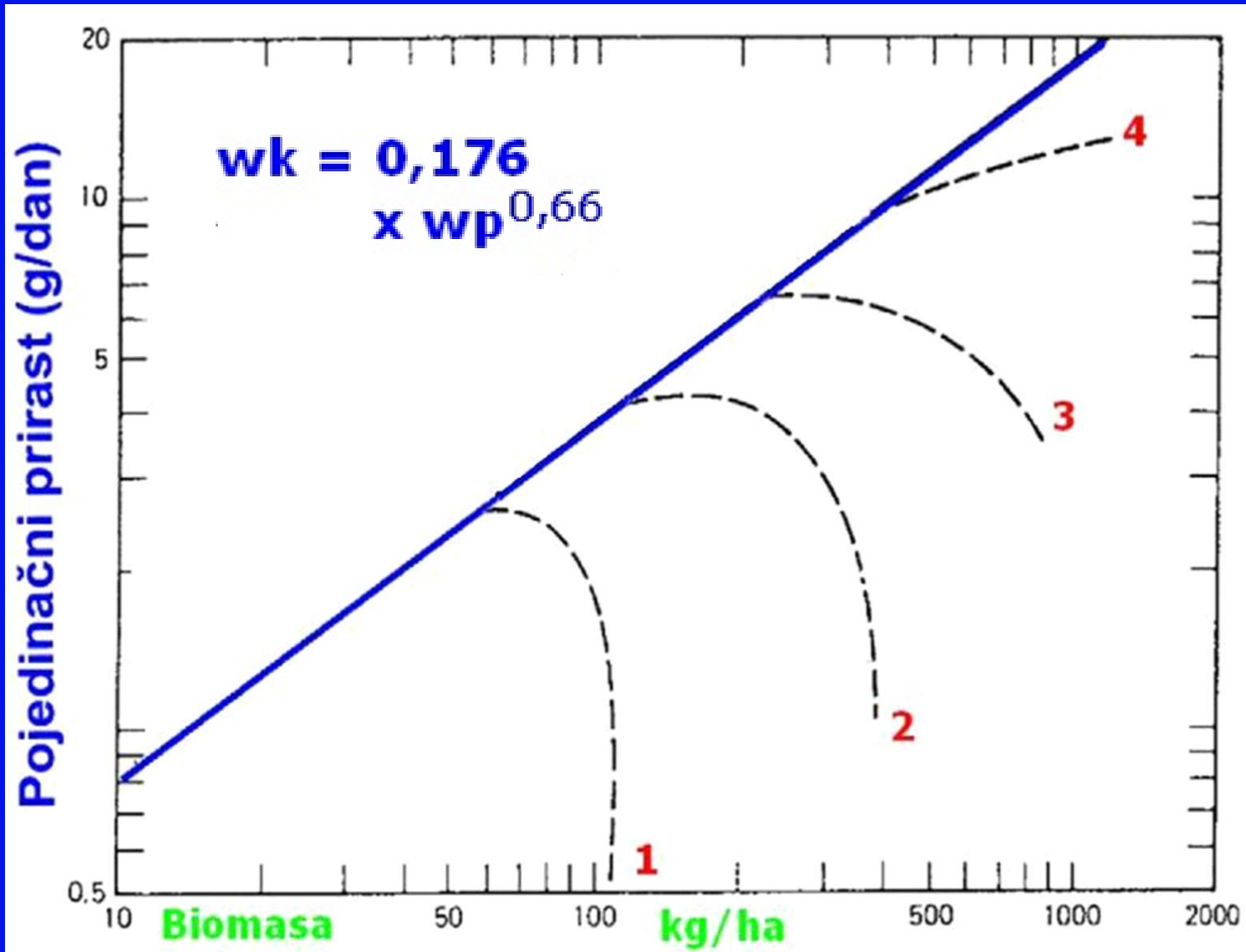
POJEDINAČNA MASA (G)	50	100	250	500
BROJ KOMADA	400.000	200.000	80.000	40.000
DNEVNI PRIRAST (kg)	960	720	536	424
RAZLIKA (kg)		- 240	- 364	- 536
OMJER	2,26	1,70	1,26	1



