





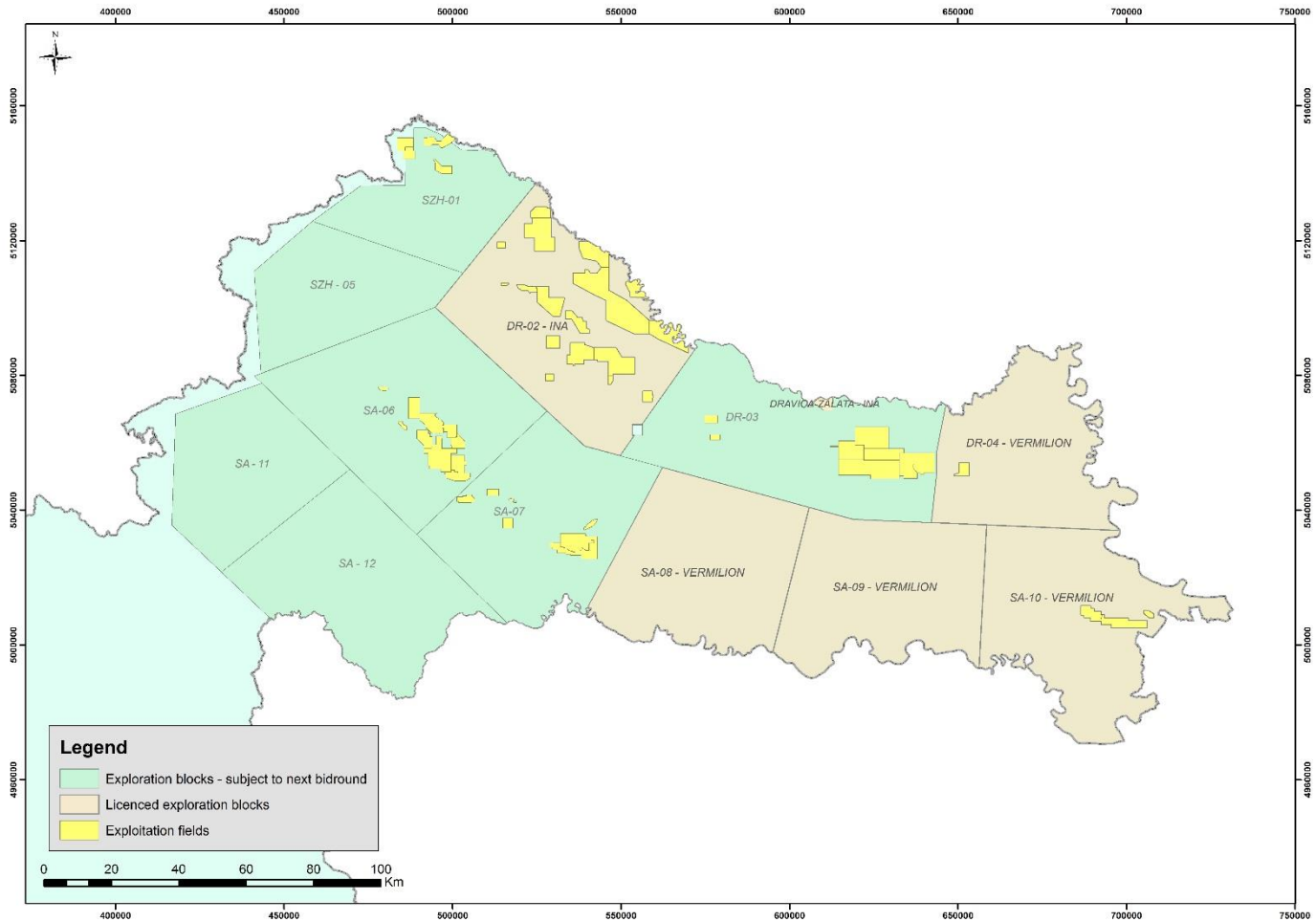


*Offshore overview in
Croatia*

A brief overview

-  E&P in Croatian onshore and offshore – past, present, future
-  Legal framework – OSD implementation
-  Coordination as the Competent Authority
-  Coordination duties and responsibilities
-  Challenges faced
-  Lessons learned and way forward