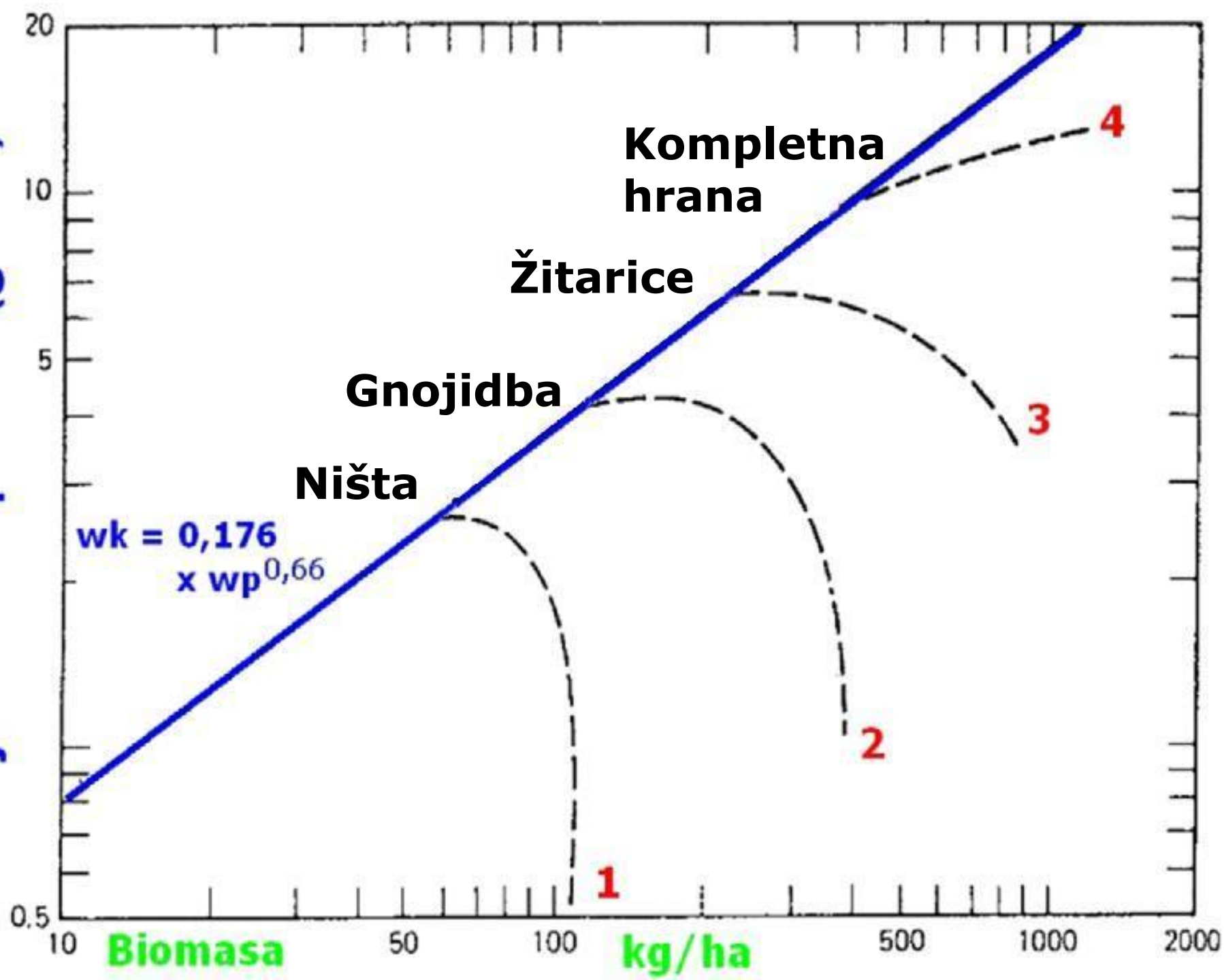
WALTER: NASADIVANJE RIBNJAKA



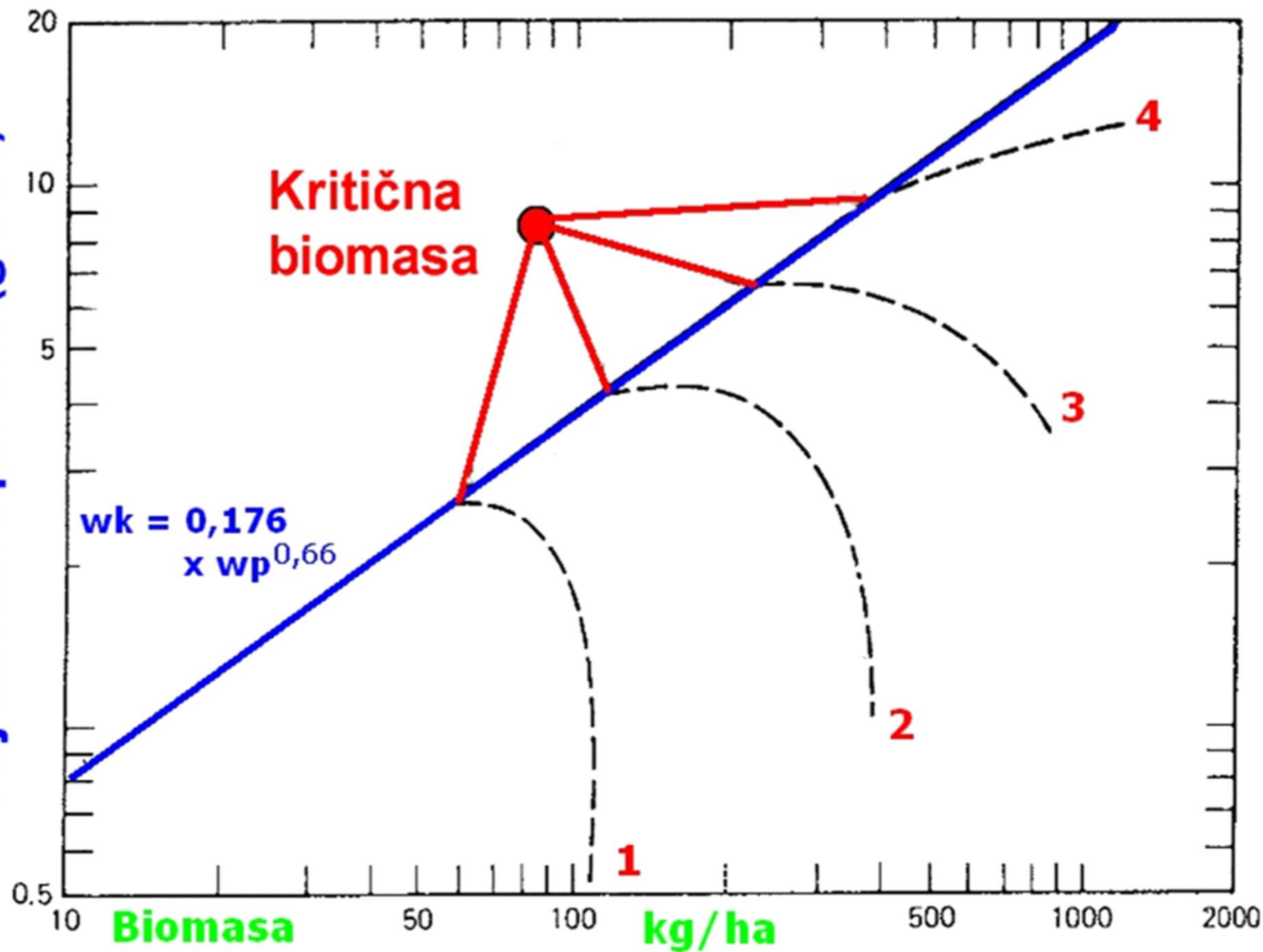
POKUSI U IZRAELU



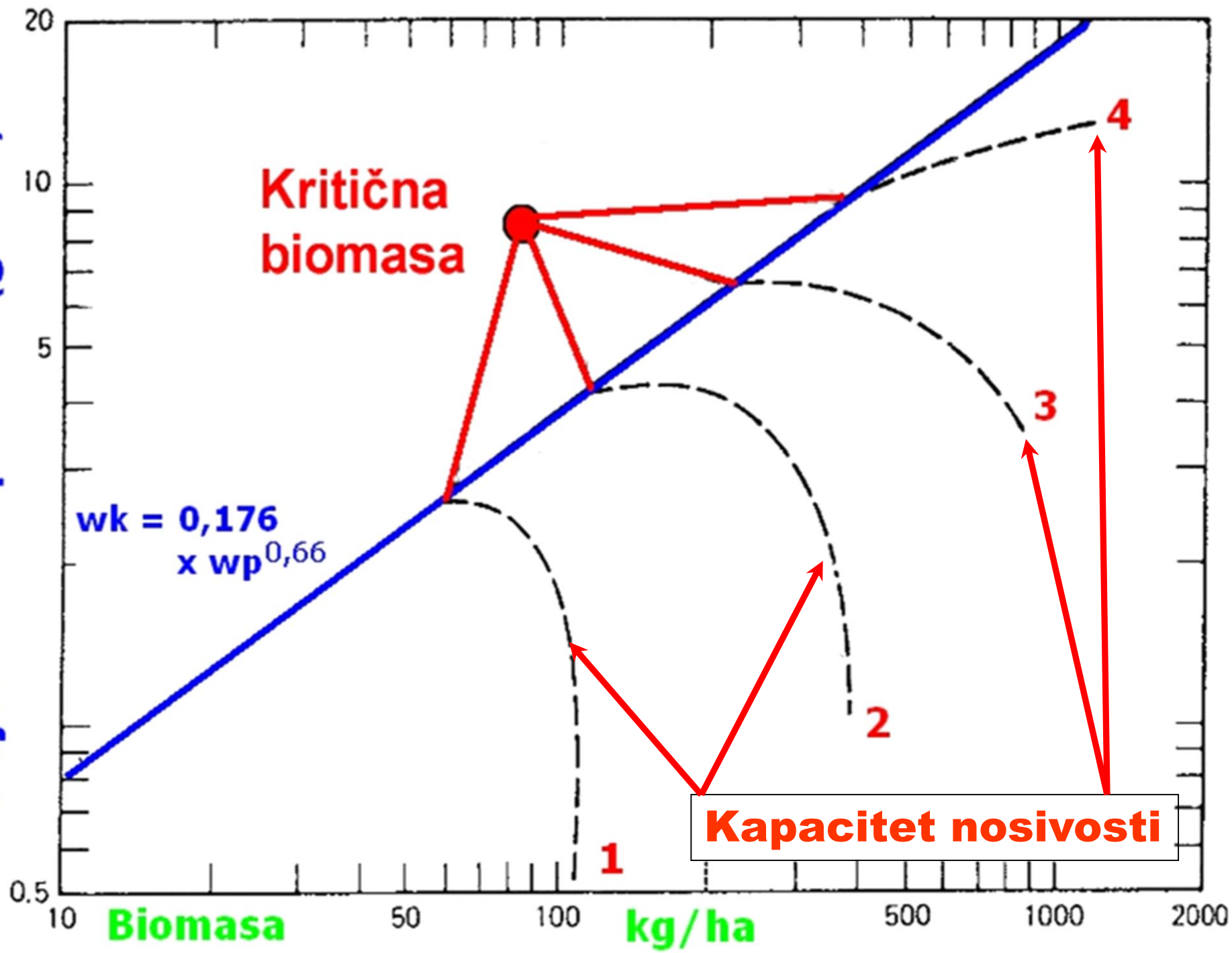
Pojedinačni prirast (g/dan)



Pojedinačni prirast (g/dan)



Pojedinačni prirast (g/dan)



Pojedinačni prirast (g/dan)

NASAD:

300 kg/ha

100 kg/ha

1

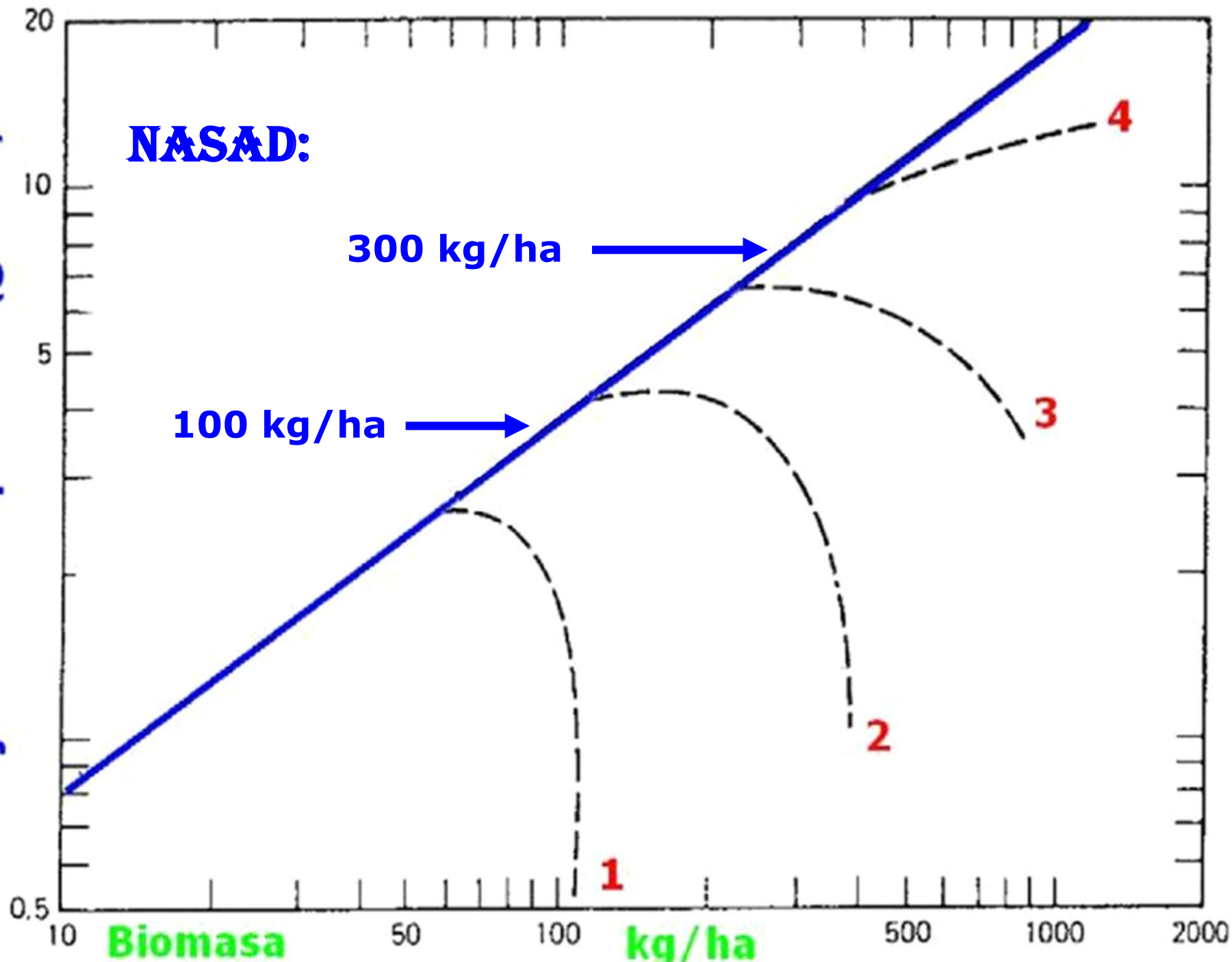
2

3

4

Biomasa

kg/ha



DVOGODIŠNJI POGON !

PROBLEM:

ZAŠTIĆENOST RIBOJEDNIH PTICA

=

NEPOŠTOVANJE

DOBROBITI

RIBA



KODEKSI O DOBROBITI

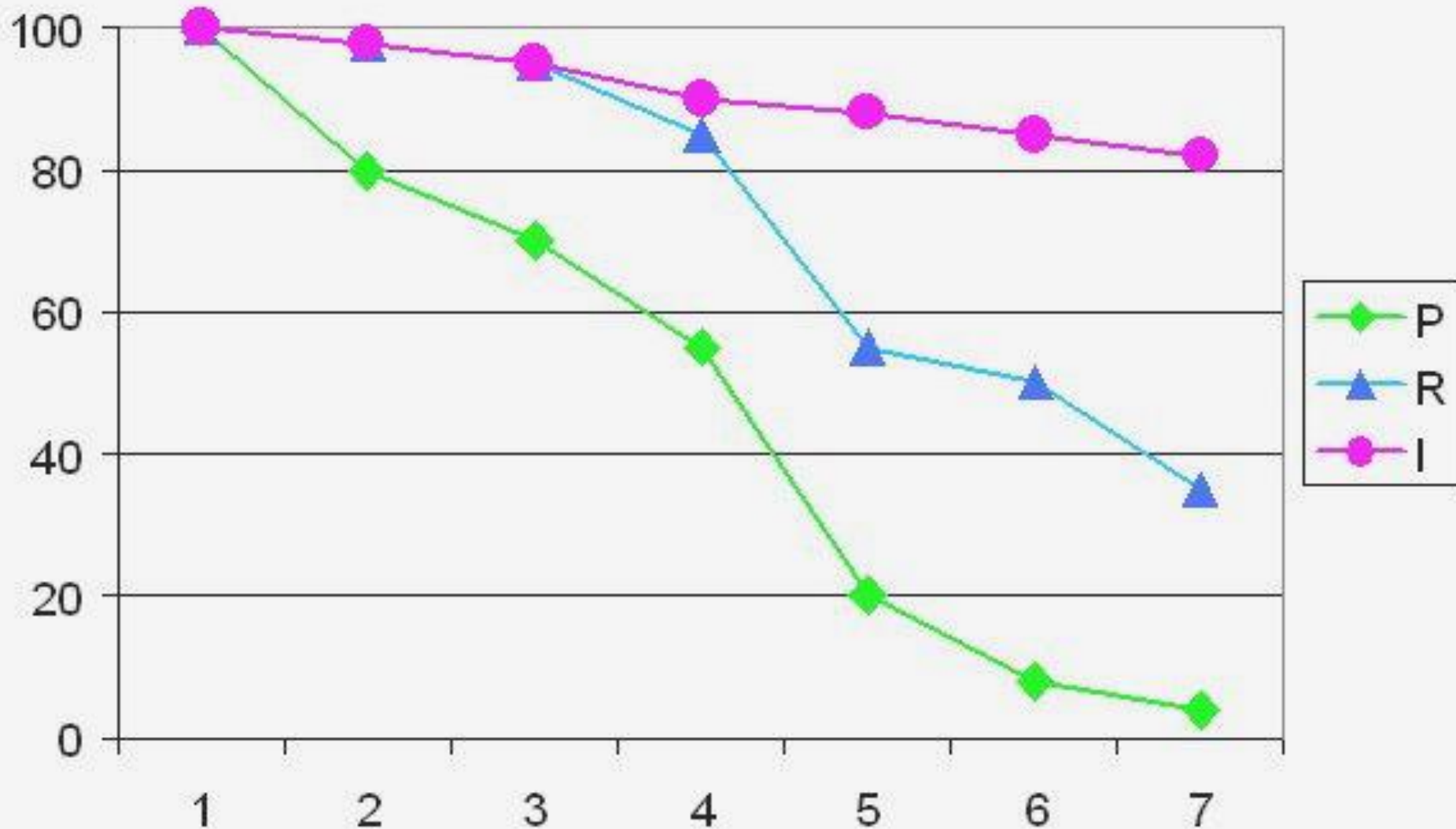
UZGAJANIH RIBA

OSIGURATI:

- PREŽIVLJAVANJE
- ZDRAVLJE
- RAST
- KAKVOĆU VODE
- NORMALNO PONAŠANJE

Preživljavanje šarana do godinu dana starosti

u prirodi (P), te u poluintenzivnom (R) i intenzivnom ribnjačarstvu (i)