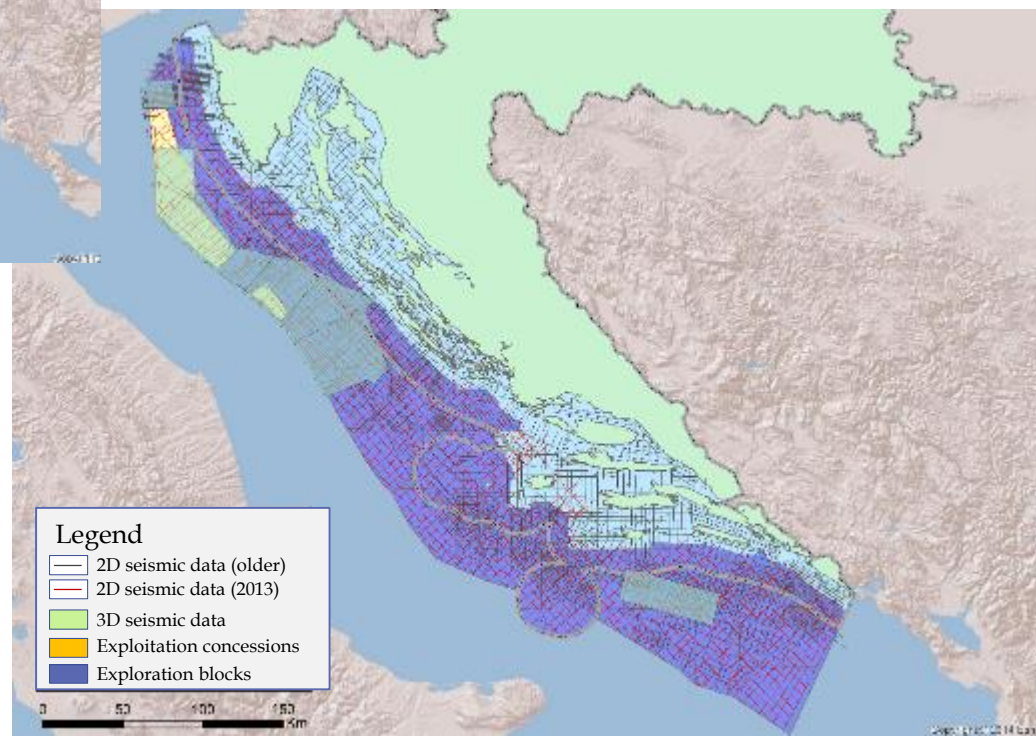


History of exploration and production in Croatian offshore



■ First exploratory wells in early 1970s



■ More than 140 offshore wells

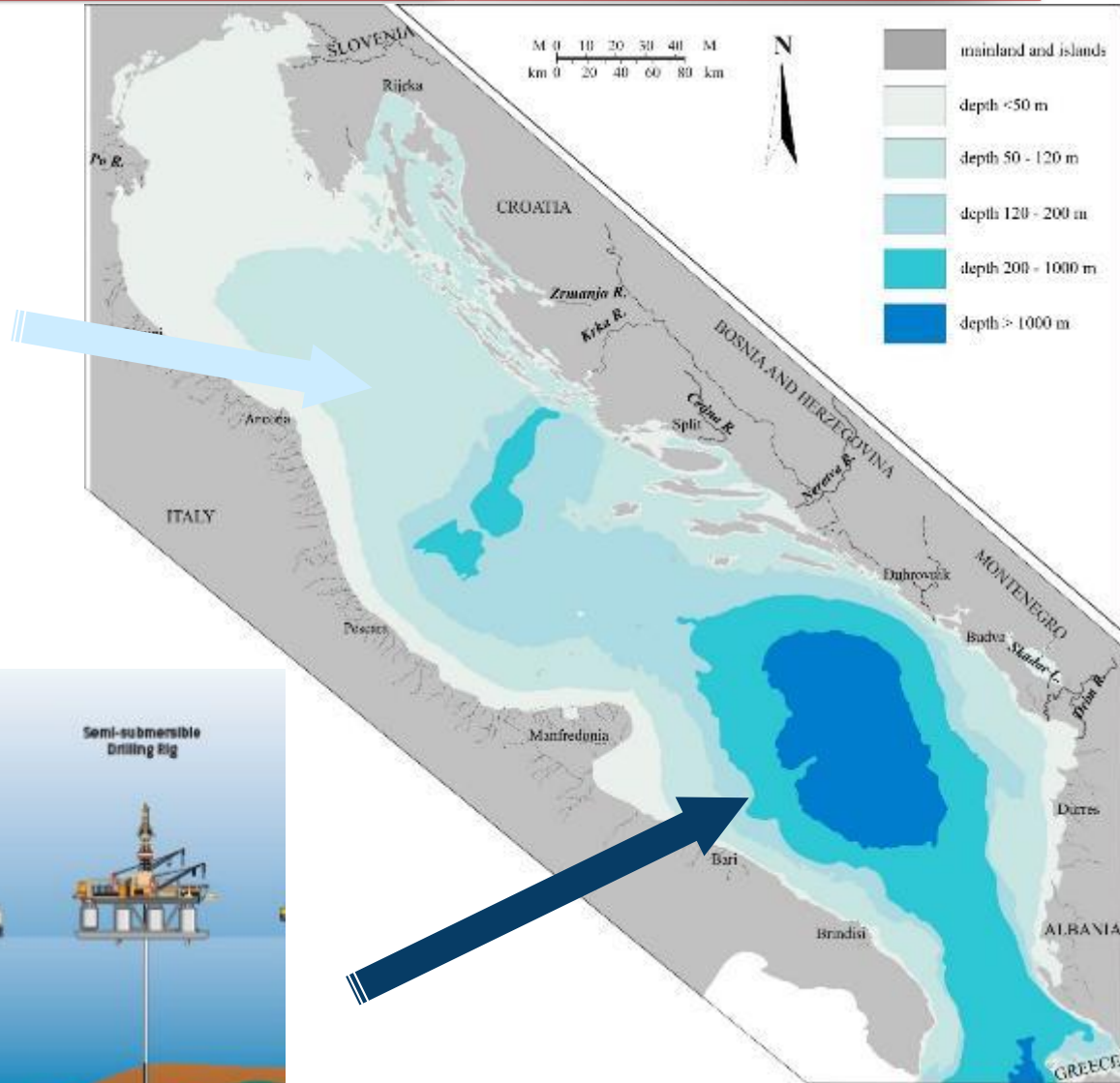
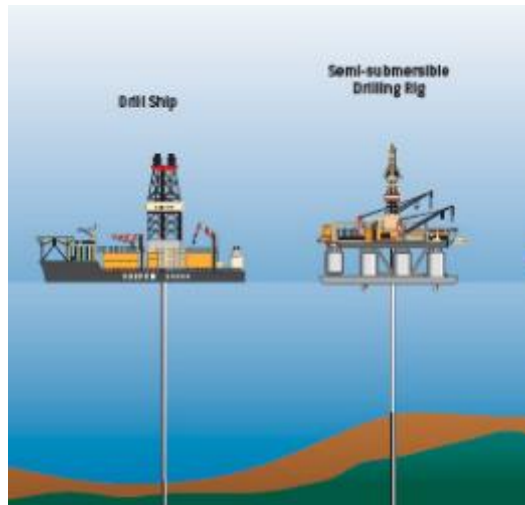