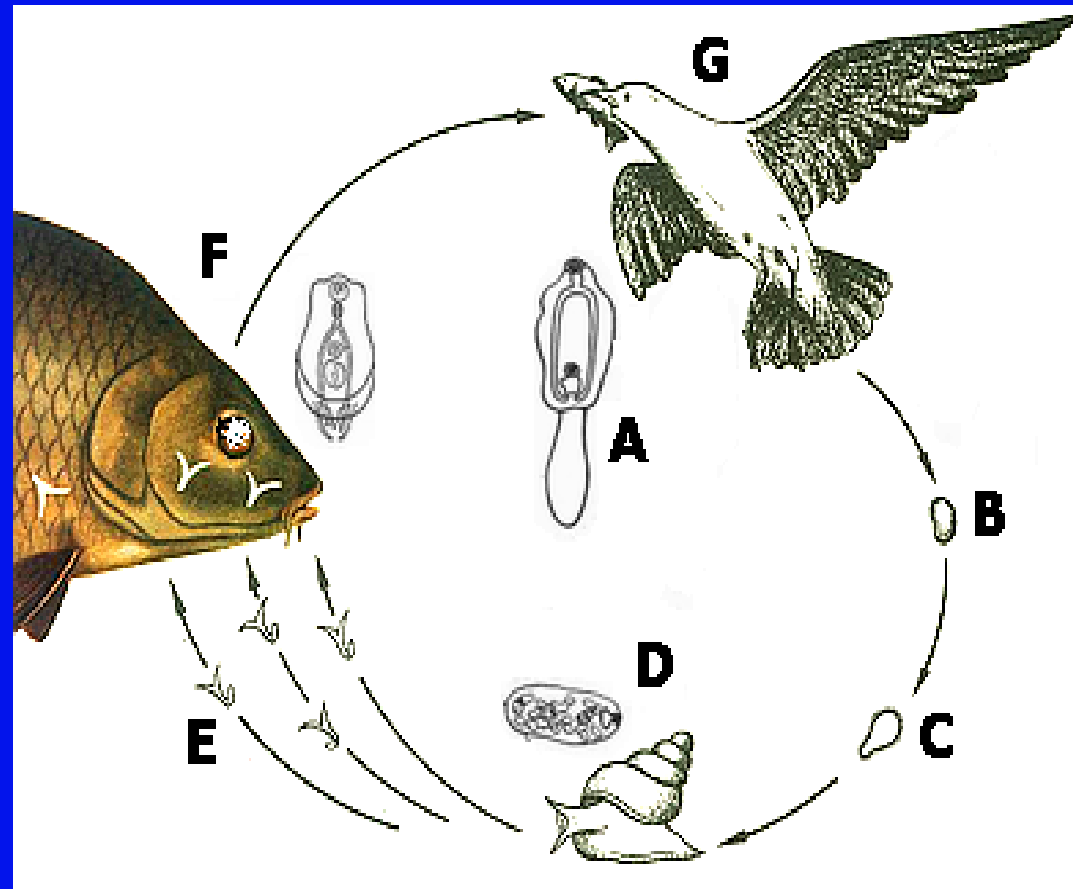


GRIPORHINHIDOZE

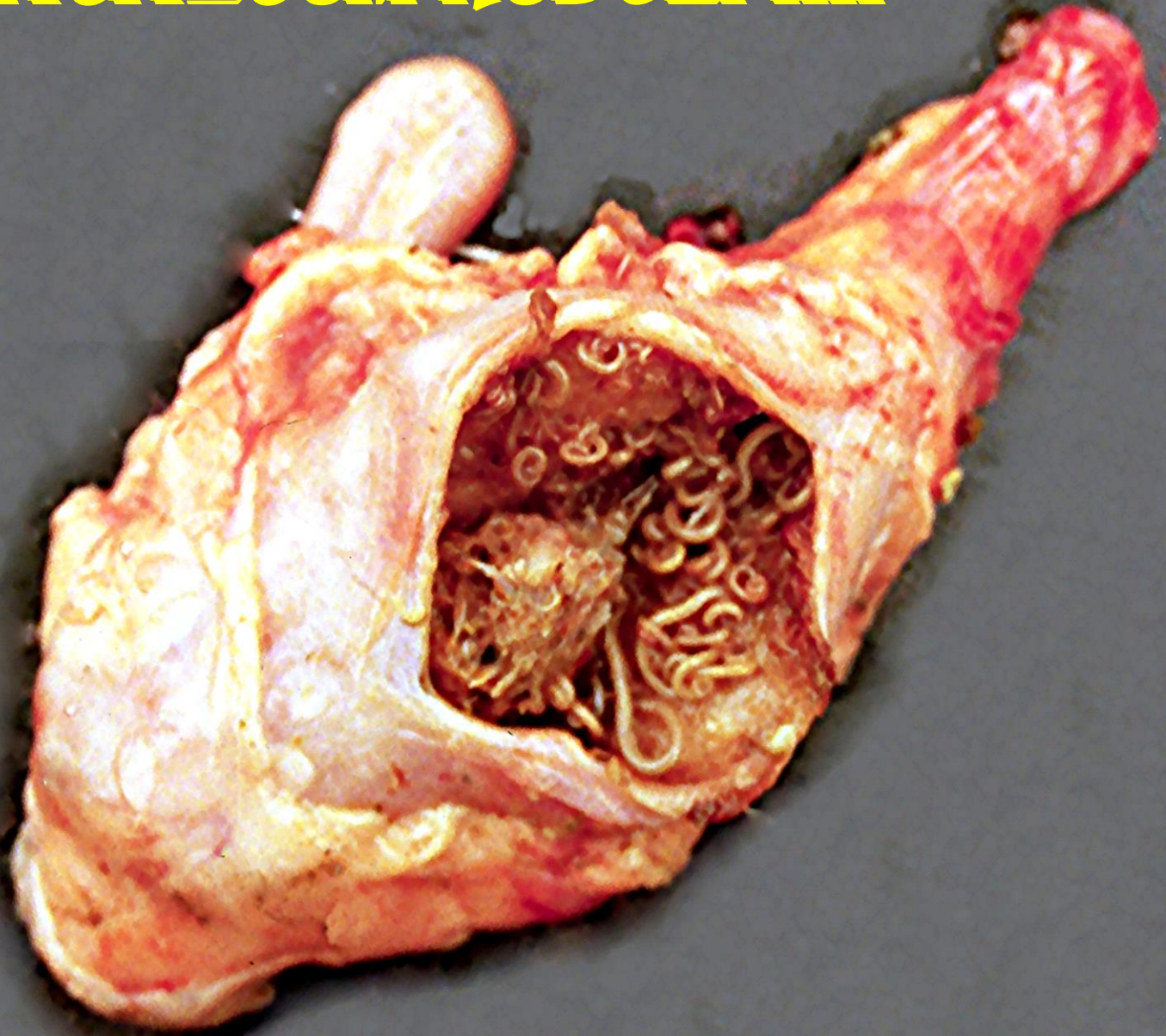




DIPLOSTOMOZE



CONTRACAECUM RUDOLPHII



RJEŠENJE ?

RIBNJACI RIBAMA !

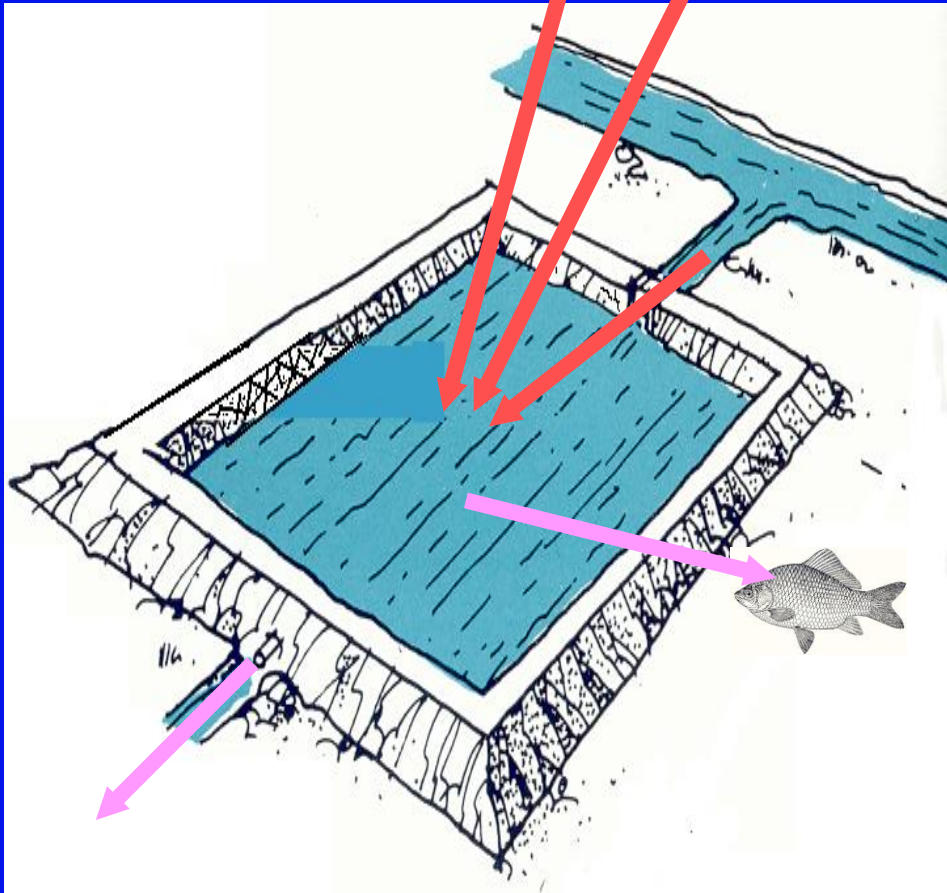
A photograph of a pond filled with many koi fish. The water is a murky, yellowish-brown color. The fish are of various colors, including dark blues, blacks, and some with lighter, patterned markings. They are swimming in a dense group, with many heads and fins visible above the water surface. The lighting is bright, creating many reflections and ripples on the water.