Story of the North and story of the South Adriatic



Two main differences

-  Sea depth (jack-up & semi - sub)
-  Geologic model

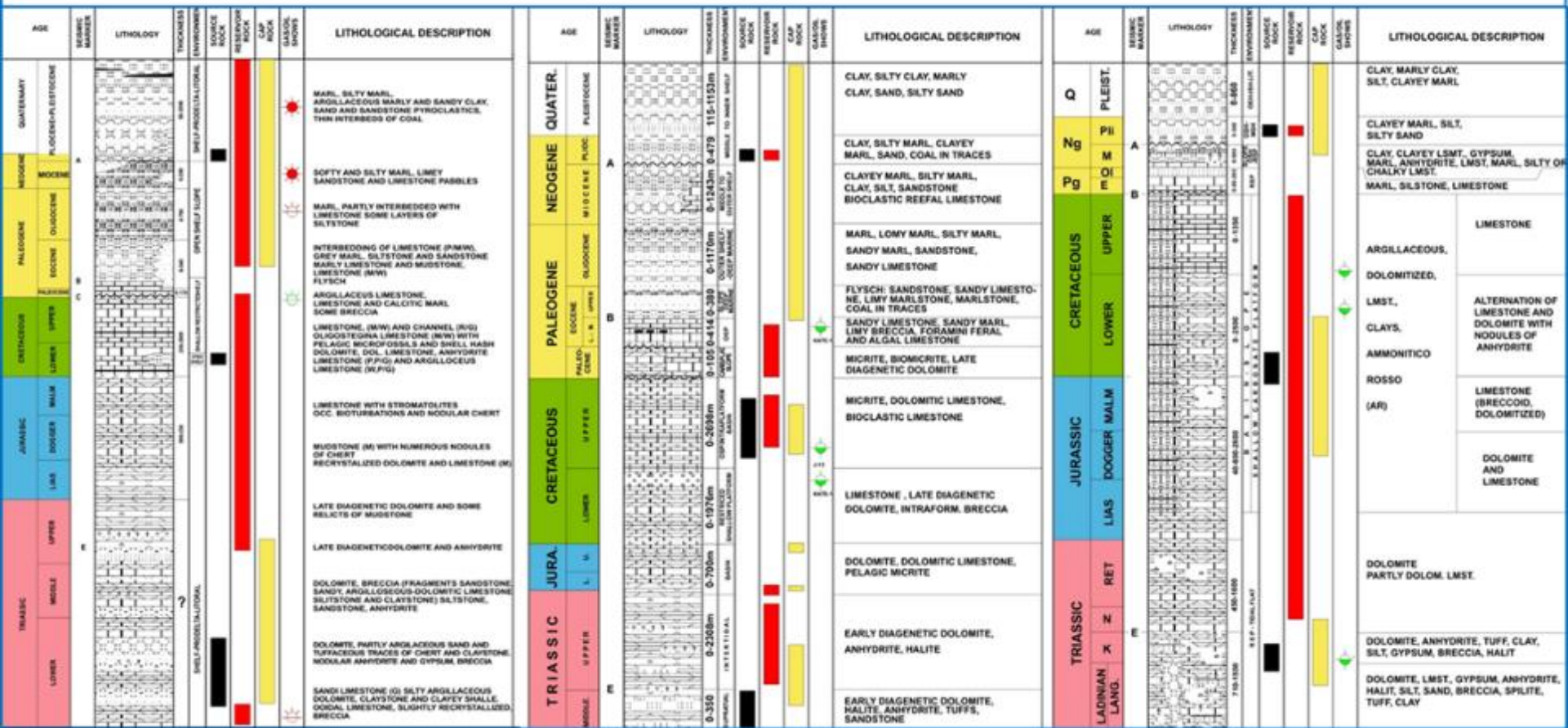


Story of the North and story of the South Adriatic

Northern Adriatic

Central Adriatic

Southern Adriatic



Story of the North and story of the South Adriatic

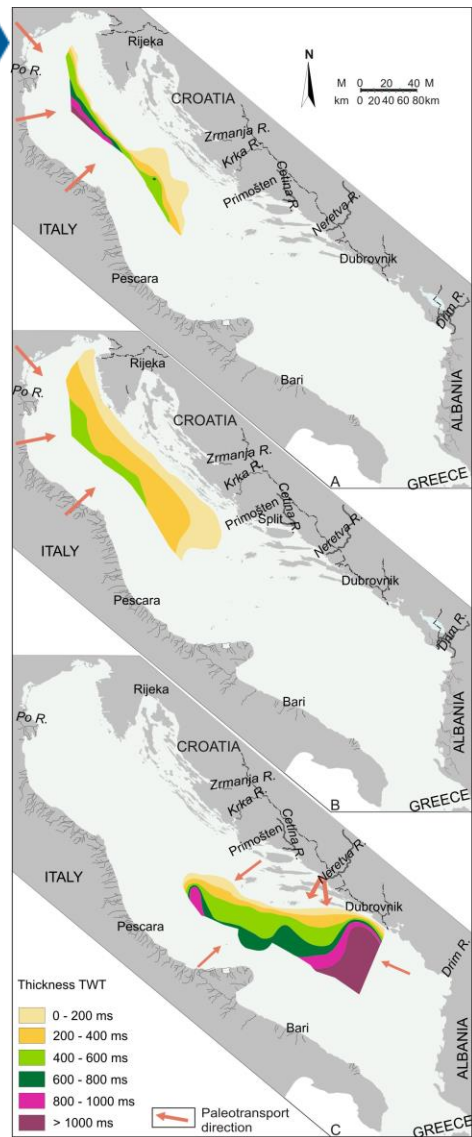