INTENZIVIRANJE:

GNOJIDBA ?

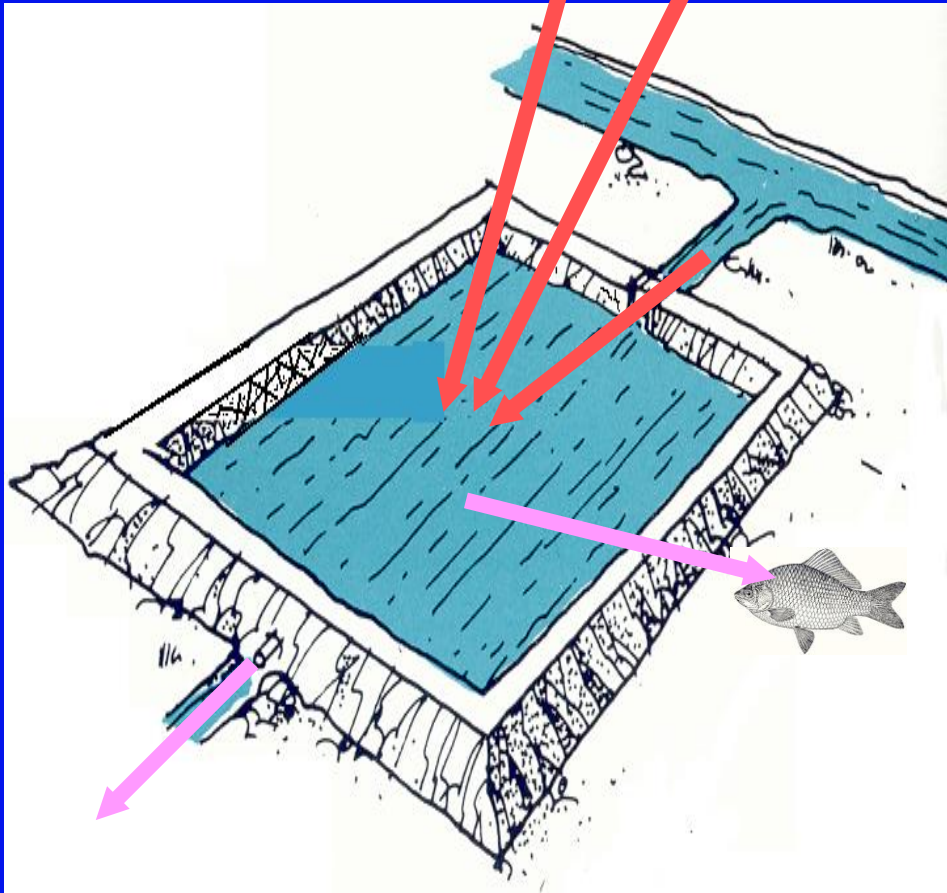
HRANJENJE + GNOJENJE ???

Bilanca za P, N, itd. = (nasad + hrana + ulaz vode) – (prirast ribe + izlaz voda)



HRANJENJE + GNOJENJE ???

Bilanca za P, N, itd. = (nasad + hrana + ulaz vode) – (prirast ribe + izlaz voda)