Fig. 7

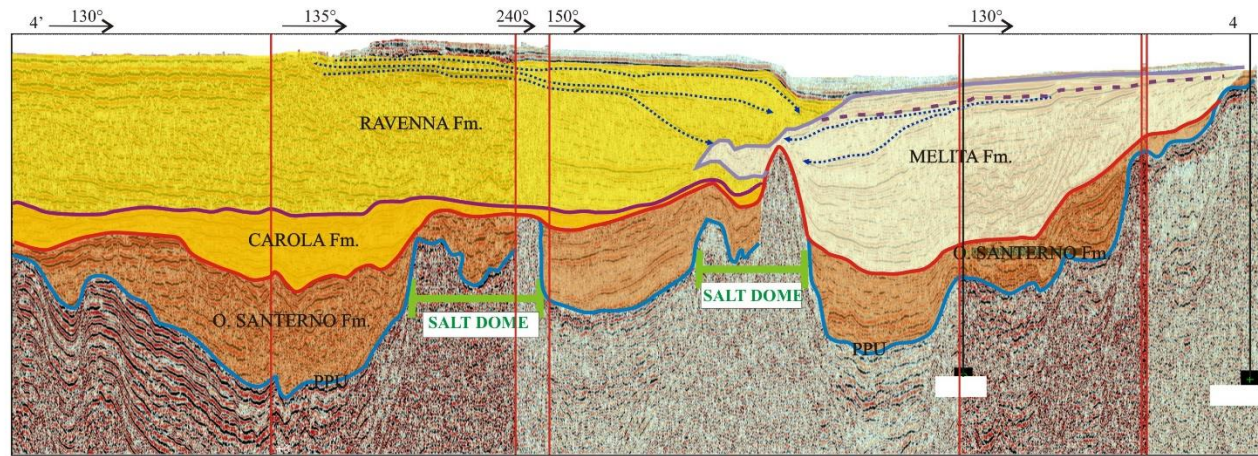
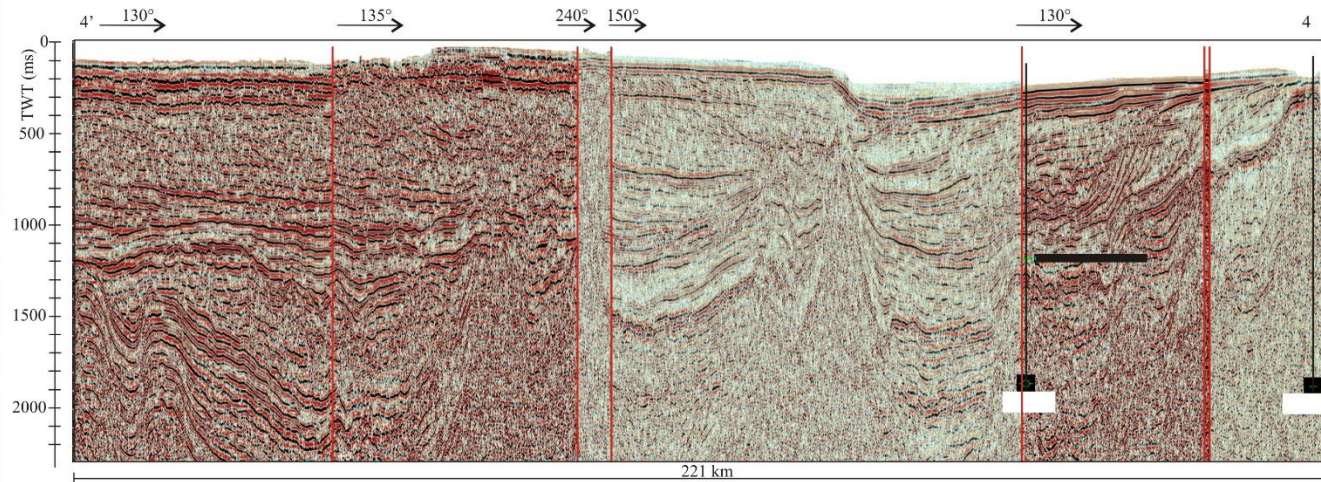
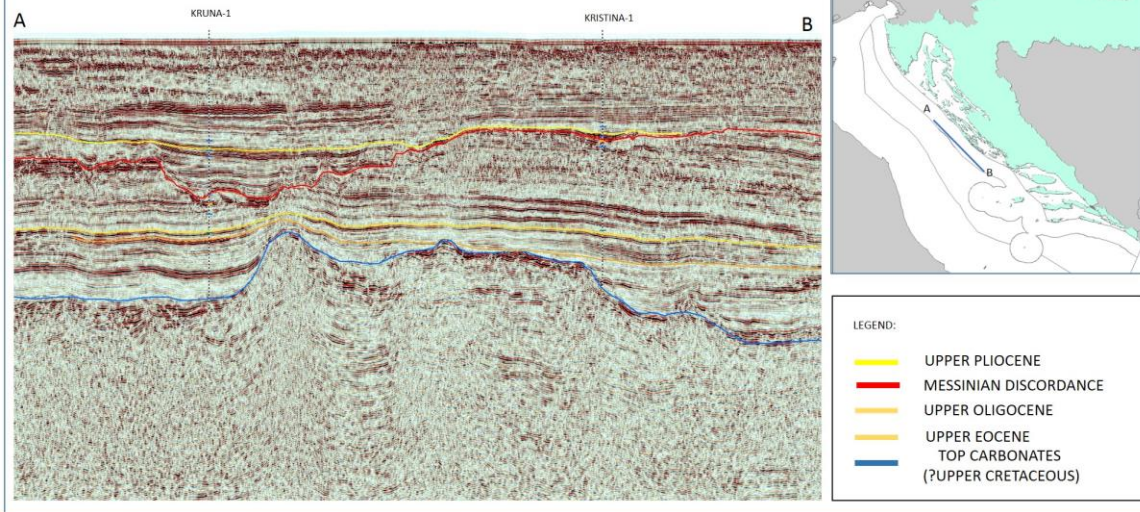
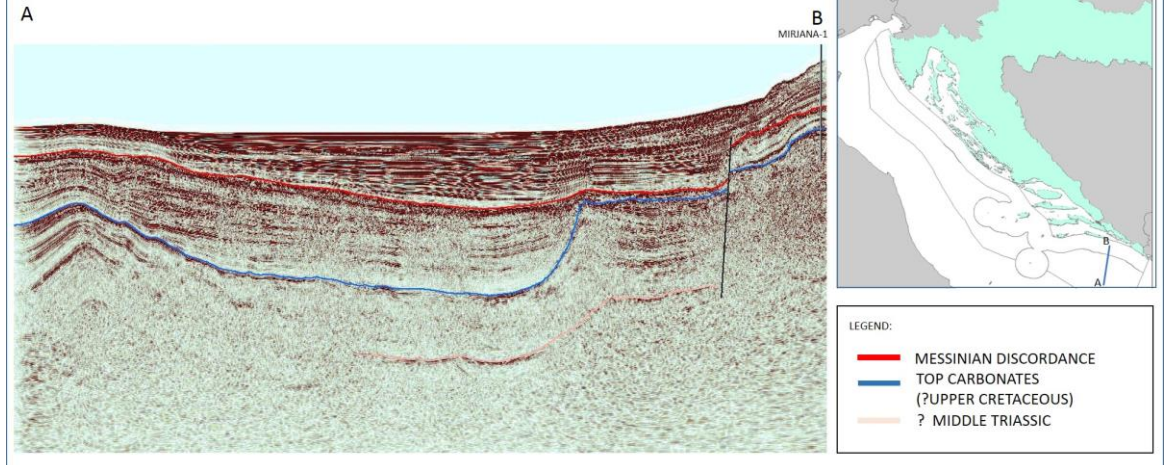