**U RIBNJAKU
OSTAJE:**

N - 56%

P - 29%

Org. tvar: 74%



GENETIKA I PROIZVODNJA

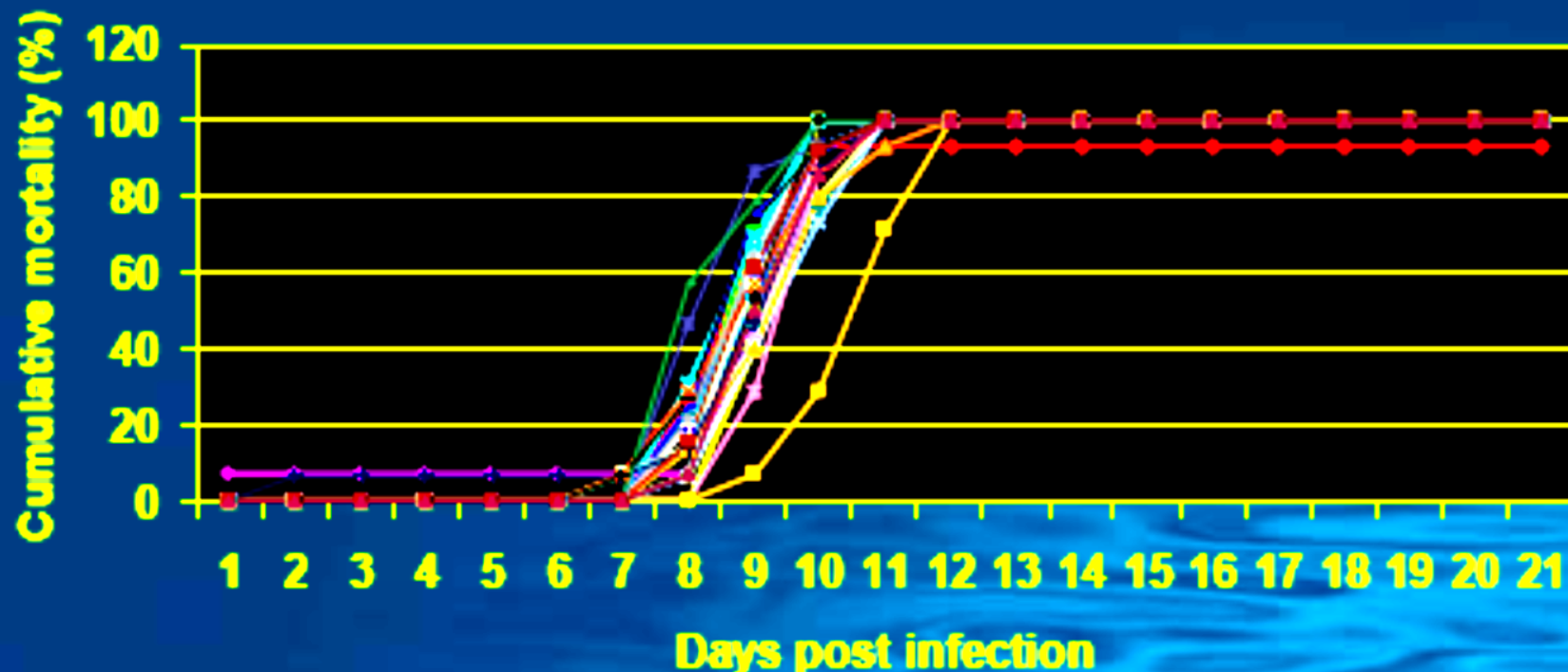


KHV challenge trials at Cefas : as part of the EUROCARP project

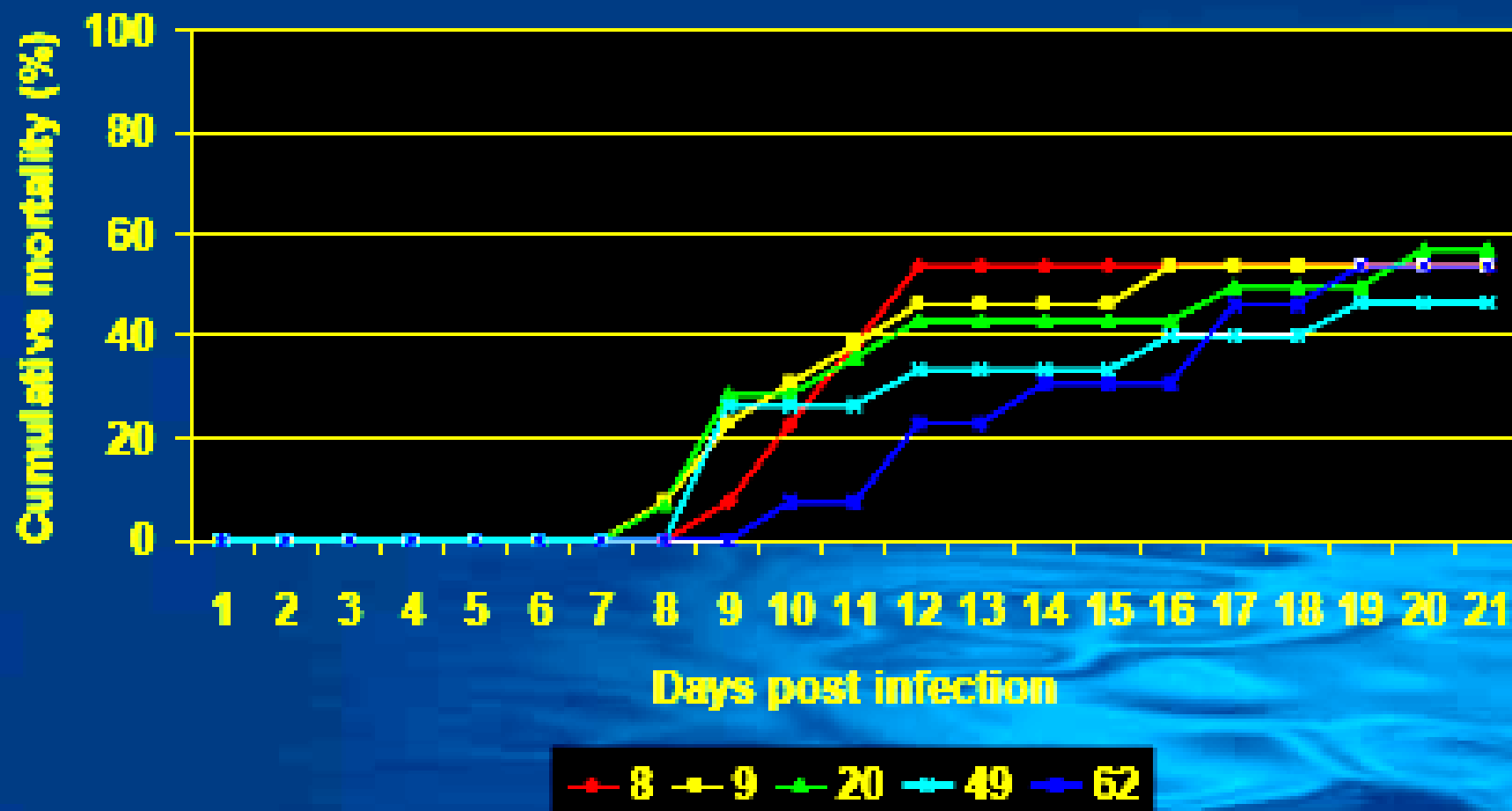


- Project aim : To assess levels of diversity in 4 Hungarian common carp strains for reduced susceptibility to bacterial and viral infection.
- Objective 1 : The identification of strains, families and individual carp with enhanced disease resistance response and growth performance.
- Two KHV challenge studies undertaken at Cefas, Weymouth laboratory on 96 families of carp supplied by HAKI (Szarvas, Hungary).

KHV trial 2: most sensitive families (Grp.1 - acute mortality)



KHV trial 2: most resistant families (Grp.3)



The background of the slide is a photograph of a large number of fish, possibly carp, swimming in a body of water. The water is a murky, yellowish-brown color, and the fish are dark, with some showing lighter patches. The fish are densely packed, creating a sense of movement and activity. The text is overlaid on this image in a bold, yellow, serif font with a black outline.

**BUDUĆNOST
RIBNJARSTVA:
ŠTO PREDLAŽU
EKSPERTI?**



**Višenamjenski
ekstenzivni
ribnjaci**

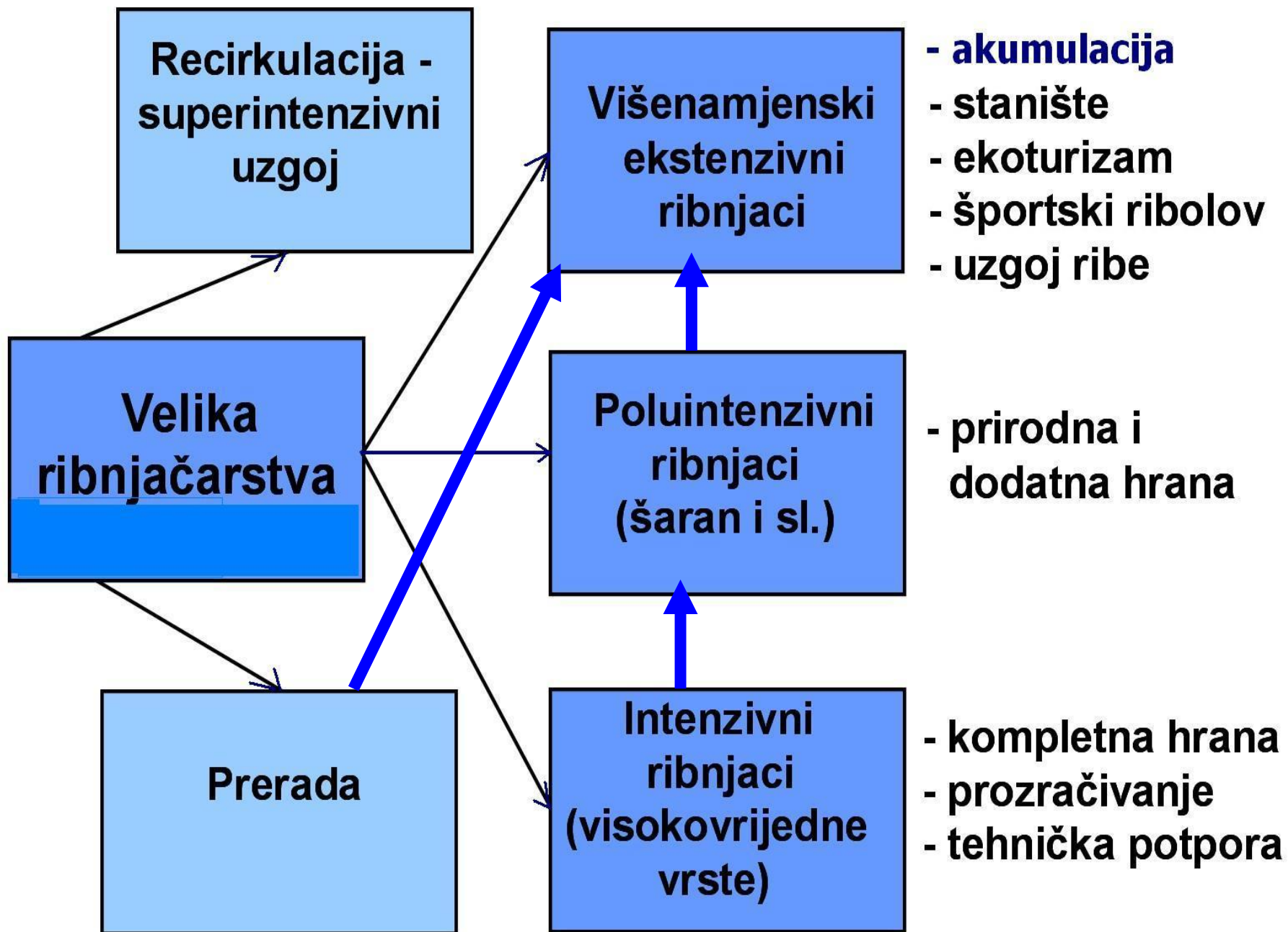
- akumulacija
- stanište
- ekoturizam
- športski ribolov
- uzgoj ribe

**Poluintenzivni
ribnjaci
(šaran i sl.)**

- prirodna i
dodatna hrana

**Intenzivni
ribnjaci
(visokovrijedne
vrste)**

- kompletna hrana
- prozračivanje
- tehnička potpora



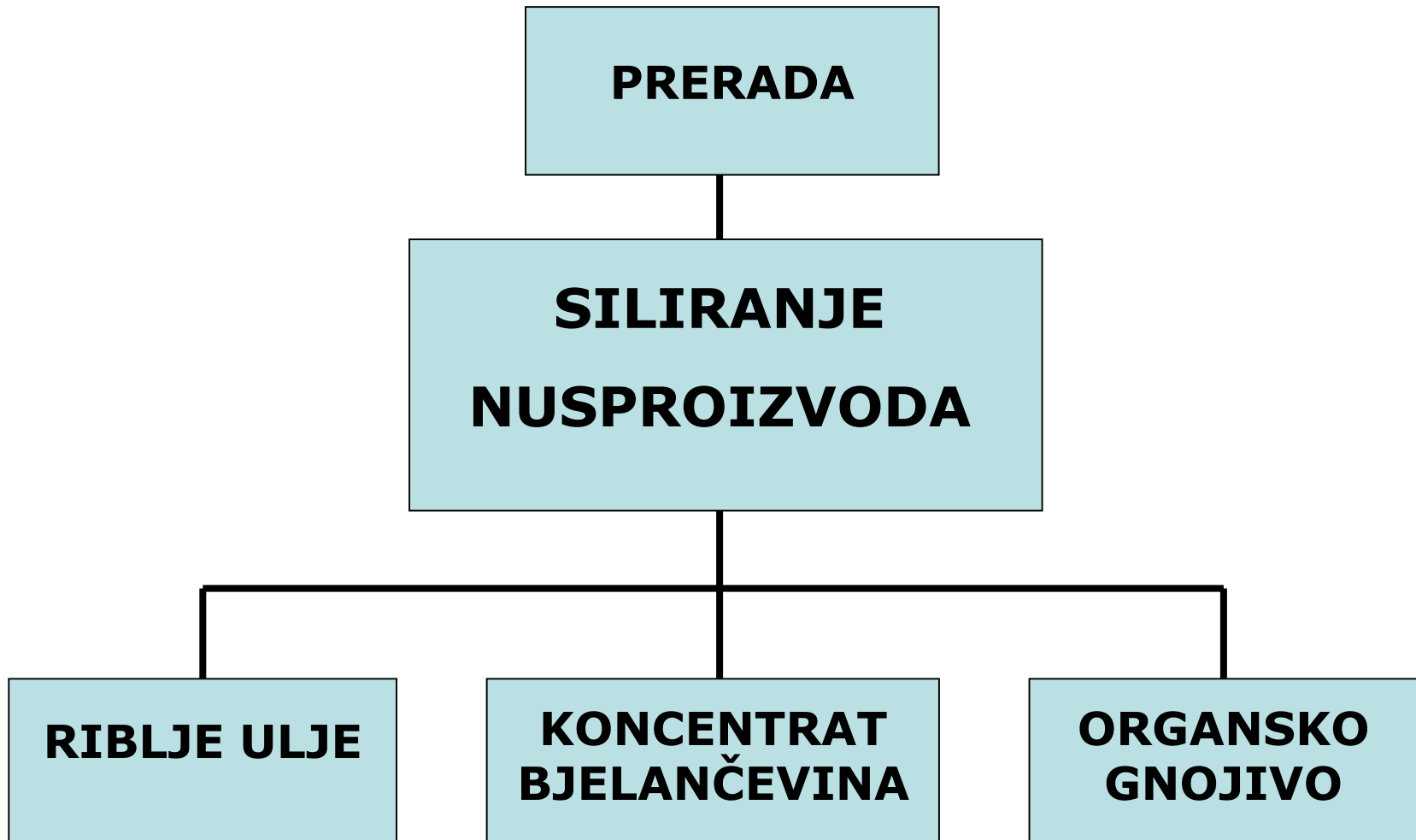
PRERADA

**SILIRANJE
NUSPROIZVODA**

RIBLJE ULJE

**KONCENTRAT
BJELANČEVINA**

**ORGANSKO
GNOJIVO**



5.000 TONA



1.500 TONA



150 TONA



220 TONA



RECIRKULACIJA





023 07-01-04 10:01 160-01 PVC MET HERGEBRUIKGARANTIE





1989

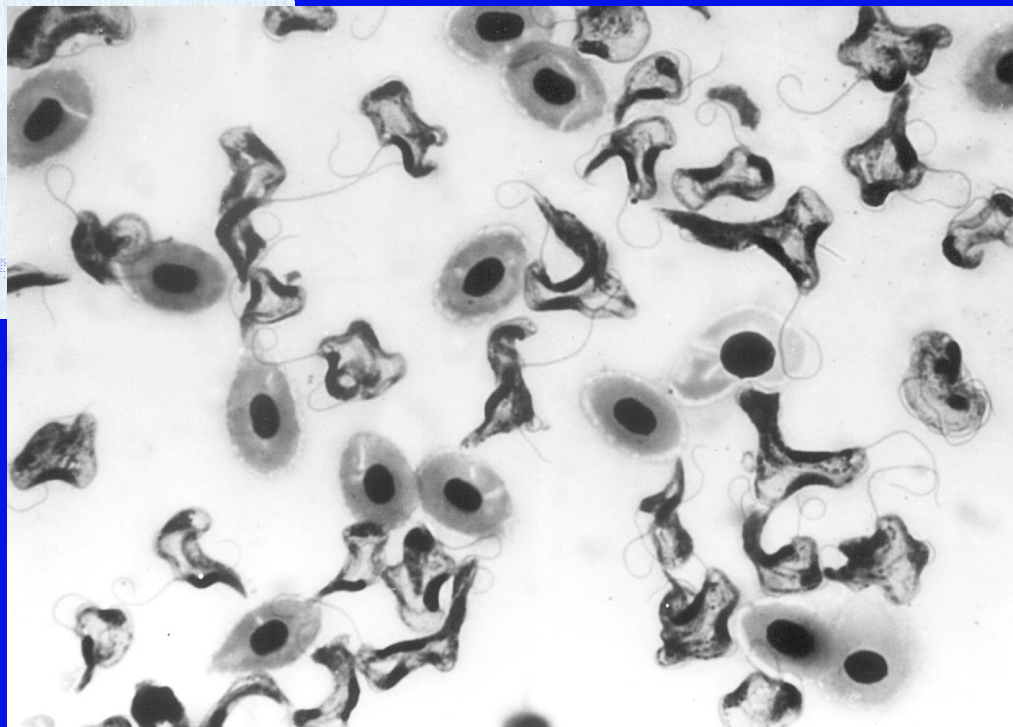
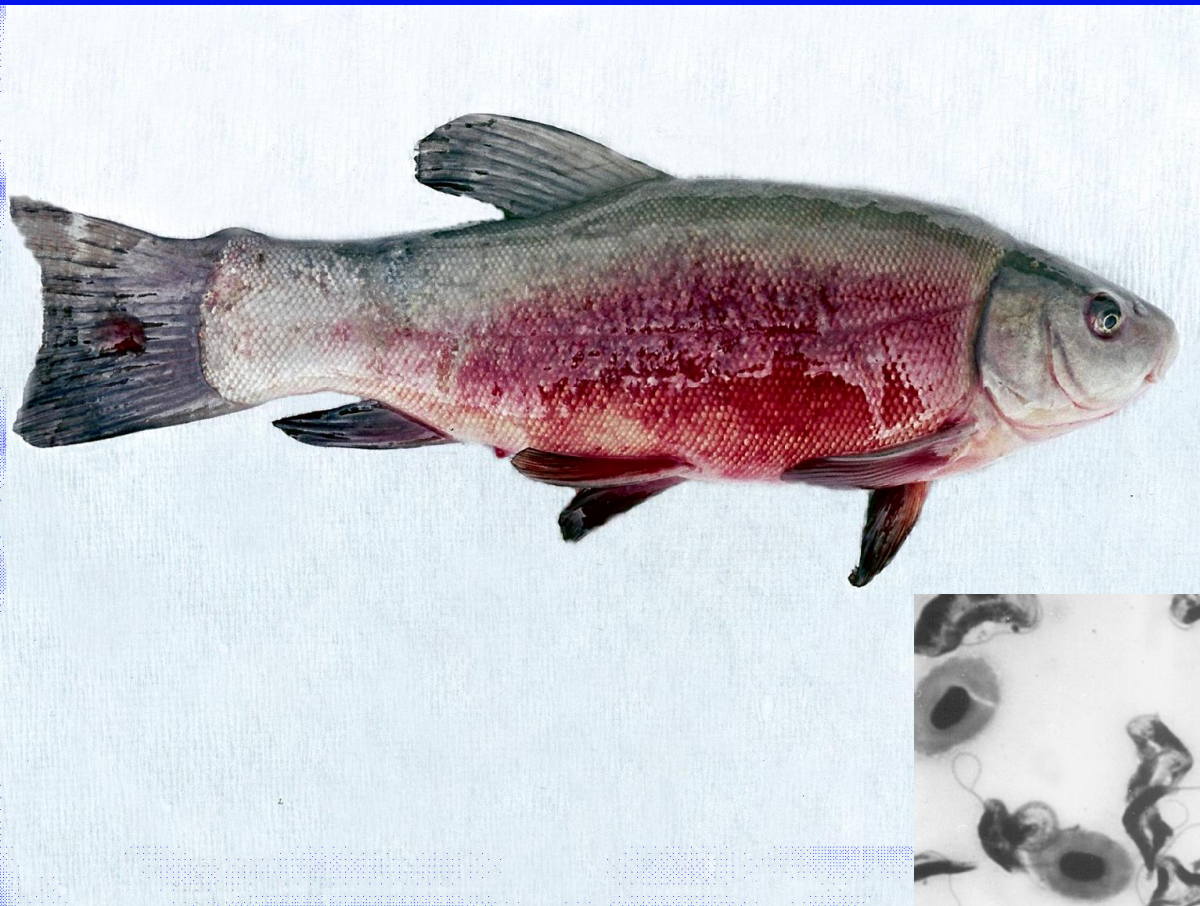
50 t