Fig. 5

SEISMIC LINE EXAMPLE – CENTRAL ADRIATIC



SEISMIC LINE EXAMPLE – SOUTH ADRIATIC

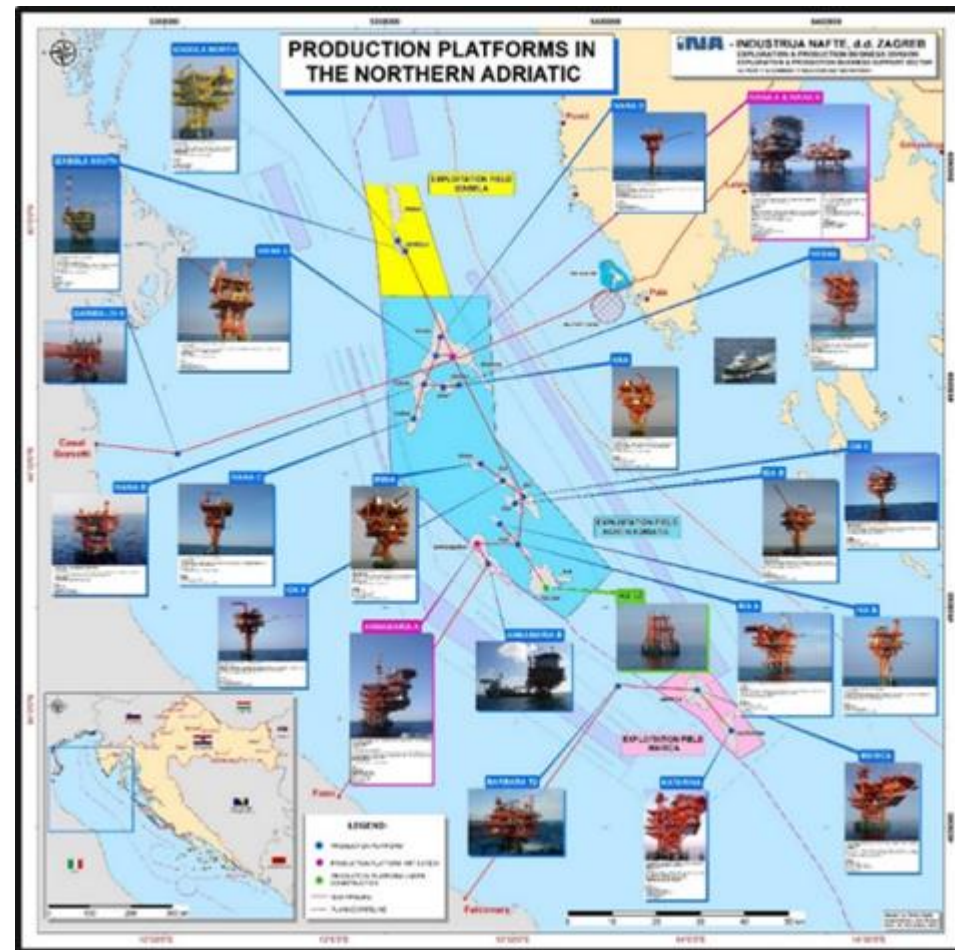


Current status:

- ❑ In late 1990s start of production of gas in northern Adriatic
- ❑ 3 exploitation field; biogenic gas
- ❑ 20 installations (19 production, 1 compression), 21 pipelines (640 km pipelines)
- ❑ All installations still producing
- ❑ by the end 2017. ca 18,2x 10⁹ m³ or 110,2 MM boe gas produced

Planned activities:

- ❑ New activities on existing production fields/installations
- ❑ In the future - open door policy



2013

2015

2017

OSD

Act on the Safety of Offshore
Exploration
and Production of
Hydrocarbons

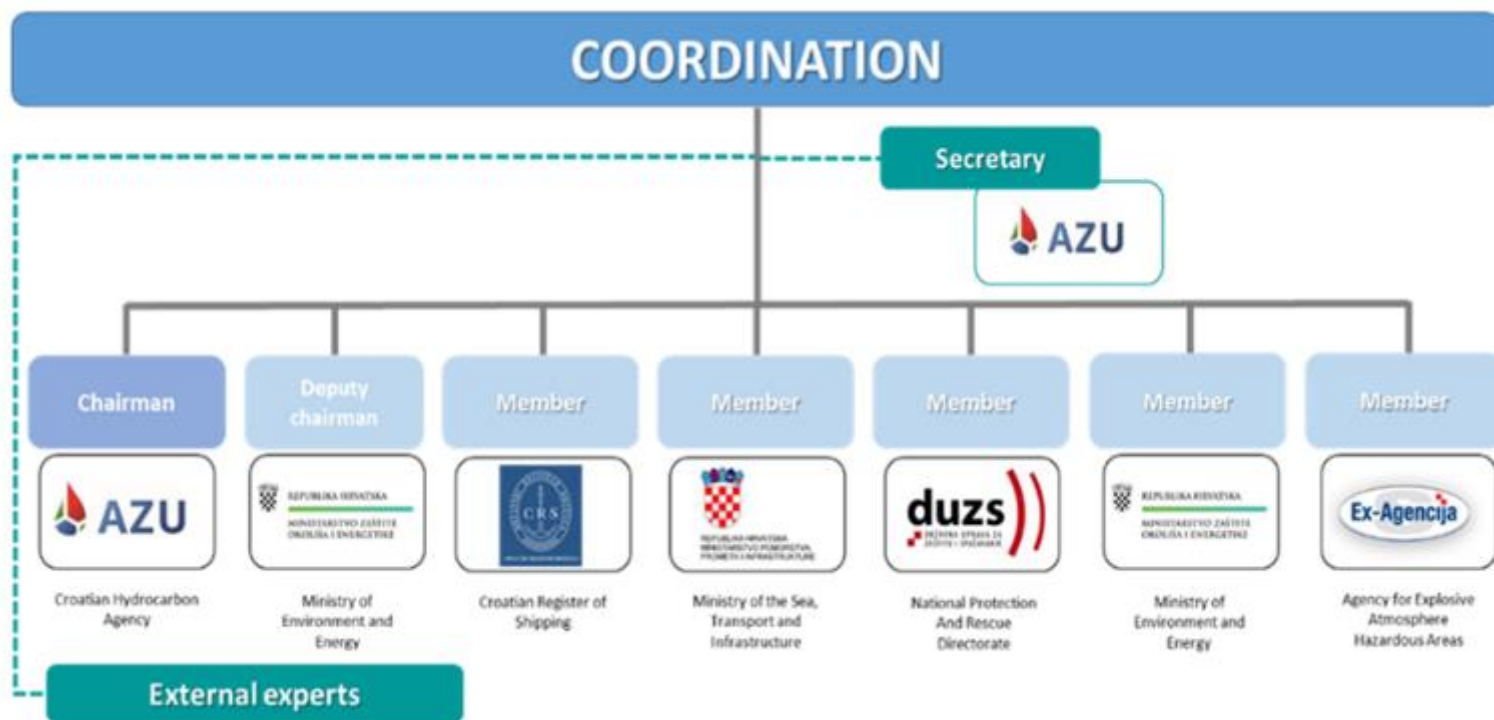
Regulation on the Coordination
for the safety of offshore exploration
and production of hydrocarbons

- Corner stone for offshore safety framework, applies to future and to existing installation
- The main goal - reduce the risk of a major accident to an acceptable level
- demands for suitable control measures

- ☒ Coordination as CA
- ☒ main piece of legislation transposing the OSD
- ☒ necessary documentation for offshore hydrocarbon exploration and exploitation

- ☒ details of CA organization and functioning
- ☒ nomination of members/relieve of duty
- ☒ assessment and acceptance of documentation
- ☒ document drafting, reporting, funding

Coordination as Competent Authority



- CHA in charge of administrative and operational duties
- none of the members involved in the offshore economic development/licensing of offshore oil & gas activities



GUIDELINES

rules, processes and procedures for thorough assessment

hazards, risk analyses, control and measures
safety and environmental and nature management system