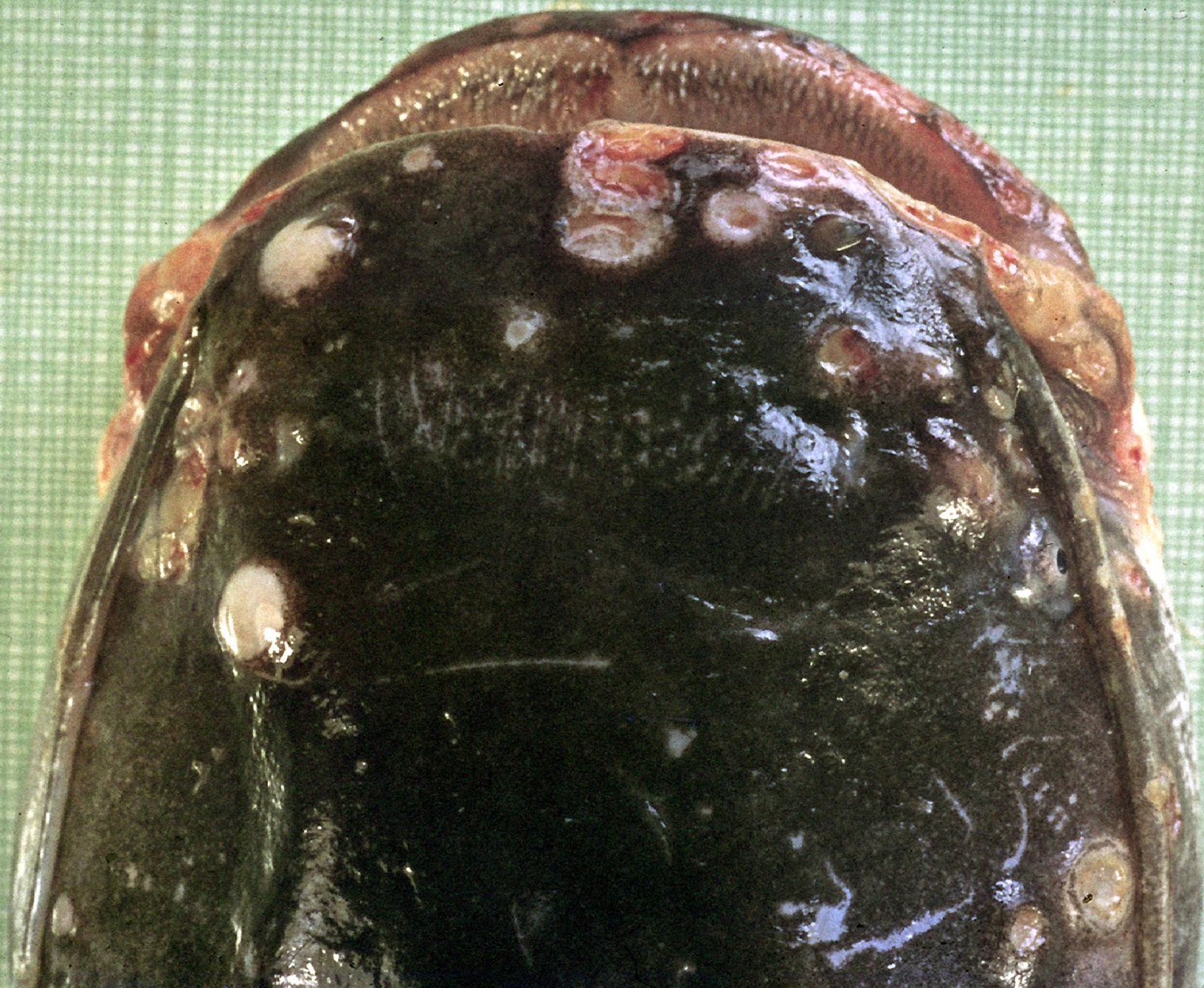
1999

600 t

2006

4.800 t

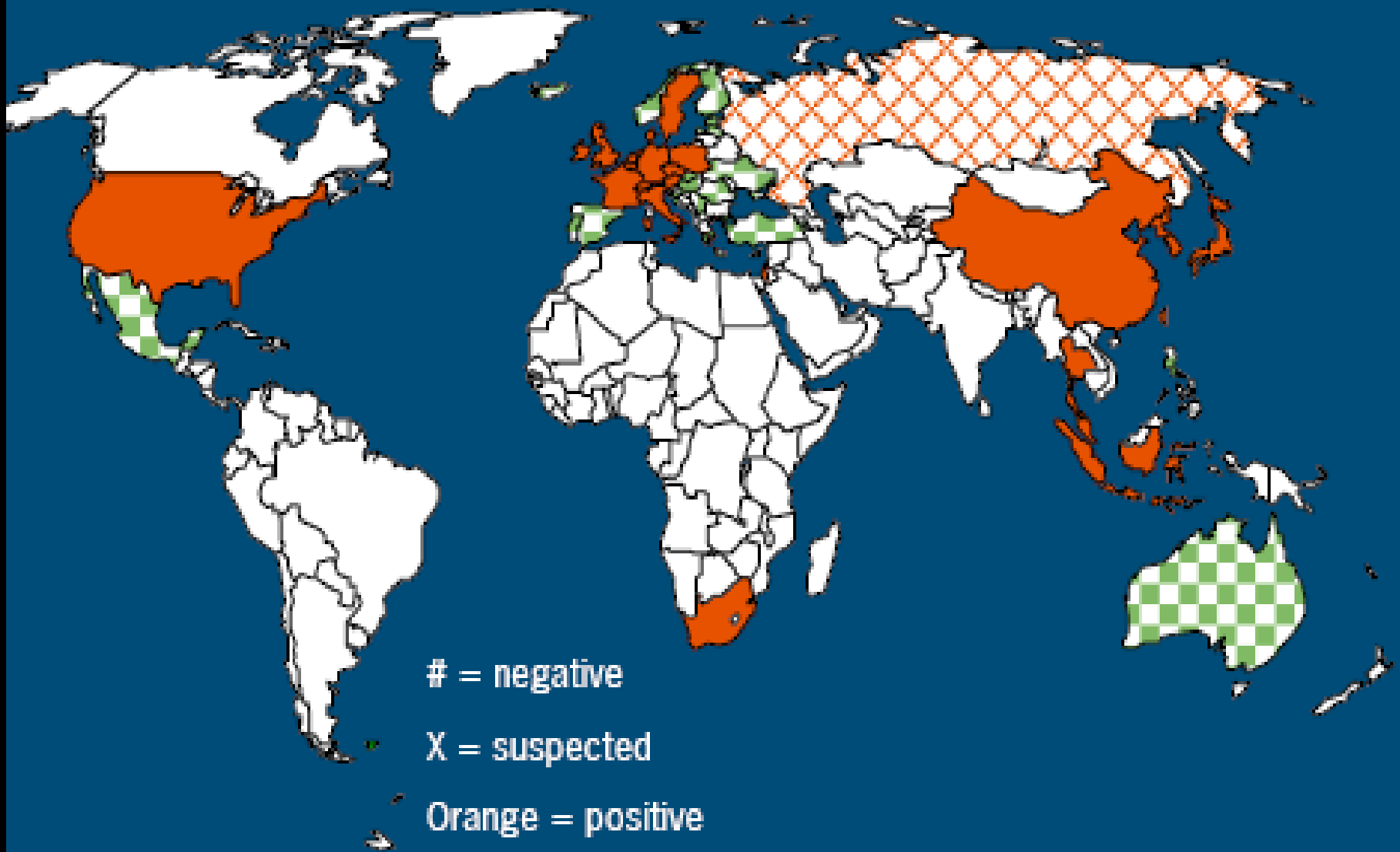








KHV at world scale by 2007





MARKETING



?



!

The background of the image is a dense school of fish, possibly carp, swimming in a body of water with a yellowish-brown tint. The fish are of various sizes and colors, including dark grey, black, and some with lighter, mottled patterns. They are all oriented in different directions, creating a sense of movement and activity. The water surface is slightly rippled, and there are some reflections of light on the fish's scales.

RJEŠENJE:

AKCIJA ZA

RIBNJAČARSTVO



ŠTO TREBAMO RADITI ?

PRIHVATTI:

- FAO PREPORUKE

- GLOBALIZACIJU,

INFORMATIKU,

MOLEKULARNU GENOMIKU ...

(BITI ILI NE BITI !)