mechanisms for tripartite consultation and confidential reporting

independent verification



CONTROLLING

Requesting & participating in inspections
participating in safety drills

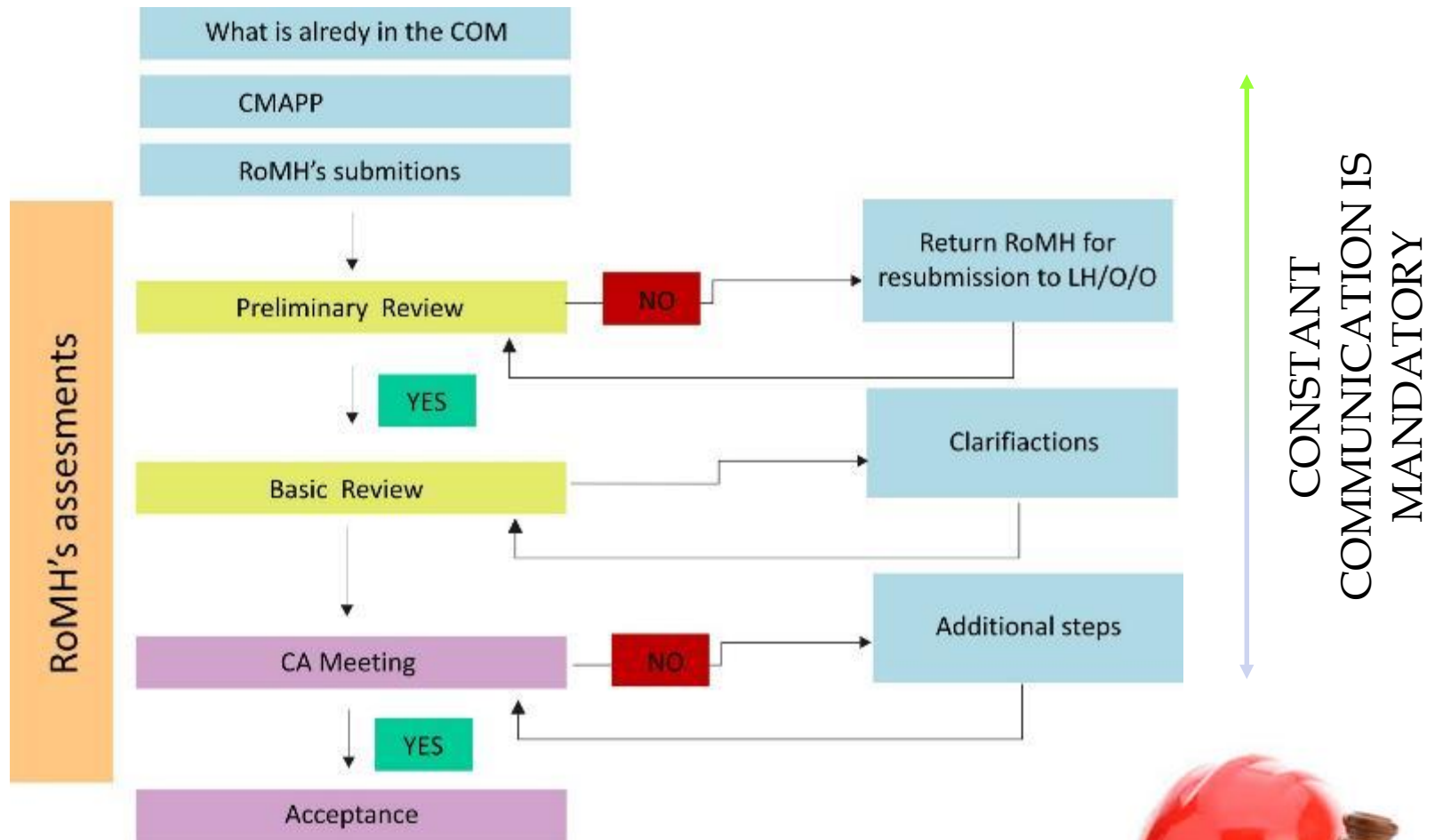
Develop procedures for assessing the capability of operators/owners

Develop annual plans for effective oversight of risks based on risk management and RoMHs







EVALUATING OPERATOR/OWNER COMPETENCE AND COMPLIANCE

Lessons learned- Experience during RoMH's assessment





Some of recommended criteria to be met by bodies performing independent verification (publicly available)

-  **3rd Party** - does not depend on operator or owner of the offshore installation, well or well design, to ensure objectivity in carrying out his or her functions under the scheme
-  should have **suitable technical competence**, including where necessary, suitably qualified and experienced personnel in adequate numbers (detailed technical and expert qualifications, suitable knowledge and understanding of applicable requirements)
-  Management System and independent verifier's Quality System should be **certified** accordingly (evidenced by copies of certificates): Standard ISO 9001 to include, inter alia, offshore gas and oil activities and pertaining services of risk assessment and verification, Standard ISO 14001, Standard BS OHSAS 18001, QSCS IACS scheme (recommended)
-  suitable **number of reference** projects of risk assessment, SECE verification, well verification and final verifications under the Act and/or Directive 2013/30/EU (not less than three references for each activity recommended; to be evidenced by a confirmation issued by contractor)





Lessons learned and way forward

Chosen model of CA organization

-  taking care of covering whole range of disciplines needed for fulfilling duties and responsibilities, assuring adequate funding
-  advantages of this model of organization (highly experienced members with different expertizes, possible use of knowledge of their organizations)

Resources

-  using all the available tools for education
-  communication with other EU CAs, cooperation with government authorities, academic institutions

Industry readiness level

-  constant communication necessary

Final conclusion – issues exist, but level of offshore safety higher then before!